

UKRAINE'S ROAD TO RECOVERY

Edited by Yuriy Gorodnichenko & Serhiy Stepanchuk



Foreword

by Jamie Arrowsmith, Director of Universities UK International

Since the start of Russia's invasion of Ukraine, the global academic community has demonstrated steadfast support for their peers in the higher education and research community, looking to offer short-term tactical support at the same time as working closely with Ukrainian partners to galvanise longer-term strategic efforts that will help to both sustain the research community and directly contribute towards reconstruction efforts.

It is clear that, as a result of the invasion, Ukraine is confronted with immense challenges. To address the complex and pressing needs associated with recovery and reconstruction, it is crucial that research and evidence is available to guide policymakers. By leveraging the lessons learned from past successes and failures, drawing on a truly global corpus of research, existing scientific expertise can generate innovative and practical ideas to facilitate effective rebuilding efforts.

To help ensure that reconstruction and recovery programmes are shaped, from the outset, by objective and validated evidence, Universities UK International, with support from Research England, UKRI and The Royal Society, commissioned an independent rapid review of evidence to inform recovery in key areas prioritised by

Ukrainian partners. These include the economy, labour market, skills development, population dynamics and the rebuilding of housing infrastructure.

The result of this project, led by the University Policy Engagement Network, is presented in this report. We hope that this work, Ukraine's Road to Recovery, will play some small role in helping to both shape future policies and actions focused on reconstruction, but also mobilise international donors and the private sector to increase their support. It also serves to identify areas the UK's research and innovation communities might prioritise in order to further support the recovery of Ukraine.

As the report shows, Ukraine needs the support of, active engagement with, and collaborations between a multiplicity of stakeholders – and this must include researchers and policymakers from both domestic and international communities.

I hope that this report will serve as a catalyst for academic-policy collaborations in the months and years ahead – and helps inform the direction of future research endeavours, including with partners in the UK, that make a positive contribution to Ukraine's road to recovery.



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Executive Summary: Rebuilding Ukraine

By Yuriy Gorodnichenko, University of California – Berkeley

The Russian invasion of Ukraine brought suffering, death and destruction that has not been seen in Europe since World War II and the Balkan wars. The images of ruined Ukrainian cities, millions of people fleeing the war, funerals of soldiers and civilians, broken lives and families, and the darkness and the cold after Russian missile attacks in the winter of 2022 are impossible to appreciate fully unless one has first-hand war experience. And yet despite the horrors of the war, there is hope that Russian aggression will be defeated, people will rebuild their homes, and life will be peaceful again. In fact, for millions of Ukrainians, it is that firm belief that makes them keep going during the war. But how can one realise this belief, dream, forecast or whatever you call it?

To answer this question, this report gathers leading experts to offer proposals for rebuilding Ukraine to inform the public and policymakers on possible trajectories, tradeoffs and designs. Obviously, the complexity of Ukraine's reconstruction is astounding and, at this stage, any account or policy proposal faces extreme uncertainty but one can start laying the foundations for the policy framework and identify elements necessary for success. As an initial step, this report focuses on several key areas.

First, the report explores what can be done to heal the labour market, a critical component for any reconstruction. Indeed, with nearly nine million Ukrainian refugees outside the country and up to 30% unemployment rate in Ukraine, the country faces enormous challenges in mobilising and allocating its workforce. Every day of the war exacerbates these challenges thus calling for immediate action to mitigate the destruction of human capital, employer-employee links, attachment to the labour force, etc. Despite this most difficult situation, Ukraine has the fundamentals necessary for a rapid recovery. For example, many refugees plan to return to Ukraine after the war is over, the level of education is advanced (Ukraine's PISA scores are similar to Italy's), and public works should create strong demand for labour even when private businesses may be unable to operate in areas directly affected by the war.

However, there are some structural barriers to the recovery. For example, the state of the country's labour market before the war was fairly weak, which reflected rigid regulations, a large informal sector, and a sizable and growing mismatch in skills. Given the massive reallocation of resources needed during reconstruction, labour markets should be liberalised to facilitate the flows to areas and sectors rich in jobs. To this end, labour market policies should focus not on protecting jobs, but on providing insurance. A level playing field in terms of regulations and taxation will be necessary to ensure that businesses and workers will choose to be a part of the formal economy and thus one can avoid a dual labour market. This calls for a wholesale rather than piecemeal reform of the labour market.

Second, a sustained recovery would be impossible if it is not supported by significant investments in human capital and demography. In this context, developing a robust childcare system is essential for supporting growth. Specifically, even before the war, Ukraine faced negative demographic trends with fertility rates well below levels necessary to maintain the population. The Russian kidnapping of Ukrainian children deepens the crisis. Although the government had a series of programmes to support families (eg, the government provided funds to families with infants), the availability and affordability of childcare remained a limiting factor. With many men killed in the war, women are more likely to become breadwinners and thus need access to childcare to enable

them to participate in the labour market. By providing a robust, affordable childcare network, Ukraine can not only release more labour in the short term but also help address demographic challenges. There are other long-term benefits from committing more resources to this area. For instance, extensive research shows that childcare plays a fundamental role in shaping the cognitive development of children, which stimulates the accumulation of human capital at subsequent development stages.

More generally, Ukraine needs a massive investment to compensate for huge schooling deficits (due to the war and the COVID-19 pandemic) and to upgrade the system of education. To be clear, the objective of this investment should be quality rather than quantity. For example, adverse pre-war demographic trends created an imbalance in the education sector where too many providers were chasing ever-shrinking cohorts of students. Furthermore, vocational education has been largely neglected, which exacerbated mismatches between supplied and demanded skills. As a result, the current system is not only costly but also ineffective in meeting the needs of the labour market. Naturally, the reforms of this sector should not only address the immediate needs of Ukraine's reconstruction—i.e., investment in education and the industrial policy should reinforce each other (e.g., public works can provide training)—but also anticipate broader trends in demand for skills. Public funding that follows students, rewards excellence and promotes competition between providers (including more transparency about job placement and other outcomes) should spur investment in quality. Because the Ukrainian government will likely have limited resources to make such an investment, one should contemplate funding schemes that would allow students to borrow to pay for educational services thus making the education sector more responsive to market needs.

A particular element of the demography-labour-education nexus is the reintegration of veterans and the disabled into peaceful, productive lives. Programmes designed to

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help these groups will help minimise the scarring effects of the war and boost labour supply, relaxing post-war labour shortages. To this end, the first step is to recognise the negative effects of post-traumatic stress disorder on health and employment prospects and the special needs of the disabled. Apart from financial incentives to hire these groups, society should become more inclusive for millions of fellow citizens.

Third, the experience of post-World War II reconstruction suggests that shortages of housing are a major impediment for recovery because they affect the quality of life in so many ways (eg, how many children a family can have, how much space one can have to study, how many hours one can work, etc). Consistent with this historical record, many Ukrainian refugees indicate that access to housing is a key consideration for their decision to return to Ukraine. According to the estimates of the Kyiv School of Economics, Russia destroyed or severely damaged approximately 7% of the housing stock in Ukraine, and thus many people have no home to return to. This means that early reconstruction efforts should concentrate not only on rebuilding critical infrastructure but also providing affordable, quality housing. Some work in this arena is already underway (eg, the Ukrainian government uses modular homes to house internally displaced persons) but, to meet the demand for housing, one must develop a deep private market for home building and provide a framework to finance it. Specifically, Ukraine needs to establish a functioning system for mortgages. With much of the household wealth wiped out during the war, government involvement will be necessary to provide equity, liquidity and insurance.

Fourth, over 450 days of Ukraine's resistance make abundantly clear that the war economy is a hostile environment. Russia's barbaric, indiscriminate attacks on shopping malls, bus stops, warehouses, and production facilities take a huge human toll. In addition, such attacks create enormous disincentives for any investment and economic activity as businesses confront a discernable chance that they can be the next victim. In a similar spirit, the vast minefields present high security risks. Not surprisingly, capital expenditures plunged by more than 30% and the construction industry shrank by nearly 70% since the Russian invasion. These factors combined with the climate of acute uncertainty can severely impede the recuperation of private businesses. Hence, the need to de-risk economic activity is paramount. At the same time, few insurance companies would have the appetite to offer affordable policies and hence "war insurance" will have to be offered or heavily subsidised by the Ukraine government and its allies. The World Bank's Multilateral Investment Guarantee Agency (MIGA) can provide a template for such insurance, but the scale of the operation will be vastly larger than MIGA and thus private capital is needed.

This short overview of the areas covered in the report highlights how complementary and intertwined reconstruction programmes are. Labour market programmes must be supported by investments in education which depend on access to housing, which in turn hinges

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on the ability of the government to ensure war risks. Because each of these areas may be covered by a different agency—Ukrainian or international—there is a high risk that synergies from a concerted effort may be not realised. Coordination of reconstruction efforts is critical to fully utilise the potential. Keeping in mind this consideration as well as the need to have evidence-based programme evaluation, every chapter calls for improved measurement and data collection to have high-quality, real-time information on the state of the country.

The overview also indicates that the reconstruction requires huge resources. Ravaged by the war, Ukraine will not be able to meet such demands and will need support from its partners and allies. This support can take a variety of forms ranging from military hardware (to secure the borders), to financial aid (to pay for bridges, schools, etc), to expertise (to develop effective policies). Again, given the fragmentation of donor support in previous reconstruction efforts, it is vital to coordinate international aid. The unity of Ukraine's coalition gives us hope that support to Ukraine will be institutionalised into a well-funded agency staffed by a motivated and qualified cadre.

Will post-war reconstruction bring prosperity to Ukraine? The task is so monumental that many will doubt whether Ukraine—and its friends—can deliver. But Ukraine has surprised the world by being brave, creative and resilient despite the longest odds. Challenges can be turned into opportunities, deficits can spur creativity, courage can overcome fear. These ingredients coupled with good planning can do wonders. So, we need a plan, and this report helps to develop strategies to make dreams come true.

The key role of research and development in reconstruction efforts

The Academic research offers an unparalleled resource that can contribute to successful reconstruction and post-war recovery. It can connect to a wide range of recovery tasks, including transformation of economy, re-pooling human capital depleted by war and displacement, rebuilding the energy and infrastructure sector, reimagining regional and urban development, and ensuring better governance.

From the outset of Russia's full-scale invasion of Ukraine, the academic community mobilised to share expertise and knowledge from other war-time and post-war recovery cases to inform effective decision-making. The lessons learned from past cases including Germany, Japan and South Korea, will be invaluable in driving successful reconstruction and development in Ukraine.

Ukraine has a great opportunity to reconstruct and modernise for the new economy it is destined to become, learning from the best available research evidence and best practice from around the world. The country can leapfrog development stages, building on its vibrant communities and rich resources. For this to come to fruition, it needs evidence and visionary thinking on how to lead successful recovery, which is not about rebuilding to the pre-war state.

On this path, research is vital, and this report is an effort by leading academic experts to contribute to a coordinated Ukraine reconstruction plan. The intention is to help ensure reconstruction and recovery programmes are shaped, from the outset, by objective and validated evidence.

In Ukraine's Road to Recovery, the authors look at the main economic trends before the war, the damage caused by the war, and propose a way forward. They highlight some of the main challenges and offer solutions for recovery in key areas including the labour market, education and skills, population dynamics, war insurance, and housing.

The report provides compelling evidence and in-depth case studies across several key areas that are crucial for Ukraine's recovery. The first three

Chapters of the report shed light on the demographic consequences of the war and their profound impact on the Ukrainian labour market. Chapter 1 focuses specifically on the Ukrainian labour market, examining pre-existing issues that were further exacerbated by the war, particularly due to mass migration and regional disparities.

A key challenge identified in this chapter is the skills mismatch. To address this challenge, chapter 2 draws on evidence from various countries, including the UK, to propose reforms in the education sector. Chapter 3 delves deeper into the demographic crisis in Ukraine, primarily caused by low fertility rates, and considers the impact of mass migration that resulted from the war on Ukraine's population. Chapter 4 examines the health and wellbeing of war veterans and proposes essential measures to provide them with adequate support. Chapters 5 and 6 discuss wartime and post-war economy, including key monetary reforms and insurance policies that are crucial for securing business-friendly environment, attracting foreign direct investments and organising effective aid to Ukraine.

Finally, Chapter 7 looks at the issues of urban development and rebuilding of infrastructure sector, particularly residential housing in Ukraine.

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Summarising robust research evidence and established best practice the report highlights that:

- Human capital is key for successful recovery and a focus on people is essential. Even before the war, the Ukrainian labour market was characterised by an increasing amount of mismatch between the set of skills sought after by employers, and the skills workers were able to supply. A key principle is Ukraine's education policy must be designed hand-in-hand with Ukraine's future industrial policy.
- Ukraine needs to make its labour market attractive to those who have been forced to leave the country by creating favourable conditions for their return. Labour market policies should focus on creating a level playing field in terms of regulations and taxation.
- The UK and international academic community are ready to support Ukraine with developing a Roadmap for Economy in the years to come that would set it on the right path to success and modernisation, and would include three major interconnected strategies: labour market strategy (including forecast and modelling), education and skills strategy (including skills for the future), and industrial policy strategy.
- Ukraine needs a significant investment in the education system ensuring quality rather than quantity with a focus on both higher education and vocational training to meet the demands of the labour market. Good skills development is a long-term process and will take time. Ukrainian government will need to develop policies to address likely short- and longer-term skills deficits to aid economic growth and productivity. This will likely be costly, so going forward more thought is needed about the ways funding can be made more sustainable in the long term. The UK also has a long tradition in doing this, and can share its experience in this area.
- During its recovery stage, Ukraine has a unique opportunity to recognise the problem of severe depopulation and labour shortages and enact policies to counteract fertility decline. The country can develop a robust childcare system that supports and helps women participate in the labour market. This is one of the most successful ways for countries to ensure lasting increase in birth rates.
- Ukraine needs to reform its regulatory system for social and retirement support for war veterans. It must consider not only the current cost of caring for veterans, but also future obligations, as veterans' age. Disabilities, and "signature" disabilities in particular, degrade veterans' perception of employment prospects. Ukraine requires policies to support war veterans in securing employment.
- Early reconstruction efforts must concentrate on rebuilding critical infrastructure and provide affordable, quality housing. Private funding is essential for this effort. To mobilise private funding, with the support of the international community, Ukraine could set up a development bank, which could help establish a functioning system for mortgages.
- Finally, to guide successful recovery policy, the importance of data collection and data availability cannot be overstated. Ukraine needs to improve the measurement and data collection of high-quality, real-time information on the state of the country, including demographic changes, labour market, health, and wellbeing. The UK has outstanding expertise to support Ukraine with reforming of the data collection system.


To conclude, the work of rebuilding has already begun, and the academic community stands ready to support Ukraine's recovery process.

Note: The 'Ukraine's Road to Recovery' report and individual contributions are the independent views and work of the authors, and are not necessarily endorsed by the project funders: Universities UK, Universities UK International, Research England and UK Research and Innovation.

Chapter 1:

Ukraine's labour market: the past, the present and the future

By Olga Kupets, Kyiv School of Economics, Oleksandra Betliy, The Institute for Economic Research and Policy Consulting and Fabien Postel-Vinay, University College London



Human resources are key inputs into production and important drivers of economic growth. In this chapter, the authors examine some of the main issues and challenges that were confronting the Ukrainian labour market prior to the Russian full-scale invasion in 2022. It is likely that many of these issues will persist, and some may even be intensified in the aftermath of the war, and will need to be addressed to speed up the reconstruction process. The chapter assesses developments in the Ukrainian labour market since the start of the war, and the likely challenges during the reconstruction period and recommended policy responses.

Labour market issues before the full-scale invasion in 2022

The Ukrainian labour market faced several considerable challenges even before the start of the Russian invasion (World Bank, 2012; Arias et al., 2014; Maurizio et al., 2015; Kupets, 2016a; Del Carpio et al., 2017). Those are reviewed below.

Labour supply: shrinking labour force and low participation rates

Ukraine has an ageing and shrinking population, which mainly stems from low fertility rates, high mortality rates, and substantial emigration among the working-age population. Over the medium to long term, this will have a strong negative effect on the Ukrainian labour market. Labour force projections for Ukraine, based on the UN World Population Prospects 2015, showed that even under the most optimistic scenario in which labour force participation rates would exceed 90 per cent in all adult age groups (25 to 64 years) by 2060, Ukraine would not be able to avoid a substantial decrease in the labour force (Kupets, 2016a).

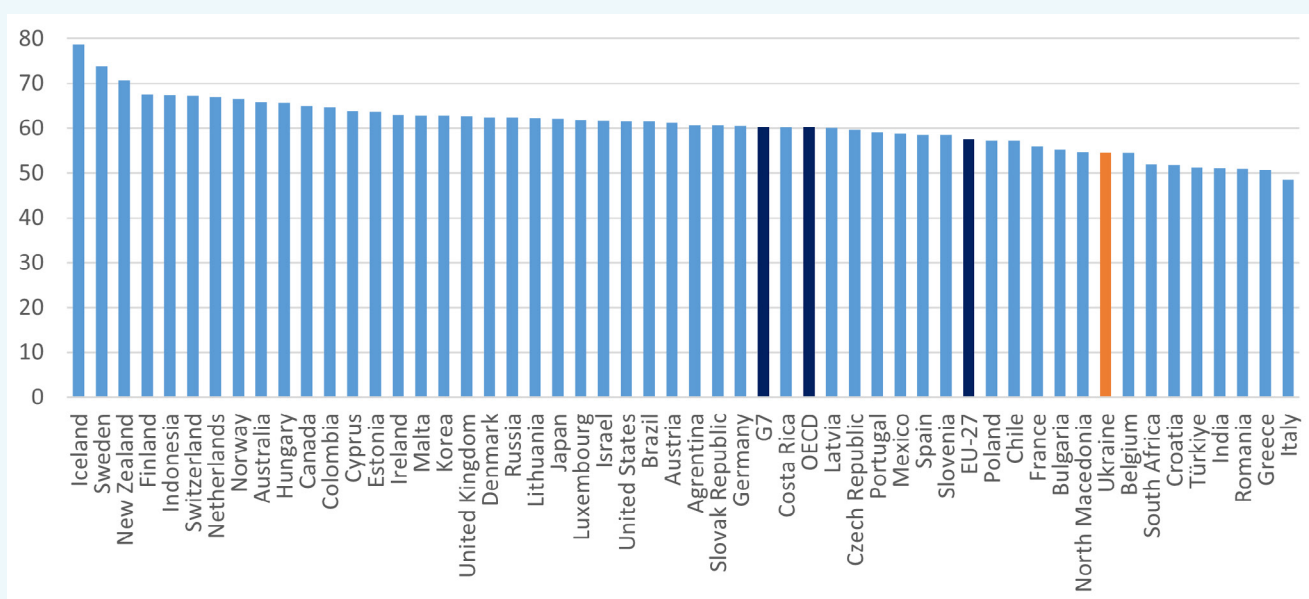
Ukraine witnessed a large decline in its labour force between 2013 and 2021, due to a drop in the total size of its population and labour force participation rates. Following the annexation of Crimea and the occupation of Donbas by Russia in 2014-2015,

and the COVID-19 containment measures taken by the Ukrainian government in 2020-2021, Ukraine's labour force in government-controlled areas reached a record low 17.3million people aged 15-70 years in 2021 (Table A-1). For comparison, the labour force in 2013 was approximately 22million people within the original territory of Ukraine, and close to 20.8million people if the Crimean population is not counted. Over the same period, labour force participation and employment rates declined by over four percentage points, whereas the unemployment rate increased by 2.5 percentage points (Table A-1).

As of 2021, the labour force participation rate in Ukraine of individuals aged 15 and older (54.6%) was lower than the EU-27 average (57.5%) and OECD average (60.3%) (Figure 1). Ukraine not only performed much worse than many advanced economies, but also worse than transition countries such as Hungary, Estonia, Lithuania, the Slovak Republic, Latvia, the Czech Republic, Slovenia, Poland, and Bulgaria.

Like in many other countries, labour force participation rates were especially low among women aged 25-39, younger workers (aged 15-29), older workers (60 or older) and low-educated individuals (Table A-2). Increasing the labour force participation among these population groups could at least partially offset the war-related losses in the workforce.

Figure 1. Labour force participation rate in Ukraine and selected countries, individuals aged 15 and above (% in same age group), 2021*



Source: OECD (<https://data.oecd.org/emp/labour-force-participation-rate.htm>), 2021 or latest available (2019 for Indonesia, 2020 for India and North Macedonia); State Statistics Service of Ukraine.

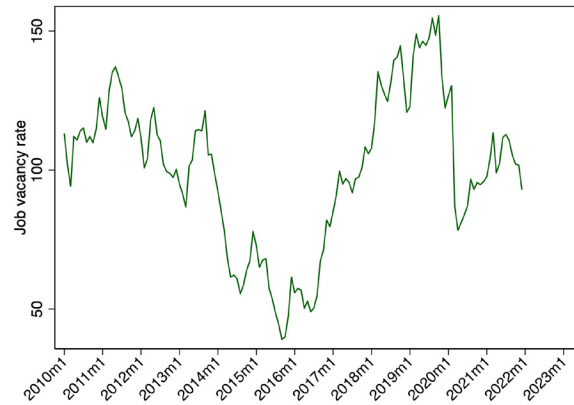
Labour demand: stable but unevenly distributed (registered) job vacancies

There are no easily available statistics on posted job vacancies from private job portals and employment agencies. As such, only a segment of the labour market – job vacancies that are registered with the Public Employment Service (PES) – can be analysed.

With this caveat in mind, Figure 2 shows the evolution of the (registered) “Job Vacancy Rate” – a measure of labour demand normalised by the size of the labour force – since the Great Recession. While labour demand fluctuated substantially during that time – with a strong downturn coinciding with the Russian annexation of Crimea and parts of Donbas in 2014-15 – it remained stable on average over the period.

Beyond these apparently stable aggregate numbers, data from the Public Employment Service (PES) suggest that most vacancies reported to the PES at the beginning of 2022 were either in low- and medium-skilled occupation groups or in low-paid jobs for professionals (Figure 3). Over 20 per cent of all vacancies registered with the PES were looking for craft and related trades workers, while only 7.5 per cent of the unemployed belonged to this occupational group. By that measure, labour supply in that particular occupation group exceeded labour demand by a ratio of 2.5:1. Many vacant jobs were also for plant and machine operators and assemblers (16.7 per cent of all notified vacancies), but the number of unemployed competing for available jobs in this occupational group was 7.6 times larger³.

Figure 2 Aggregate Job Vacancy Rate

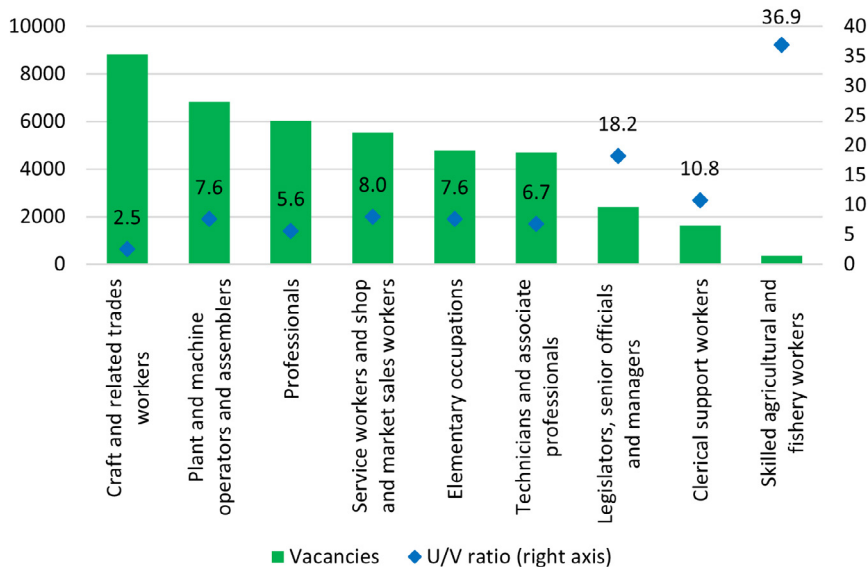


Source: National Bank of Ukraine and authors’ calculations.

The series is seasonally adjusted and normalized to equal 100 on average over the period.

Comparing across different regions of Ukraine, the city of Kyiv City, Dnipropetrovsk and Lviv oblasts had the highest numbers of registered vacancies before the start of the war (their respective shares in the total number of registered vacancies in Ukraine was equal to 18.7, 12.3 and 9.7 per cent). By contrast, Vinnytsia, Luhansk, Zaporizhia, Kherson and Cherkasy oblasts were facing very unfavourable labour market conditions, with over 23 unemployed individuals per vacancy at the beginning of 2022.

Figure 3. Number of registered vacancies and the U/V ratio by occupation, as of January 1, 2022



Source: PES statistical reports (www.dcz.gov.ua)



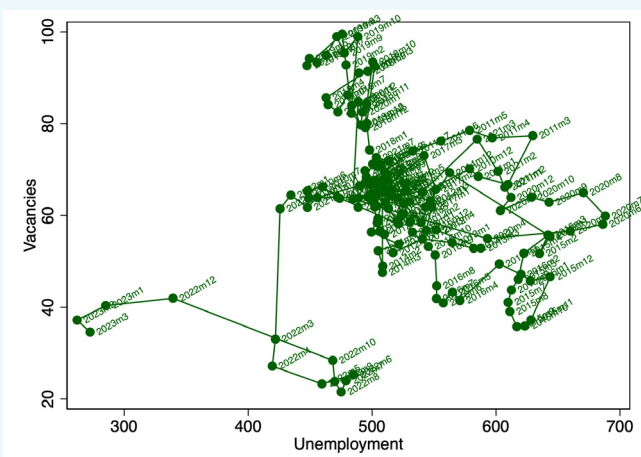
Bringing labour demand and labour supply together: measuring labour market mismatch

A useful tool to assess the efficiency with which the labour market brings supply and demand together is the Beveridge curve which is a plot of the job vacancy count (a measure of labour demand) against unemployment (a measure of labour supply). Figure 4 shows such a plot for Ukraine over the period January 2010 – present⁴. The Ukrainian Beveridge curve shows the typical negative correlation between unemployment and job vacancies. It also clearly shows the impact of the recent full-scale invasion.

By combining the Beveridge curve with data on the unemployed Job Finding Rate (see below), we can construct a measure of the effectiveness of the labour market in matching job-seeking workers to vacant jobs (Figure 5): a lower value of this measure means that, out of the same number of vacant jobs and unemployed workers, fewer jobs are created, meaning that the labour market is less effective in getting labour demand and labour supply to coincide.

Figure 5 suggests that matching efficiency has declined in Ukraine by about 15 per cent over the decade 2010-2020. In other words, it took about 15 per cent more unemployed workers and more vacant jobs to generate the same number of hires in 2021 than in 2010.

Figure 4. The Ukrainian Beveridge Curve



Source: National Bank of Ukraine and authors' calculations. The series are seasonally adjusted.

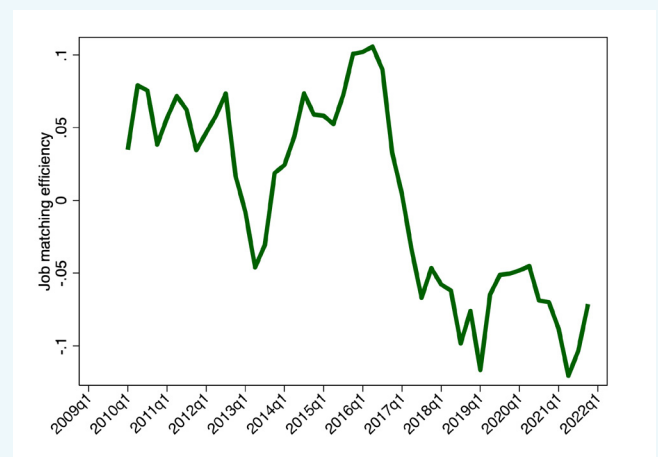
“Encouraging more women, young workers and older workers would help offset the war-related losses in the workforce.”

This could be due to (a combination of) three broad reasons:

- low attractiveness of jobs (for example because of low wages or poor career prospects), causing job seekers to reject many job offers;
- skill mismatch, ie, lack of coincidence between the skills of job seekers and the skills required by employers (Figure 3);
- lack of information on both sides of the market, and low efficiency of the job placement tools available to employers and job seekers.

The relative importance of these three possible reasons is not immediately clear, and more research is needed to gain a better understanding of this question. It is likely, however, that skill mismatch and limited job seeker information play important roles (see below).

Figure 5. Aggregate matching efficiency in Ukraine



Source: National Bank of Ukraine, State Statistics Service of Ukraine, and authors' calculations. The series are seasonally adjusted.

Dynamism of the Ukrainian labour market: job and worker flows

Further insights into the labour market's ability to efficiently reallocate the workforce can be gained by examining job and worker flows. Job flows measure the intensity, or speed, at which old jobs are withdrawn and new jobs are added to the economy. Worker flows measure the ease with which workers find jobs and the risk they face of losing their jobs.

We start with worker flows, as those lend themselves relatively easily to international comparisons. Figure 6 shows aggregate quarterly job finding rates (of unemployed workers) and job separation rates for Ukraine over the first two decades of the century, together with similar series for a group of Western European (OECD) countries (left panel) and a group of “post-transition economies” (right panel).

These plots immediately suggest that, on average, the Ukrainian labour market is quite dynamic – and, in fact, increasingly so over time – with worker flow rates well above the Western European average and in line with the group of post-transition economies.

A recent analysis of gross job flows in Ukraine similarly finds simultaneous job creation and job destruction at fairly high rates in all years over the 2008-2020 period (Figure 7). In 2020 the job creation rate in Ukraine was 6.7% and job destruction rate was 7.9%. For comparison, Hallak and Harasztos (2019), using ORBIS data for EU countries, found that the average job creation rate in the sample of firms over the 2008-2014 period ranged between 4% in France and 14.4% in Romania, while the average job destruction rate ranged between 4.3% in France and 13.9% in Romania.

Figure 6. International comparison of aggregate worker flows

Source: State Statistics Service of Ukraine and authors' calculations.

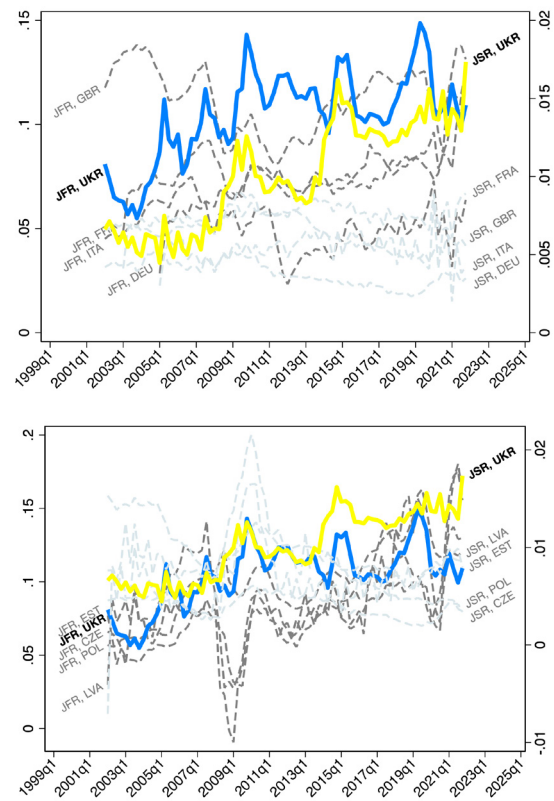
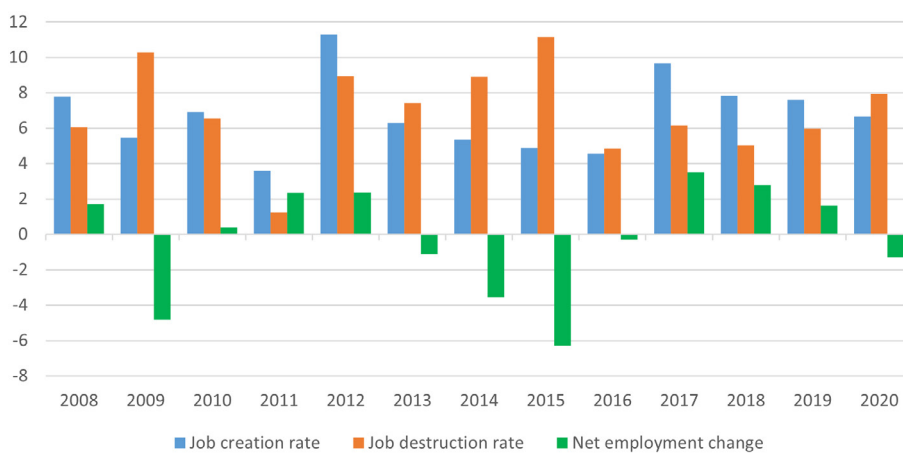


Figure 7. Job creation and job destruction rates in Ukraine (%), 2008-2020



Source: Kupets (forthcoming), based on ORBIS datasets for incumbent firms with at least 10 employees in 2017 and 2022, excluding firms registered in Crimea and Sevastopol city and excluding firms whose main activity was in Finance and insurance activities, Public administration and defense, Education, and Health care and social work.

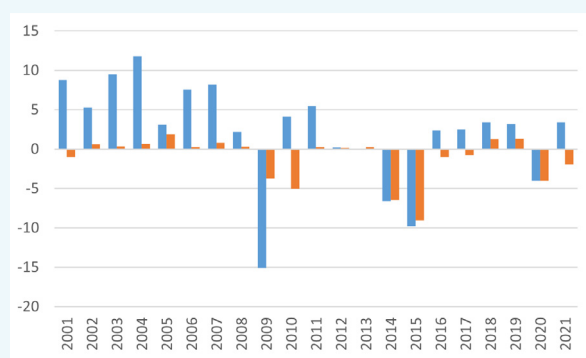
Note: Job creation rate is the increase in employment in expanding firms expressed as a proportion of total employment. Job destruction rate is the absolute value of the decrease in employment in contracting firms as a proportion of total employment. Net employment change is the difference between job creation and job destruction rates.

Data on worker and job flows consistently suggest that the Ukrainian labour market is quite dynamic. That may come as a surprise, given the perceived rigidity of the Ukrainian Labour Code, the core of which dates back to 1971. High rates of worker and job turnover observed despite strict legislation on job protection suggests that the labour code is, in fact, largely ineffectual, and that employers find ways to avoid it – typically by using atypical or informal forms of employment. This is in line with findings of the 2014 World Bank STEP survey of Ukrainian employers in four sectors (Agriculture, Food Processing, Renewable Energy and IT), according to which employment protection legislation was far less important as a constraint on firms than high labour costs or the lack of an adequately skilled workforce (Del Carpio et al, 2017), and suggests that the labour code is in urgent need of revision.

Putting the pieces together: declining employment and low job creation in high-tech industrial sector

Employment among 15-70 year-olds declined in 2009 following the Great Recession, then in 2014-2015 after Russia's invasion of Crimea and Donbas, and then again in 2020 (due to COVID-19). It rebounded very slightly when the economy started growing again (Figure 8). The jobless growth observed in Ukraine before the global economic crisis in 2009 was attributed to the slow pace of institutional reform (notably the reform of labour markets institutions), stopping the Ukrainian economy from moving onto a virtuous circle of simultaneous productivity growth and net job creation, as was observed in Poland and other early reformers (Arias et al, 2014). Although the

Figure 8. Evolution of real GDP and employment in Ukraine, 2001 – 2021*



Source: State Statistics Service of Ukraine, authors' calculations of employment growth based on the LFS data on employment of population aged 15-70 years.

Note: * In 2001-2009 statistics are provided for the original territory of Ukraine as of 1991, in 2010-2013 for the territory of Ukraine excluding Crimean AR and Sevastopol city, and in 2014-2021 for the territory excluding Crimean AR, Sevastopol city and temporarily occupied territories of Donetsk and Luhansk oblasts.

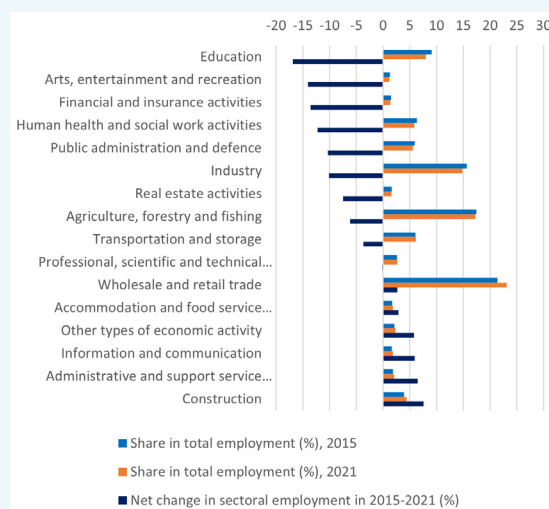
Ukrainian economy achieved some productivity improvements due to restructuring and modernisation of the economy at a later stage, persistent constraints to productivity-enhancing labour reallocation and firm growth hindered employment expansion during the 2000s.

Following Russia's invasion in 2014, the largest employment losses were in knowledge-intensive services. Labour Force Survey (LFS) data show that employment declined in 10 out of 16 broad sectors between 2015 and 2021, with the largest decline in Education (16.9%), Arts, Entertainment and Recreation (14%), Financial and Insurance Activities (13.5%), and Human Health and Social Work Activities (12.2%) (Figure 9). This was partly offset by employment gains in Information and Communication (5.9%) and Construction (7.6%) over the same period.

More recently, although less knowledge-intensive services such as Wholesale and Retail Trade or Land Transport contributed a lot to gross job creation and employment overall, knowledge-intensive services (such as Water and Air Transport, Information and Communication Activities, Professional, Scientific and Technical Activities) took a lead in terms of job creation rate and net employment change in 2020.

Meanwhile, all manufacturing sectors, regardless of the technology intensity, experienced significantly higher job destruction than job creation rates. Yet, despite substantial employment losses, Wholesale and Retail Trade, Agriculture, and Manufacturing remain the largest employers of the Ukrainian workforce, accounting together for over 55 per cent of total employment in 2021.

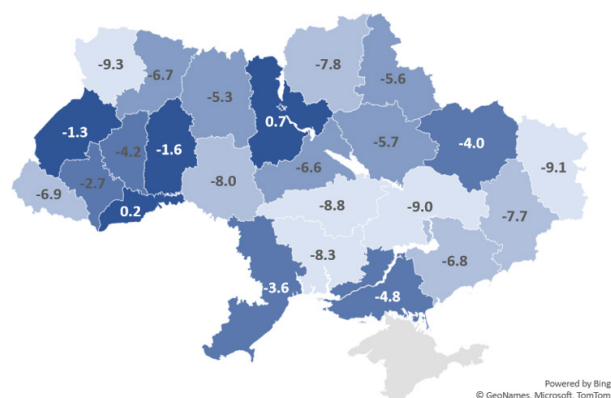
Figure 9. Employment of population aged 15-70 years by sector, 2015 and 2021



Source: Author's calculations using data from State Statistics Service of Ukraine (employment statistics is based on the Labour Force Survey, the territory excludes Crimean AR, Sevastopol city and temporarily occupied territories of Donetsk and Luhansk oblasts).

Finally, turning to regional disparities, among 25 Ukrainian regions (24 oblasts and Kyiv City), only two regions – Kyiv oblast in the north and Chernivtsi oblast in the west – had minor employment gains during 2015-2021 (Figure 10). All other regions faced employment losses, with the largest employment decline compared to 2015 in Volyn oblast (-9.3%), Luhansk oblast (-9.1%), and Dnipropetrovsk oblast (-9%). Five heavily industrialised and densely populated oblasts of Ukraine (Kharkiv, Donetsk, Luhansk, Zaporizhia, and Dnipropetrovsk), which were highly vulnerable to negative changes in trade relations with Russia and the ongoing restructuring of the economy, faced a decrease in employment by nearly 320,000 people, or 38.3 of total employment decline in Ukraine during 2015-2021. Occupation of these regions by Russia in 2022, is likely to bring substantial employment losses, which are likely to persist over time following the widespread destruction of capital and infrastructure, population displacement, and the loss of organisational capital through disrupted connectivity, weakened coordination of economic activity, and weakened social cohesion as defined in World Bank, 2021.

Figure 10. Net change in employment of population aged 15-70 years by region (%), 2015-2021



Source: Author's calculations using data from State Statistics Service of Ukraine (employment statistics is based on the Labour Force Survey, the territory excludes Crimean AR, Sevastopol city and temporarily occupied territories of Donetsk and Luhansk oblasts).

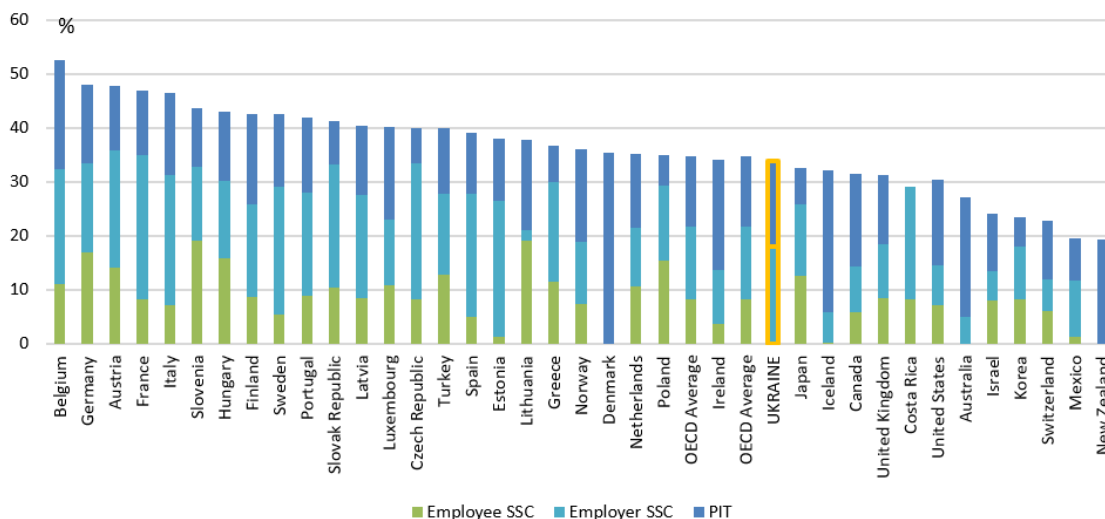
Institutional factors hindering the efficient reallocation of workers and skills

According to the 2014 World Bank STEP survey of Ukrainian employers in four sectors (Agriculture, Food Processing, Renewable Energy and IT), the main labour-related constraint to the operation and growth of firms were high payroll taxes and social security contributions. Further social security contribution rebates were recommended to promote job creation and investment in a skilled workforce (Del Carpio et al, 2017). In January 2016, the social security contribution rate (SSC) was significantly reduced to 22% on the employer's side and 0% on the employee's side, and the personal income tax rate was set at a unified rate of 18%. As a result, the tax wedge in Ukraine (34% of labour costs)

became on par with the average OECD level and much lower than in many European countries (Figure 11). Given this, other constraints to the operation and growth of firms in Ukraine are expected to become much more important now than high payroll taxes and social security contributions.

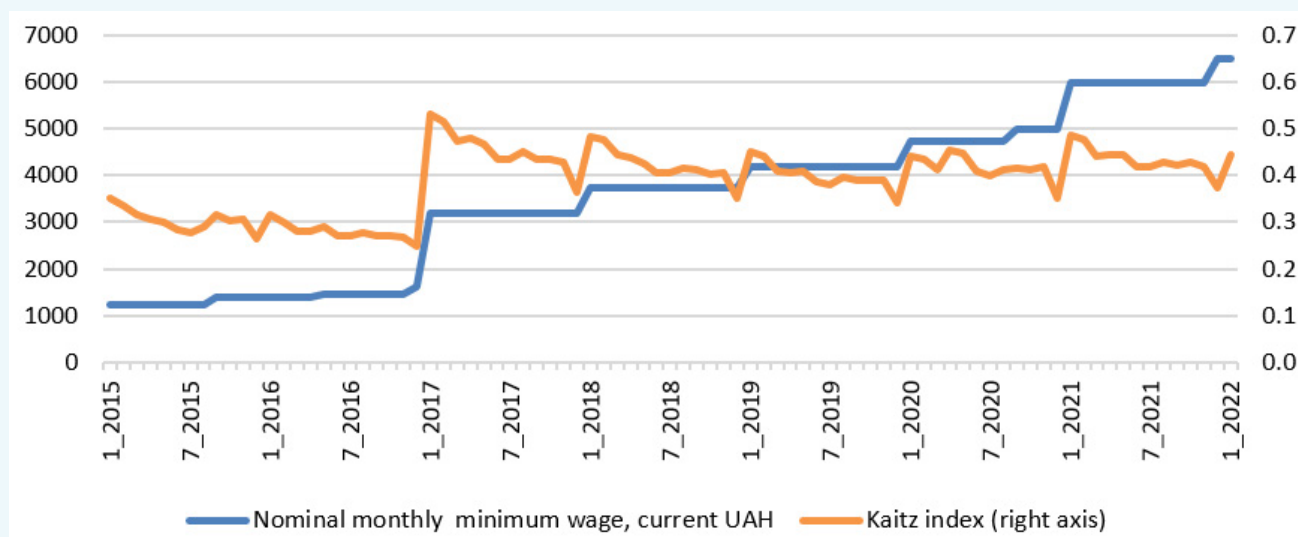
Among other such constraints reported by Ukrainian employers in 2014 were high wages and labour costs (Del Carpio et al., 2017). Those are likely to become even more severe after a double increase in the minimum wage in January 2017 (Figure 12). Following this increase of the minimum wage, which was decided by the government without

Figure 11. Total tax wedge for the average worker in OECD countries and Ukraine (% of labour costs), 2021



Source: OECD (2022); authors' calculation

Figure 12. Evolution of the minimum monthly wage and Kaitz index, January 2015 – January 2022



Source: OECD (2022); authors' calculation

Note: The Kaitz index is the ratio of the minimum wage to the average wage.

much consultation with social partners, the Kaitz index (the ratio of minimum to average wage) jumped from 25% in December 2016 to 53% in January 2017, turning it from the lowest to one of the highest levels in international comparisons (Kirchner et al., 2017). Ambitious minimum wage increases in turbulent times created significant uncertainties in firms' operations and caused negative employment and price effects. Besides, high labour costs due to regular minimum wage increases forced many employers, especially in the SME sector, to forgo spending on skills development of the workforce and to use more informal workers. According to the Labour Force Survey in 2021, the number of informally employed workers in the formal sector exceeded 1.1 million, the overwhelming majority of them being male, urban, and prime-age workers with vocational or general secondary education (Table A-4).

An important labour-related constraint mentioned by Ukrainian employers for many years is the scarcity of skills in the workforce, both in terms of quantity (labour availability) and quality (finding workers with the required experience and education). The analysis of skill demand from posted job vacancies in Ukraine confirmed that employers were looking for skills rather than diplomas for their employees, and required a mix of advanced cognitive, socioemotional, and technical skills across various occupations (Del Carpio, 2017; Muller and Safir, 2019). Substantial skill shortages reported by employers coexisted with widespread overeducation and unemployment. This strongly suggests that the current Ukrainian higher education system is failing to equip young people with adequate skills. Simultaneously, on-the-job training and lifelong learning opportunities have remained scarce (Kupets, 2016 b, c).

Unemployment insurance in Ukraine

Unemployment insurance in Ukraine is a part of the social security system. It is financed from employee-side payroll contributions. Private entrepreneurs on the simplified taxation scheme pay a single social contribution based on the minimum wage and thus contribute to unemployment insurance at a minimum level.

The Public Employment Centre is an executive body of the State Unemployment Insurance Fund. It has territorial divisions, responsible for the registration of the unemployed, granting them with unemployment benefits, and provision of active labour market policy (ALMP) services.

Unemployment benefit entitlement depends on a person's wage and contribution history. During the full-scale invasion, the Unemployment Insurance Fund faced financial difficulties due to lower contributions paid. As a consequence, in September 2022, MPs shortened the duration of unemployment benefits from one year to three months (except for IDPs).

Traditionally, ALMPs include job orientation, skills upgrading programmes, professional training, and suitable job search support. Moreover, unemployed workers were offered the possibility to receive the entirety of the unemployment benefits they were entitled to as a lump sum to start their own business if they had an approved business plan.

Labour market during the full-scale invasion

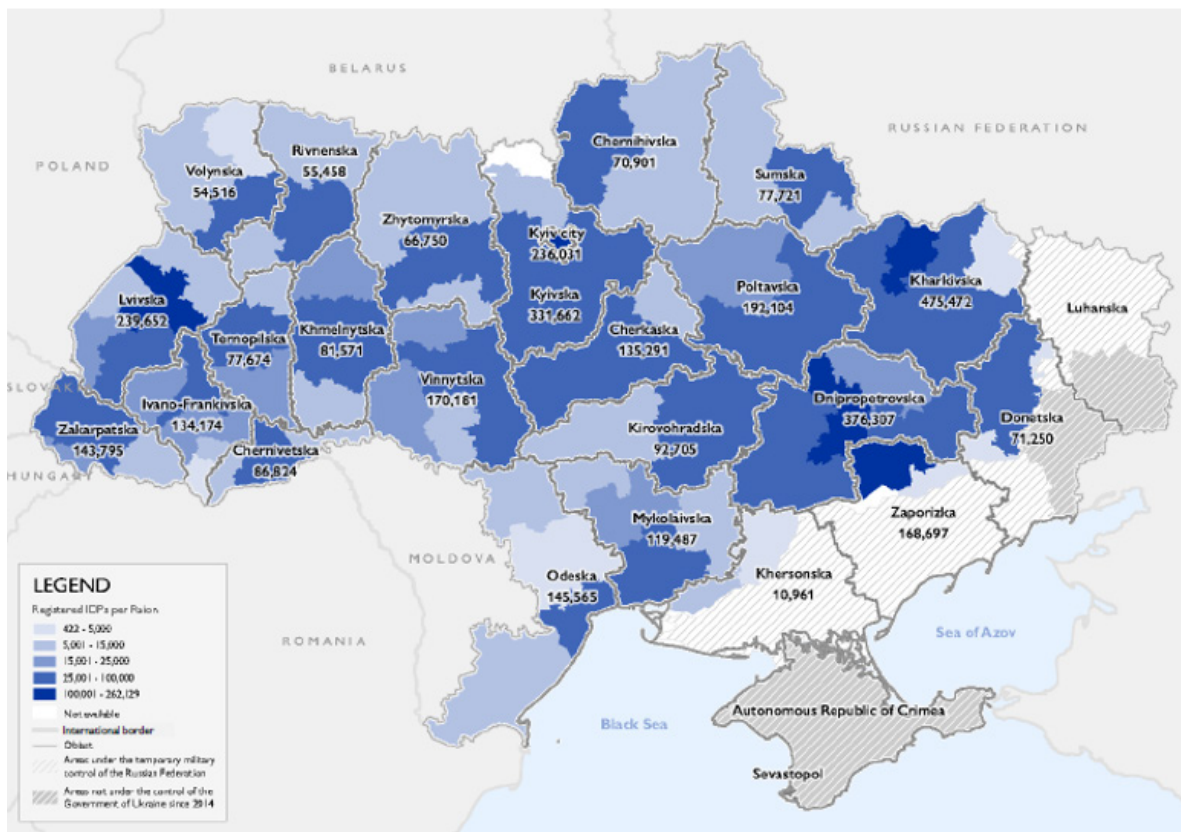
Population movements pose a challenge to the labour market

After 24 February 2022, many Ukrainians were forced to move to safer regions of Ukraine and abroad. Unfortunately, we currently lack precise data on the exact number of internally displaced people (IDPs) and refugees, even though some estimates are available. According to the UN, the number of Ukrainian refugees exceeds eight million, with approximately five million registered for temporary protection in the EU, and 2.8 million in Russia and Belarus. Meanwhile, the Center for Economic Strategy (CES) estimates that the number of Ukrainian refugees in countries other than Belarus and Russia is between 3.8 and 4.7 million (Mykhailyshyna, 2023). On one hand, the large number of refugees fleeing the country during the full-scale invasion may ease some of the pressure on the labour market in Ukraine in the short run. On the other hand, this will pose a challenge

to economic development in the recovery in the longer run. A large majority of Ukrainian refugees are working-age women with children, and not all of them will return. The CES estimates that between 0.9 and 2.7 million Ukrainians may stay abroad after the war ends.

The number of officially registered IDPs increased from 1.5 million before Russia's full-scale invasion to 4.8 million in February 2023. At the same time, the International Organisation for Migration (IOM) survey indicates that not all IDPs register their status. They estimate that the number of IDPs surged to eight million in the first days of May 2022, but then gradually declined to 5.4 million in January 2023. While before 2022 most IDPs came from annexed Crimea and from Donetsk and Luhansk oblasts, in 2022-2023 population displacement affected most regions. Different communities in the same oblast may act as the places of departure as well as the hosts for IDPs (Figure 13). Approximately 55% of IDPs are women, and 26.5% are children. Approximately 57% are of working age. Moreover, the IOM survey shows that 60% of IDPs lost their jobs and only 30% of IDPs households rely on wages as their primary income source.

Figure 13. Registered IDPs as of March 31, 2023



Source: International Organization for Migration (IOM), Apr 24 2023. DTM Ukraine — Area Baseline Assessment (Raion level) — Round 22 (March 2023).

Unemployment during the full-scale war

Little is known about the employment and unemployment in Ukraine since February 2022 because the State Statistics Service of Ukraine has not conducted any waves of the Labour Force Survey in 2022, which is traditionally an important source of information on the labour market. According to the estimates of the National Bank of Ukraine and the Ministry of the Economy, the unemployment rate (measured following the ILO methodology) was close to 29% in the second quarter of 2022 (Figure 14). However, this number includes both internal and external migrants who currently may not be looking for a job. Unfortunately, there is no reliable data about the working-age individuals who dropped out of the labour force and should not be included when computing the unemployment rate. The authors of this chapter believe the above estimate of the unemployment rate is likely too high, and the actual unemployment rate in Ukraine is much lower than 29%. In addition to an expected increase in unemployment, informal employment might have also increased. Overall, the NBU estimates that the average unemployment rate in 2022 was between 19 and 23%, taking into account low unemployment rates in January and February.

There are high regional and occupational disparities in terms of the unemployment rate and available vacancies. IDPs likely moved to the regions with fewer job vacancies. However, we currently lack reliable data on this issue. Some waves of the IOM survey covered the issue of employment among IDPs and non-displaced population, but rather fragmentarily. In August 2022, 31% of respondents among IDPs said they had paid work, 27% were unemployed and actively looked for a job, while 11% did not have a job but also did not look for any (IOM, 2022). The highest shares of unemployed were in South Ukraine and Kyiv City. IDPs often reported they accepted lower paid jobs or lower-skilled jobs compared to the one they had before (19% and 17%, respectively).

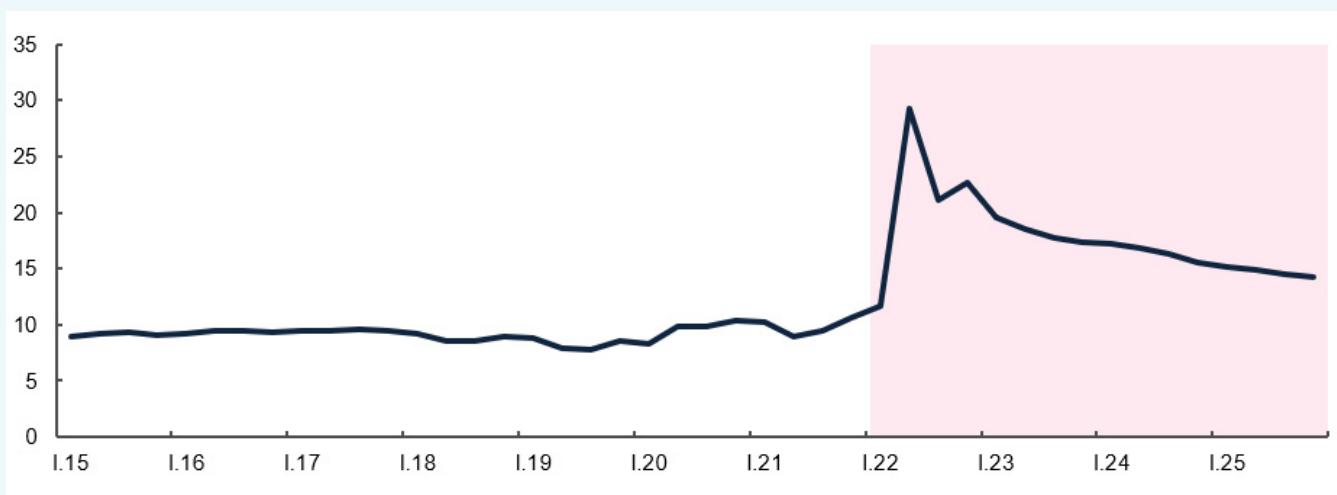
According to the IOM survey in January 2023, only 30% of displaced households compared to 45% of non-displaced households reported salary as their main source of income. Pensions were the main source of income for 20% of displaced households, compared to 29% of non-displaced households, while 24% of IDP households quoted the IDP cash allowance as their main source of income (IOM, 2023).

According to the Rating Group survey, the employment situation was worst in March 2022, before it improved slightly. Some respondents reported that they were able to find a new job. Still, many reported being currently jobless (note that this also includes respondents who are pensioners).

According to both the NBU estimates and the IOM survey⁶, finding a job is an urgent priority for both IDPs and non-IDPs who are able to work in Ukraine. Yet, jobseekers' use of the Public Employment Service of Ukraine (PES) to find a job, apply for unemployment benefits, or take up active labour market services remains limited (Petrina and Safir, 2018). For example, the total number of unemployed who are registered with the Public Employment Service declined from 1.2 million in 2021 to 868,000 in 2022. This might be explained partially by a decline in Ukraine's unemployed population due to external forced migration, and the loss of information in the newly occupied territories of Ukraine. It may also be related to the changes in legislation that were approved in September 2022, according to which the duration of unemployment benefit entitlement was shortened to 90 days.

As a result, the number of registered unemployed individuals receiving unemployment benefits (UB) decreased by 65.5% year on year (Figure 16). The number of vacancies reported to the PES has also declined substantially since February 2022. This led to an increase in the U/V ratio despite the fall in the number of registered unemployed individuals.

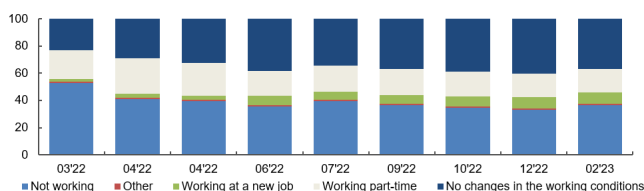
Figure 14. The NBU estimate of the quarterly unemployment rate (% of the labour force) in 2022-2023 and projections for 2023-2025



Source: NBU

Note: the NBU estimate starting Q1 2022.

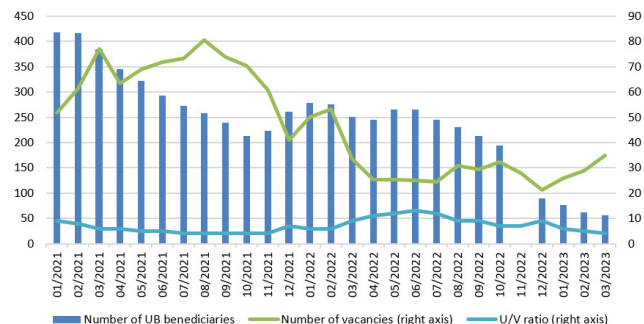
Figure 15. Employment status of respondents who were employed before Feb. 24, 2022



Source: Rating group

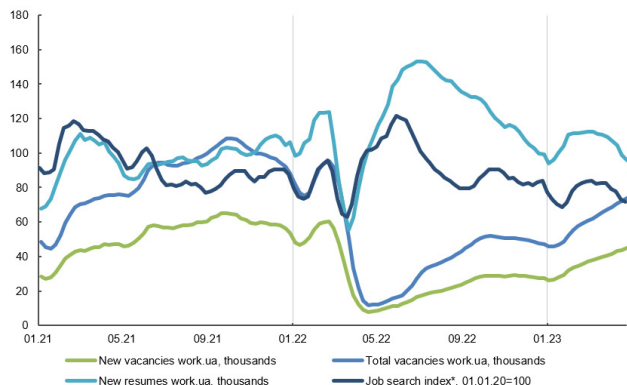
Note: figures taken from the Inflation report of the NBU as of April 2023

Figure 16. End-of-month stock of unemployment benefit recipients and registered vacancies, 2021-2022



Source: NBU based on the data from the PES

Figure 17. End-of-month stock of unemployment benefit recipients and registered vacancies, 2021-2022



Source: NBU Inflation Report, April 2023

According to the NBU's estimates, at the beginning of 2023 the labour market situation improved, but unemployment remained high⁷. In the first quarter 2023 the unemployment rate was 20%. According to data from work.ua (Figure 17), during the same period the number of vacancies was only 80% of its 2021 level, while the number of submitted resumes was up 10% from 2021.

Results from the business survey conducted by the Institute for Economic Research and Policy Consulting (IER) in April suggest that the situation in the Ukrainian labour market remains difficult. Only approximately 5.6% of the surveyed companies plan to increase the number of their employees, while 3.1% of those companies want to reduce it. The survey results suggest that recent months were a period of net job destruction⁸.

Available data indicates that the labour market situation is very disparate across regions of Ukraine. The number of vacancies is higher in the west of the country. The number of job applications per vacancy is equal to 1.5 in Zakarpattia and 3.5 in Kharkiv. This is likely due in part to some companies relocating from regions closer to the frontline to the West of Ukraine⁹. The IER survey also reveals significant regional variations in the challenges faced by employers when seeking qualified workers¹⁰.

Labour demand, obstacles to doing business and response of Ukrainian policymakers

According to the new monthly business tendency survey conducted by the Institute of Economic Research and Policy Consulting (IER), almost 60% of surveyed companies in May 2022 reported that they reduced the number of their employees (Figure 18). The share of the companies that reduced their staff has gradually declined since then. However, only a very small fraction of surveyed companies reported the creation of new jobs.

As before the large-scale invasion, the companies in Ukraine often report that they have difficulties finding workers with the skills required to fill their vacancies. Twenty-two per cent of the companies surveyed by the IER in the first quarter of 2023, reported that it became more difficult to find qualified workers, while 14% reported that it became

“An important labour-related constraint mentioned by Ukrainian employers for many years is the scarcity of skills in the workforce, both in terms of quantity and quality.”

more difficult to find non-qualified workers. Thirty-nine per cent of the companies surveyed in May 2022 reported that the depletion of the labour force due to conscription and/or migration impeded doing business. This decreased to 13% in August 2022, but increased again to 26% in February 2023.

The demand for different types of skills has also changed during the full-scale war. According to Pham et al. (2023), soft and analytical skills are increasingly in demand in Ukraine. One may expect further changes in the types of skills required after the war.

In response to the new challenges faced by Ukrainian employers during the full-scale invasion, the Parliament of Ukraine made the Ukrainian employment protection legislation less stringent. Specifically, the Parliament approved a new law that permits freelancers to work with companies through contract negotiations that do not specify the duration and terms of work. Additionally, it empowers employers to terminate employment contracts in instances of work discontinuation, restructuring, or other modifications. This deregulation of employment protection legislation has been a topic of discussion for many years in Ukraine. The impact of those recently adopted measures remains to be assessed: one potential pitfall that should be avoided is the establishment of a “two-tier labour market”, where overly rigid and protected contract forms continue to exist alongside much more unstable forms of employment, leaving the latter segment of the labour force to bear the brunt of labour market adjustments.

The Ukraine government introduced several types of employment incentives to stimulate hiring including short-term compensation for hiring IDPs, compensation to SMEs and support for start-ups and business development.

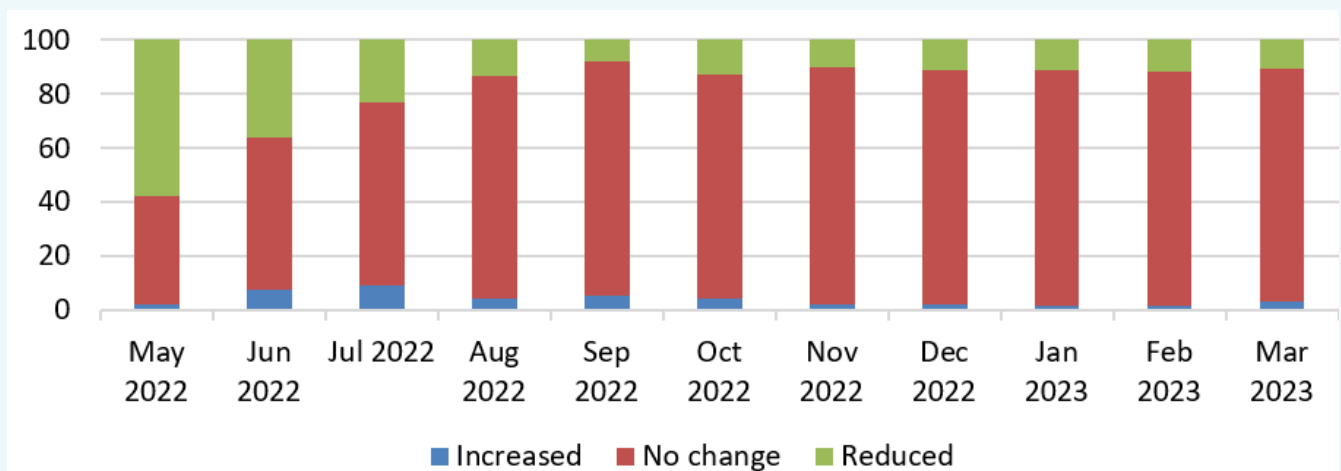
The government has also supported the large company relocation programme. According to the Ministry of the Economy, approximately

“The number of officially registered internally displaced people increased from 1.5 million before Russia’s full-scale invasion to 4.8 million in February 2023.”

800 companies have relocated to safer regions of Ukraine. Two hundred companies have relocated from Kharkiv oblast. Twenty-four per cent of the relocated companies moved to Lviv oblast, while approximately 14 per cent moved to Zakarpattia.

In June 2022, the Ukraine government revised regulations on public works to employ more jobless individuals in war-related projects, encompassing defence infrastructure development, clean-ups after Russian missile and drone attacks, and humanitarian aid. This programme dubbed the ‘Army of Recovery’ served a dual purpose of integrating the unemployed into crucial public works and alleviating the burden on the Unemployment Insurance Fund. However, the initiative has shown limited success so far. According to the PES, currently 17 oblasts participate in the programme. As of May 8, 20,558 referrals were provided to unemployed individuals for such public works, and UAH 104 million has been spent on payments (at the monthly level of the minimum wage)¹³. There is no data on how many unemployed individuals were engaged in this type of public works.

Figure 18. Change in the number of employees according to the IER New monthly business tendency survey (% of surveyed firms), May 2022 – March 2023



Source: IER New monthly business tendency survey, answers of surveyed firms to the question “How the number of staff changed at your company?”

The future of Ukraine's labour market will be shaped by many, and as yet mostly unknown, factors, but first and foremost the duration and human cost of the current war. Yet, in light of Ukrainian labour market performance before the war, as briefly reviewed in this chapter, and in light of the likely repercussions of the war, some broad policy conclusions can be drawn.

Specifically, the authors of this chapter see three broad categories of policy challenges that will have to be addressed to help with the recovery. These three categories can be labelled as (1) Demography and Labour Supply, (2) Education, Skill Supply, and Job-Skill Matching, (3) Labour Market Institution Reform.

1. Demography and labour supply

As explained in this chapter, Ukraine will need to address its shrinking labour force and low labour force participation problem.

In the long run, demographic dynamics characterised by very low fertility rates on one hand, and the need to attract more women to the labour market on the other hand, pose a serious challenge for policy. The chapter on demography lists investment in the childcare sector as a priority to face this challenge. Education and labour market policies (see below) will also play a key role.

In the more immediate aftermath of the war, another important policy challenge will be the integration of war veterans and IDPs back into the labour market. In addition to addressing the moral obligation of the Ukrainian society to help war veterans, this will also help to boost labour supply and reduce poverty and social exclusion. Since a sizeable number of war veterans and injured civilians are likely to have disabilities, it is important to implement a comprehensive system of policies that promote the employment of disabled persons. These include vocational rehabilitation, vocational retraining, lump-sum subsidies for employers who adapt their workplace to the needs of the disabled, and tax incentives for businesses which hire persons with disabilities (Nesporova and Koulaeva, 2014).

Furthermore, the longer the war goes on, the more Ukrainians who were forced to leave their country will integrate into their host communities, and the harder it will be to attract them back after the war, further exacerbating the demographic decline in Ukraine's population and the shortage of skills in the Ukrainian labour market. It is of paramount importance to make the Ukrainian labour market attractive to those forced migrants by creating favourable conditions for their return.

“It is of paramount importance to make the Ukrainian labour market attractive to those forced migrants by creating favourable conditions for their return.”

2. Education, skill supply, and job-skill matching

As discussed above, even before the war, the Ukrainian labour market was characterised by an increasing amount of mismatch between the set of skills sought after by employers, and the skills that workers were able to supply. This calls for an urgent review of the whole education system, including vocational education and training (VET) throughout the working life.

The specific mix of skills that will be required in the future is, in itself, partly a matter of policy: the recovery process will come along with changes in the structure of the Ukrainian economy; also, the prospects of accession to the EU may open the opportunities for the development of new industries. Ukraine's education policy must be designed hand-in-hand with Ukraine's future industrial policy.

Another key principle of education reform is that employers should be included both in the design of education policy and in education provision. For example, the Swiss and German VET systems are considered the Gold Standard in that respect and may serve as blueprints. Closer cooperation between the Public Employment Service (PES), VET schools and universities should be facilitated to align the provision of education with the needs of employers.

3. Labour market institution reform

In the same way that the Ukrainian labour market needs to be made attractive to encourage the return of forced migrants, even the best designed education reform will ultimately fail if poorly designed labour market institutions prevent workers and employers from reaping the returns on their investment in education. Many of Ukraine's current labour market institutions are in urgent need of reform.

Ukraine's obsolete, overly rigid, and (as seen earlier in this report) largely ineffectual labour code needs to be modernised. This includes – but is certainly not limited to – easing parts of the current job protection legislation. This should be done by wholesale reform, not by changes on the margins (as was the experience in Western European countries, such as Spain, Italy and France), to avoid the advent of a “two-tier labour market”, where overly rigid and protected contract forms continue to exist alongside much more unstable forms of employment, leaving the latter segment of the labour force to bear the brunt of labour market adjustments.

Instead of protecting jobs, labour market institutions should provide insurance to workers. This includes striking a balance between reasonably generous unemployment compensation, the development of effective labour market information, and job search assistance mechanisms, as well as monitoring and evaluation systems for active market policies and other services provided by the Public Employment Service (PES). The development and maintenance of a single, accessible, up-to-date data set with all available vacancies is a key element of such an information system.

Broad reforms in those areas should not only help make more efficient use of Ukraine's current supply of skills and help stimulate its future skill supply, but also encourage participation in the (formal) labour market and cut incentives to try and escape compliance with the labour code by resorting to informal employment.

The importance of measurement and the need for data

Finally, to better understand the situation in the labour market, and to guide economic policy, it is difficult to overstate the importance of data collection and data availability. The Ukrainian government must ensure that high-quality, basic statistical measurement tools are consistently maintained. Those include, inter alia, a regular Census, a high-frequency Labour Force Survey with a longitudinal dimension, a Household Survey, and a Job Vacancy data base, with details on the location and skill requirements of each vacancy.

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Notes

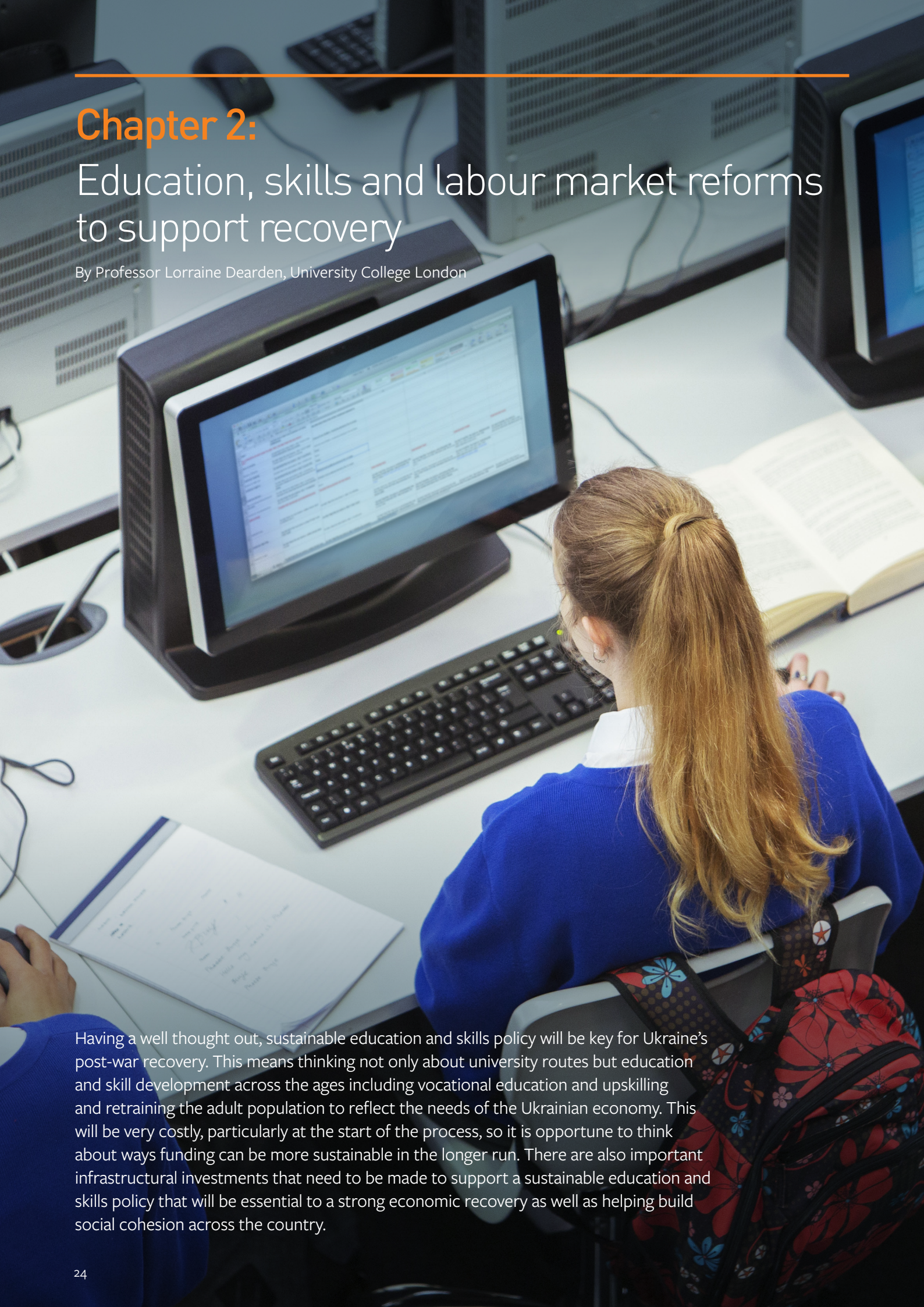
1. The territory of Ukraine used by the UN includes Crimea, so population projections for Ukraine include the population of Crimea.
2. Younger workers not only had low labour force participation rates (30.6% in Ukraine compared to 39.8% in the EU-27 and 47.5% in the OECD), but also high unemployment (19.1% in 2021). According to the School-to-Work Transition Survey in 2015, the most frequently obstacles to finding jobs reported by unemployed youth aged 15-29 years were insufficient number of jobs, lack of work experience and low wages in available jobs (Libanova et al., 2016).
3. The high U/V ratio for skilled agricultural and fishery workers is a seasonal trend which usually disappears in the second and third quarter and reappears in the fourth quarters.
4. This uses monthly data on unemployment and job vacancy counts from the National Bank of Ukraine (NBU). As in the previous section, an important caveat applying to this is that it only covers vacancies listed with the State Employment Service. The NBU provides data on the number of unemployed workers registered with the Public Employment Service as well as estimates of ILO unemployment. ILO unemployment is systematically much higher than registered unemployment, but the two measures are highly correlated (0.92) over the period in which they are both available. We use the longer Registered Unemployment series in this note.
5. Sectors are classified using into four groups for manufacturing depending on the technology intensity and two groups for services depending on the intensity of knowledge, as suggested by Eurostat.
6. See: https://ratinggroup.ua/research/ukraine/kompleksne_dosl_dzhennya_yak_v_yna_zm_nila_mene_ta_kra_nu_p_dsumki_roku.html
7. Inflation report, NBU, April 2023.
8. IER business survey, April 2023, <http://www.ier.com.ua/ua/institute/news?pid=7179>
9. <https://www.epravda.com.ua/weeklycharts/2023/05/10/699973/>
10. See, IER survey, April 2023, <http://www.ier.com.ua/ua/institute/news?pid=7179>
11. <https://zakon.rada.gov.ua/laws/show/2421-IX#Text>
12. <https://zakon.rada.gov.ua/laws/show/2352-20#Text>
13. <https://t.me/SESofUkraine/1136>



Chapter 2:

Education, skills and labour market reforms to support recovery

By Professor Lorraine Dearden, University College London



Having a well thought out, sustainable education and skills policy will be key for Ukraine's post-war recovery. This means thinking not only about university routes but education and skill development across the ages including vocational education and upskilling and retraining the adult population to reflect the needs of the Ukrainian economy. This will be very costly, particularly at the start of the process, so it is opportune to think about ways funding can be more sustainable in the longer run. There are also important infrastructural investments that need to be made to support a sustainable education and skills policy that will be essential to a strong economic recovery as well as helping build social cohesion across the country.

Schooling deficits

The effects of both COVID-19 and the war mean there will be huge schooling deficits for quite a large population of school-aged children and young adults and it is crucial to come up with policies and adequate funding to attempt to correct these deficits. These children will potentially not be able to access vocational or higher education if they have missed out on schooling.

The solution will depend on the age of the children but there needs to be well-funded school, vocational or higher education routes that allows this education deficit to be remedied so that all those that have missed out during the war can have the potential to later access higher education (either university or vocational route). There is a strong argument that this should be tax-payer funded but will be very expensive in the short run.

The UK Education Endowment Foundation provides toolkits and evidence on best interventions for reducing educational inequalities in schools based on evidence-led practice. They are part of the wider What Works Network whose organisations use and commission evidence to improve the delivery of public services across the life course. See resource references at end of Chapter.

Vocational and higher education

For the recovery, it is essential to have coordinated and/or integrated high-quality and well-funded providers of both vocational and higher education that can deliver the education and skills needed for the recovery across a broad range of subjects - not just priority areas. Whilst choosing and focusing on immediate priority areas is important, it is often difficult to predict future skills needs so maintaining a broad portfolio of educational routes is always wise. Recent advances and skill shortages in AI is one example. AI is an area which is going to have profound impact on the nature of education, work and productivity but even relatively recently would not have been seen as a priority for education providers but in the next few years will be important for economic growth worldwide.

To do this reform well needs a lot of careful thought and planning and there needs to be clear steps of how those initially starting on vocational routes can seamlessly progress to academic routes if optimal and vice versa. To do this well, will need buy-in from all key stakeholders in Ukraine and beyond including politicians, government departments, regional administrations, education providers, employers and/or employer associations, employees and/or trade unions, entrepreneurs and academics with evidence-based policy expertise. Getting this right is important but difficult and approaches taken to do this well have varied by country.

Despite efforts to have a coordinated skills policy, the UK has not provided sufficient funding or resources for vocational education routes for both providers and students compared to university routes for at least the last 25 years but particularly since 2010. This has impacted the level of vocational skills in the UK and had an impact on economic growth mainly via skills mismatch (see Sibieta, L and Tahir, I. (2022)). This is something that other countries like Germany have done a lot better (see Deissinger, T. (2015)).

To deliver high-quality vocational and higher education, there must be a robust quality assurance system for providers to get taxpayer funding and/or students to get loans. From the outside, it appears that at the moment there are too many providers in Ukraine, which makes quality assurance difficult.

If you don't have robust quality assurance, it is highly likely that some providers will exploit the system and provide low-quality education at high taxpayer costs. This has happened in other countries such as the US with for-profit higher education providers (see Yannelis (2022)). The end of the war could perhaps provide a platform to reform the current system in Ukraine through amalgamations (national and international) and closures.

This is expensive and future graduates need to make some contribution to make higher education funding sustainable in the longer term (but only when they are doing well in the labour market). This is discussed in the next section.



What options are there for funding this?

Given the financial resource constraints Ukraine will face after the war, international evidence shows that having a combination of fees and direct government grants to accredited vocational and higher education providers ensures sufficient funds to deliver high-quality vocational and higher education.

High-priority areas like science or teacher training, can potentially have relatively low fees and high government direct contributions whereas lower-priority areas can involve a different mix with lower direct taxpayer funding and higher fees. However, to ensure vocational and academic providers provide courses in high-priority areas, they must have the resources to provide these priority courses.

Additionally, it is essential to provide well-designed student loans to pay these fees, so that there is no upfront cost to going to a university/higher education provider – HE is “free” at the point of access. It will also be important to provide maintenance grants/loans so students can support themselves during study.

Income-contingent student loans (ICLs) are by far the best type of student loan and now operate in around 10 countries internationally. They have huge benefits compared to the traditional student loans operating in countries like the US, which are called time-based repayment loans (TBRLs). TBRLs exhibit poor economic characteristics for borrowers: namely high repayment burdens (loan repayments as a proportion of income) for the disadvantaged and default. The latter both damages credit reputations and can be associated with high taxpayer subsidies through continuing unpaid debts.

ICLs possess considerable benefits (when compared to TBRLs), providing insurance to borrowers against both future loan repayment hardships and default. In contrast, TBRLs can be very costly to some borrowers who experience periods of low future

income. In general, the public sector administration costs of an ICL scheme are very small for countries that have a comprehensive income tax or social security payment administration in place. This, in combination with the additional borrowers’ insurance benefits, suggests strongly that ICL policies are preferable to the standard TBRL model. This appears to be particularly true in weak graduate labour markets, such as those experienced during the economic stagnation associated with COVID-19 or as a consequence of the uncertainty in the labour market at the end of a war.

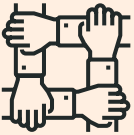
When students graduate and find work, they start to pay back their loan based on their earnings. There is no fixed time limit on repaying their loan and no administrative burden if well designed. These types of student loans have been working in Australia since 1988, New Zealand since 1991, the UK since 1998, and in Hungary since 2001.

“It is essential to have coordinated and/or integrated high-quality and well-funded providers of both vocational and higher education.”

Getting the loan design right is important – markets do not work in vocational and higher education

The higher education financing model, including loan design, needs to be sensitive to the country's graduate labour market, social security and tax system and ensure that providers have sufficient funding to put on courses (particularly priority areas). Both Australia and the UK have the system right (ICLs), but neither has got the design exactly right. It is possible to design systems that involve no subsidy but typically would involve a taxpayer subsidy of around 20 per cent - which means in the long-run taxpayer gets back 80 per cent of the cost of these loans for fees and support.

In short:



ICLs have been successful in increasing participation in HE for the poorest students, without additional taxpayer burden, and no defaults or repayment difficulties (see for example Crawford, Dearden, Micklewright and Vignoles (2016) and Murphy, Scott-Clayton and Wyness (2019)).



ICLs ensure those who do well in the labour market give something back, which gives the government more money to either make the system bigger, properly fund HE providers or spend on other priorities



These loans have built-in insurance and never result in repayment hardship



They are very simple to administer (through employer withholding like social security/income tax payments)



Recipients can't default on the loan (if they don't pay it off, it is part of the taxpayer subsidy)



Tuition and loans needs to be available for both university and higher vocational routes (UK got this wrong)

See Chapman and Dearden (2023) for more details.

Adult learners upskilling/retraining and identifying skills deficits in the labour market

Worldwide academic evidence shows that the most successful training/upskilling involves work-based training. This can be provided by accredited employers, vocational and/or HE institutions in conjunction with work or via apprenticeship routes. Germany is a good example of how to provide high quality work/employer-based vocational education (see Deissinger, T. (2015))

In many countries government's try to develop policies that attempt to address likely short- and longer-term skills deficits to aid economic growth and productivity. What do we mean by this? It is a mismatch problem between skills demand and supply (vacancies available and applicants for those jobs). It is important to understand the reasons behind this mismatch in order to get policies right. This can be caused by the lack of attractiveness of the labour market, low wages, low prospects or high costs of entering the labour market. This may include looking at childcare policies (helping individuals with young children get back to work), immigration policies, disability support and infrastructure and skills development policies (such as apprenticeships, work-based training policies) and has also included systems to force employer contributions, such as apprenticeship or training levies. The policies

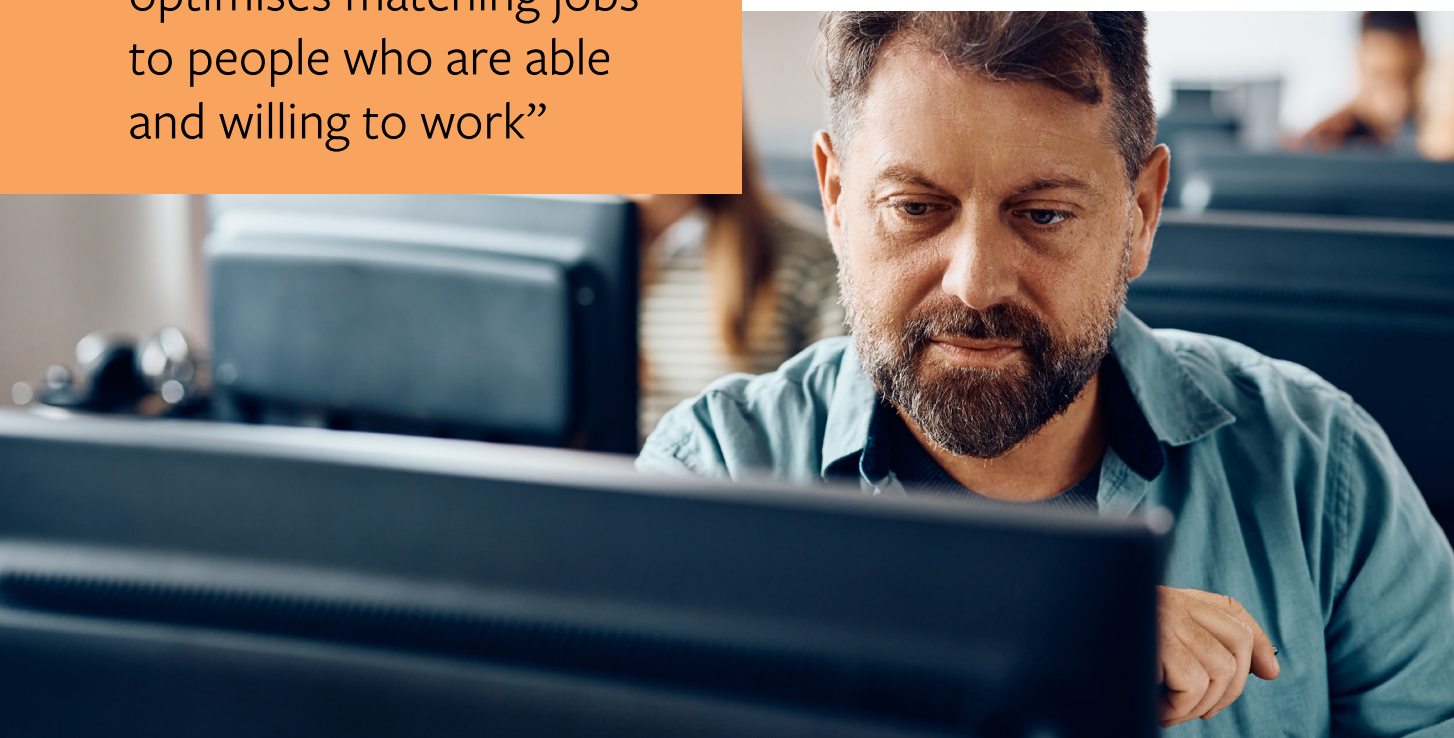
need to ensure that Ukraine optimises matching jobs to people who are able and willing to work (with the right conditions/support).

Some have been more successful than others and depend crucially on country-specific institutions and labour market characteristics and the nature of the mismatch. Skills development must also support innovation (see Bloom, Van Reenen, and Williams (2019)).

Australia has a long tradition of doing this. A report in 1991, attempted to use the best available data to predict skills needs and shortages, and policies, to address this for Australia's workforce in the year 2001. This type of exercise is ongoing in Australia and informs its points-based immigration scheme, which the UK is now trying to introduce.

The UK also has a long tradition of doing this. For instance, in 1997, the Government set up a National Skill's Taskforce to help it prioritise its agenda on skills development. The Department for Education currently has a Unit for Future Skills. A Nuffield Foundation-funded project called Economy 2030 is being carried out by the Resolution Foundation and the CEP at London School of Economics. It aims to identify and understand the economic challenges, trade-offs and policy options facing the UK, and identify pathways on which policymakers might act. The inquiry will draw on a breadth of expertise from across the UK, connecting rigorous research, public involvement, political engagement, and concrete proposals for change.

“The policies need to ensure that Ukraine optimises matching jobs to people who are able and willing to work”



The Economy 2030 study will address new questions in response to emerging findings, but initially will encompass the following research themes:

- **The impact of change:** how people, places and firms have experienced and responded to change.
- **The drivers of change:** the change being brought by Brexit, COVID-19 and net zero and how to respond to it.
- **Cross-cutting themes:** the role of government and the constraints it is under; lessons from UK and other countries histories, successes and failures in navigating economic change; the lived experience of economic change – people’s perspectives and experiences of change as workers, consumers and citizens.

Good skills development is a long-term process and will take time so Ukraine will need to think about how to fill the skills gaps whilst training takes place:

- Well-supervised/co-ordinated and high-quality work-based training and/or apprenticeships that are attractive to both workers and firms is crucial.
- Attracting people with childcare responsibilities back into the labour market might also be important in both the short- and medium-term, so childcare and wrap-around education care might also be important.
- Ensuring those with disabilities/medical issues/war injuries are appropriately supported back into work where possible.
- A new way of attracting appropriately skilled expats and migrants back to Ukraine in person, but also through remote working (which is possible in some industries/occupations), should be explored.



Tax and social security systems and good data collection that can be easily linked

Having a sophisticated tax and social security system is a crucial element if you want to design good education and welfare systems that have built-in insurance (when individual circumstances change unexpectedly). Having worked in several countries, it is important to have a sophisticated electronic social security and taxation system operated through employer withholding in real time with strict compliance to combat corruption/grey economy and to ensure it maximises scarce resources and has sufficient resources to achieve its objectives.

Whilst the UK has the working for the repayment of student loans (the amount paid is based on earnings in each pay period so if you lose your job you pay nothing), there is still a delay in universal credit payments for those in low-paid work or unemployed.

Finally, Ukraine needs high-quality data collection systems across national and regional governments to help inform policy and to understand where there are problems. In the UK, the UKRI Administrative Data Research Centre is an emerging example of what can be achieved through such linkages. If done well and quickly, it would require both local and international researchers to collaborate and provide them with an opportunity to contribute to evidence-based policy development in the country.

“Ukraine needs a high-quality data collection systems across national and regional governments to help inform policy and to understand where there are problems.”



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Toolkits for effective interventions:

- <https://www.cedefop.europa.eu/en/tools/vet-toolkit-tackling-early-leaving/intervention-approaches/inclusive-work-based-learning-environments>
- <https://blogs.worldbank.org/education/making-work-based-learning-work>
- <https://www.economicsobservatory.com/which-educational-policies-are-most-effective-for-equalising-opportunities>
- <https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit>
- <https://www.gov.uk/guidance/what-works-network>
- <https://www.nuffieldfoundation.org/project/the-economy-2030-inquiry-navigating-a-decade-of-change>



Chapter 3:

Ukraine's Demographic Crisis

By Brienna Perelli-Harris, University of Southampton

Russia's invasion of Ukraine has led to a severe demographic crisis. The violence has produced the largest displacement in Europe since World War II and the scale of the refugee flow has been staggering. Tens of thousands of civilians and soldiers have died from direct aggression. The war conditions have also undoubtedly led to a sharp decline in fertility, as couples have postponed having children indefinitely. These factors have led to acute population decline, which is threatening the future of the country.

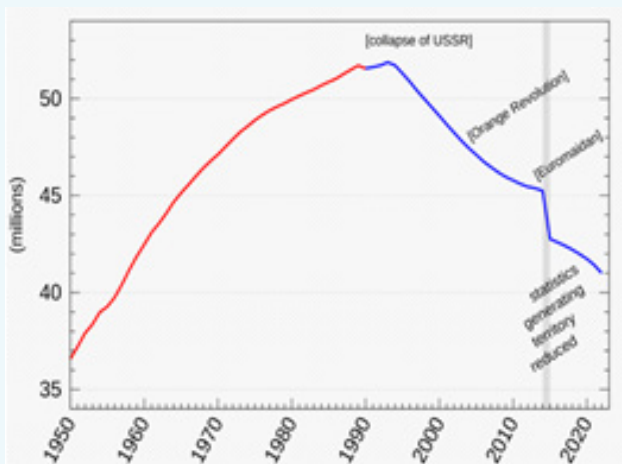


To make assumptions about the future however, it is important to first understand past trends, including the driving forces of population decline: low fertility, high emigration, and high mortality. Each of these components is key, as they feed into the number of people in the labour force, demands for places within schools, and the need for elderly support and care. Without understanding each component, it is impossible to forecast what may happen to Ukraine's population in the future.

The population of Ukraine before the war

Ukraine's population has been shrinking for decades (see Figure 1). When the country gained independence in 1991, the population was just under 52 million. Since then, the population has steadily decreased. In 2014, it contracted sharply due to the removal of official statistics from the occupied territories of the Donbas and Crimea. By 2022, the population was estimated to be around 41 million, which represents a loss of over 10 million people in 20 years, or a decline of 20 per cent. As a result of these processes, the age and sex structure of the population has changed dramatically, with fewer 0-20-year-olds relative to pensioners (Figure 2). The population has also become skewed more towards women, particularly at older ages. Thus, by 2022, Ukraine was facing an

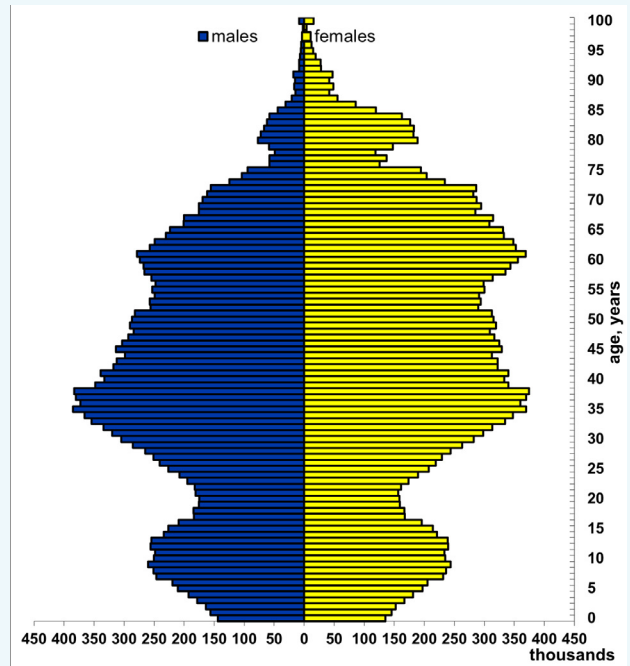
Figure 1. Population of Ukraine, 1950-2020



Source: State Statistics Service of Ukraine. In 2014, population estimates from the occupied territories of Donetsk and Luhansk oblasts and Crimea could not be calculated and were removed from the total population estimates.

ageing crisis as well as a severe gender imbalance.

Figure 2. Pyramid of Ukraine, Number of men and women by age, 2022



Source: Ptoukha Institute for Demography and Social Studies (IDSS).

Population decline in Ukraine has not been spread evenly across the country and some regions have even been growing (Perelli-Harris and Hilevych 2023). In 2019, Northern and Central oblasts, along with some regions in the East, were experiencing the fastest rate of population decline, while most of Western Ukraine experienced little population loss or even growth. As would be expected, rural regions of Ukraine have generally been depopulating at a faster rate than urban regions, except for certain cities in the occupied-separatist territories, for example, Donetsk. Internal displacement after February 2022 has further exacerbated population shifts from East to West, raising questions about whether Eastern Ukrainian regions will repopulate after the war or remain desolate and empty. The government of Ukraine will need to make difficult decisions about developing Western regions to house the millions who have fled Russian regression or to invest and rebuild in liberated territories. Thus, population redistribution will remain a challenge for decades to come.

Prolonged low fertility

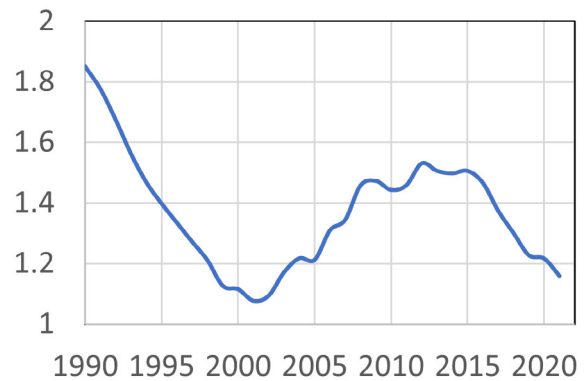
Until Russia's invasion in February 2022, the main reason for population decline has been natural decrease caused by fewer births than deaths. Figure 3 shows the dramatic decline in the Total Fertility Rate (TFR) after the collapse of the Soviet Union. By 2001, Ukraine had the world's lowest fertility rate at 1.1 (Perelli-Harris 2008). The majority of the fertility decline was due to fewer second and third births rather than the postponement of first births or increasing childlessness (Perelli-Harris 2008).

In the 2000s, the Ukrainian government implemented policies in an attempt to increase childbearing. In 2010, the government increased maternity benefits so they were higher with each successive child. As of 2014, childbirth payments were set at 41,280 UAH (~1065,18 euros), regardless of the number of births (MISSCEO, 2021). In 2019, additional payments were introduced for large families with three or more children (Ministry of Social Policy, 2019). These policies seemed to have an effect on fertility, along with improvements in socio-economic conditions. By 2012, the TFR had risen to a high of 1.53 (State Statistics Service of Ukraine, 2019).

Unfortunately, the political turmoil, armed conflict, and economic instability after 2014 had a detrimental impact on childbearing. The TFR decreased steadily, reaching a low of 1.23 in 2019 (State Statistics Service of Ukraine 2019), the lowest rate in Europe. COVID-19 and social uncertainty exacerbated the poor conditions for childbearing, and at the outbreak of the war the TFR may have been as low as 1.17.

Now, estimates of the TFR are very uncertain, but it is likely to remain extremely low. The Ministry of Justice reported that from January 1 to November 15, 2022, 183,105 babies were born, around 68,000 less than in the comparable period in 2021. These figures do not include births occurring within occupied territories or abroad. Note also that these numbers reflect births conceived before Russia's invasion; the number of babies born in the first months of 2023 will most likely be much lower, as people postponed childbearing during the initial turmoil of the war.

Figure 3. Total Fertility Rate, 1990-2021



Source: State Statistics Service of Ukraine.

In the next few years, the war will undoubtedly have a devastating effect on people's decisions to have children. Ukrainian demographers are predicting that the TFR will fall as low as 0.71 in 2023-24, the lowest ever recorded in the world. Based on Ukraine's previous record of very low fertility, especially after the conflict in 2014, they forecast only a modest increase to around 1.3 by 2031 (IDSS 2023). However, studies of fertility after war in other settings indicate at least a small baby boom (Torrissi 2020). It's likely that some postponed births will be realised. Given the increase in nationalism since Russia's invasion, young Ukrainians may deliberately decide to have children to support Ukraine's population recovery, resulting in a more noticeable baby boom.

“The war is likely to have long-term effects on population health, resulting in continued low life expectancy.”

Sustained high mortality

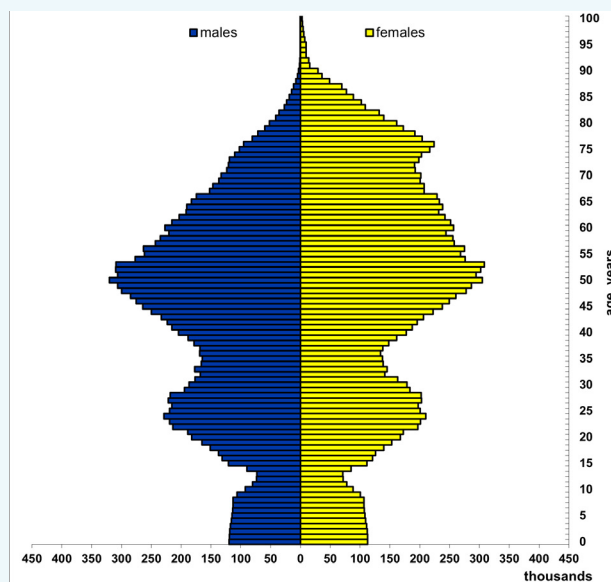
Ukraine has had very high mortality relative to the rest of Europe, especially in the years directly after the collapse of the Soviet Union (Kurylo 2022). In 1991, life expectancy was around 69.1 years and declined to a low of 67 in 1995. However, life expectancy started to improve substantially after 2008 and reached 73 in 2019, about eight years lower than the EU average. Unfortunately, COVID-19 had a devastating impact on life expectancy, reducing it by at least 0.5 years in 2020-21 (Kurylo 2022).

Over the past few decades, the gap between male and female life expectancy has remained large. Women in Ukraine live on average 10 years more than men. In most European countries, the male-female gap in life expectancy is only around five years (Ueffing et al 2023). The gap in Ukraine has been due to increases in male mortality among the working-age population. Men are more likely to die of behavioural and other preventable factors such as alcoholism, smoking, and accidents that cause deaths at earlier ages (Kurylo 2022).

Ukraine has clearly experienced a substantial increase in mortality as a result of the war, but recent statistics on how many people have died (not just soldiers) are unavailable. Ukrainian demographers estimate that life expectancy in 2022 was 70.9 for females and 57.3 for males (IDSS 2023). This represents a loss of seven years for women and 10 years for men. Increased mortality is not just due to the direct effects of Russian aggression, but also secondary effects, such as the lack of health care and trained professionals, increase in infectious disease, untreated chronic diseases, shortages of medicines, and general increased stress.

Unfortunately, the war is likely to have long-term effects on population health, resulting in continued low life expectancy. Ukrainian demographers predict that life expectancy will only start to increase again in 2026 (after they expect the war to end), but remain at pre-2019 levels until around 2033 when they expect a life expectancy of 76 for women and 66 for men. The life expectancy gap between men and women is likely to become even more pronounced, not only because more men are likely to be killed in action, but because they have different responses to crises and live longer even in famines and epidemics (Zarulli et al 20218). Figure 4 shows the population pyramid for 2037, indicating that women will continue to outnumber men at the oldest ages far into the future. Going forward, continuing to support Ukraine's pension-age women will be a challenge.

Figure 4. Population Pyramid, number of Men and Women by age predicted for 2037



Source: Ptoukha Institute for Demography and Social Studies (IDSS).

Mass migration

Migration produces the greatest uncertainty in any population, especially because it is difficult to record and measure (Ueffing et al 2023). Official estimates of migration in the decades before the war indicated positive net migration ranging from five-15,000 persons per year over the last decade, which would increase Ukraine's population. However, population registers significantly underestimated the number of people leaving Ukraine. Only permanent changes of residence are recorded and many temporary migrants, or those with uncertain plans to return, did not record their departure. Thus, most demographers acknowledge that migration in the past few decades has been vastly underestimated (IDSS 2023).

According to United Nations estimates, 6.1 million Ukrainians (born in Ukraine) lived abroad in 2020 (United Nations 2020). However, this data is based on censuses in destination countries and only considered to be a rough estimate. Survey data from Ukraine's Labour Migration Survey in 2017 found that 1.3 million Ukrainians travelled abroad for work or looking for work in another country, but this survey would have missed households who had permanently moved abroad. Eurostat data supports the Labour Migration Survey by finding that 1.5 million Ukrainians live in European member states with a valid permit (Eurostat 2022), but the data misses undocumented migrants. Note that exact numbers of Ukrainians who left for Russia are also uncertain, but are estimated to be around two million, particularly after 2014. Thus, more refined analyses are needed to really understand how many Ukrainians had emigrated in the past few decades.

Russia's invasion in February 2022 led to an enormous population displacement, both within and outside of the country. The UNHCR has estimated that more than eight million refugees were recorded in Europe in May 2023. Around 5.1 million refugees have registered for Temporary Protection or other similar national schemes in the EU, Iceland, Norway, and Switzerland. Another estimated 2.8 million have left for Russia or Belarus. However, it is unclear how many Ukrainians are still abroad or have returned home. The IOM has estimated that over 5.5 million people have already returned home, 20 per cent from outside of the country (IOM 2023).

Ukrainian demographers point out that international agency figures are uncertain and do not accord with official estimates. The State Border Service of Ukraine has calculated that the difference between those who entered and exited borders to the EU and Moldova is only around 1.8 million. The IDSS, however, thinks that this number is vastly underestimated, because border guards may have missed people in the upheaval directly after Russia's invasion (IDSS 2023). In addition, men aged 18-59 who exited Ukraine through other routes (e.g. escaped through Russia) or were already outside of the country, might have registered for refugee status but been undercounted at borders. Therefore, the IDSS estimates that in 2023, 3.7 million people are still outside of Ukraine in the EU or other Western countries. An additional unknown number of Ukrainians have left or been forcibly deported to Russia. UNHCR estimates that 2.9 million refugees have been recorded in Russia since 2022. Ukrainian demographers put the estimate of those deported closer to two million, and they think that only around 10 per cent will return.

Understanding the age-sex composition of refugees is essential for future forecasts of Ukraine's population. Martial law means men aged 18-59 have only been allowed to leave the country under certain conditions, thus, the vast majority of refugees are women with children and some older men. Some surveys estimate that 90 per cent of refugees are women, and that up to 40 per cent of women and children are outside of the country (Ueffing et al 2023), although those estimates may be based on UNHCR counts which seem high. In any case, the emigration of women and children at these ages has produced a severe deficit that needs to be considered when producing population estimates.

“Russia’s full scale invasion in February 2022 led to an enormous population displacement, both within and outside of the country.”



“Understanding the age-sex composition of refugees is essential for future forecasts of Ukraine’s population.”

Population forecasts

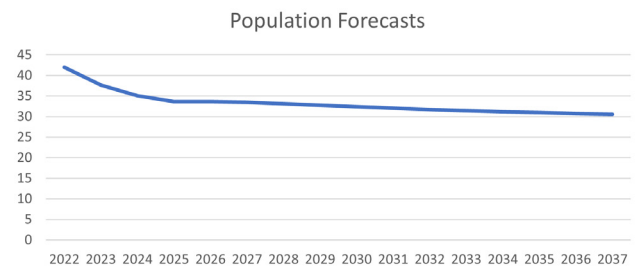
All population forecasts for the future are based on assumptions regarding fertility, mortality, and migration. Ukrainian demographers at the IDSS have produced relatively simple forecasts based on assumptions that have characterised Ukraine for some time. As mentioned above, they generally predict the war will end towards the end of 2024; fertility rates will become extremely low and then recuperate; and mortality rates will stay low for several decades. Estimates of migration tend to be more positive, with a strong assumption of return migration in 2025 and positive net migration in the years afterwards. With these components, they predict that the population total will be around 32.4 million in 2030. Fifteen years after the start of the war, the population of Ukraine will be 30.5 million people (see Figure 5).

“It is imperative that Ukraine works to increase childbearing, as it will ultimately determine the rate at which Ukraine’s population shrinks”

International demographers have also produced population forecasts for Ukraine with varying migration scenarios, based on assumptions of whether refugees will return (Kulu et al 2023, Ueffing et al 2023). Kulu et al (2023) use an estimate of eight million refugees and model whether 90%, 35%, or 10% of refugees will return in 2024. They make additional assumptions about whether men will join their families abroad, taking into account the percentage of men who die during the conflict. The baseline scenario that does not take into account displacement indicates that Ukraine’s pre-war population of 41.7 million will decline to 35.1 in 2040. Even with 90% of refugees returning to Ukraine, the population will decline by 19% to 33.7 million. If 35% return, the population will decline by 35% to 27.2 million, and if only 10% return, Ukraine’s population will decline by 41% to 24.3 million in 2040.

The Ueffing et al (2023) population forecast includes four complicated migration scenarios: 1) Long war and low return (e.g. 35 per cent return within five years); 2) Permanent emigration; 3) Circular migration with continued high migration; and 4) Migration Transition, which predicts a decline in emigration levels and an eventual increase in immigration due to economic recovery. These scenarios also include family reunification, with men joining their partners outside of Ukraine. The first scenario predicts a decrease to 35 million by 2030, with a steep decline subsequently. Other scenarios show a decline to 39 million by

Figure 5. Population Forecasts between 2022-2037.



Source: Ptoukha Institute for Demography and Social Studies (IDSS).

2027, which seems relatively high considering the State Statistics Office predicted Ukraine’s population to be around 41 million before the war. These forecasts, however, show steep declines for the next few decades, with between 30-35 million people in Ukraine in 2050.

Unfortunately, varying methods make it difficult to compare the three forecasts, for example, the estimates differ according to original population size, (e.g. whether Donbas and Crimea were included), number of refugees outside of the country, predictions about when the war will end, and length of years of forecast. The forecasts with migration scenarios have generally not produced long-term estimates of fertility and mortality, but have assumed continued pre-war levels or used UN predictions. On the one hand, the migration movements out of Ukraine have been enormous, and scenarios predicting the per cent of migrants who return are important for understanding the future size of the population. On the other hand, the primary driver of Ukraine’s population size over the past few decades has been birth and death rates. Thus, assuming that these rates will remain the same, particularly under war conditions, means that the migration forecasts miss elements that are important for understanding Ukraine’s population future.

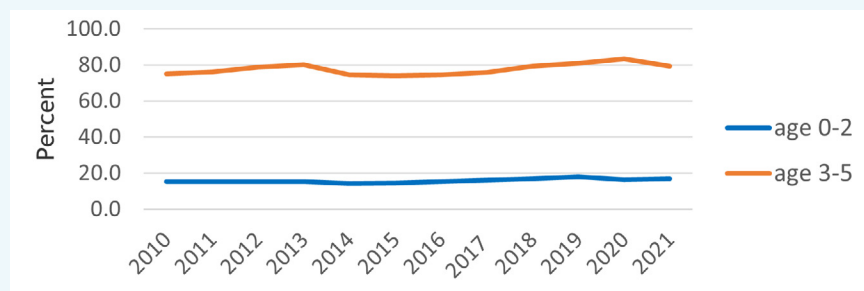
Most importantly, fertility rates drive population momentum, which determines the future number of women and men of reproductive age who are available to have the next generation of children. Fertility rates of 1.3 have been considered a threshold below which population decline becomes increasingly difficult to stop. Countries such as Italy and Spain have been extremely concerned about fertility rates at these levels, as they recognise that their native population will continue to shrink. However, southern European countries benefit from net immigration, which can offset some of the population ageing and labour shortage. At the moment, Ukraine does not have this option. Thus, it is imperative that Ukraine works to increase childbearing, as it will ultimately determine the rate at which Ukraine’s population shrinks. The Ukrainian government and international policymakers need to think creatively about how to raise fertility rates in order to stop population decline.

Investing in the childcare sector to encourage childbearing, increase women’s labour force participation, and attract migrants back to Ukraine.

Before Russia’s invasion, at an UN-sponsored conference on demographic resilience, Ukraine’s Minister of Social Policy, Dr. Maryna Lazebna, argued that finding the right policy solution is crucial not only for Ukraine’s demographic future, but also for its democracy and resilience. One solution that would help to both increase labour supply and encourage childbearing is investing in Ukraine’s childcare sector (Mykhailyshyna et al, 2019, Sakhno 2021). In the short term, providing subsidised childcare would increase female labour force participation by allowing mothers to return to work. Improving conditions for combining work and family would also help to attract migrants back to Ukraine.

Although the Soviet Union built daycare centres to maximise women’s participation in the labour force, many centres closed during the 2000s as a result of fewer births, particularly in rural areas where depopulation has been most acute (Perelli-Harris and Hilevych 2023). As of 2021, only around 17 per cent of children aged 0-2 years old were enrolled in daycare centres (see Figure 6). Ukrainian policies have favoured maternity leave. Social security provides birth payments for up to three years, and protects mothers from unfair dismissal. Although such long maternity leave may have some benefits for mother and child bonding, protracted maternity leave has been found to erode human capital, reduce parents’ earnings potential, and result in eventual withdrawal from the labour market (Budig et al 2012). Thus, expanding nurseries for babies and young children would encourage women to fill labour shortages, especially those vacated by men called to the war effort. As during previous World Wars, boosting female labour force participation can strengthen labour markets and lead to greater productivity. Finally, better childcare arrangements may also encourage women with small children to return from abroad, as they could then begin to look for employment opportunities at home.

Figure 6. Per cent of Children Enrolled in Daycare, 2010-2021



Source: State Statistics Service of Ukraine, Ministry of Education and Science of Ukraine.

Access to high-quality public childcare is widely considered to be an important family policy that supports work and family reconciliation (UNFPA 2021). With access to childcare, women no longer need to consider the lost opportunity costs of withdrawing from the labour market and are instead able to pursue careers and contribute valuable income to households. Providing subsidised childcare helps raise families out of poverty, especially lone parents and widows. High-quality childcare also provides cognitive and social benefits to early child development, which has a long-term impact on producing a skilled and productive labour force.

Studies have shown that childcare expansion has been one of the most successful ways for countries to increase fertility rates (Sobotka et al 2020). A systematic review of studies investigating the impact of family policies on fertility found that the expansion of childcare leads to a lasting increase in births (Bergsvik et al 2021). Estimates based

on OECD contexts indicate that a 10 per cent increase in childcare enrolment would result in an increase in the TFR by 0.08 (Greulich and Thevenon 2013).

One clear example of the effectiveness of early childcare provision for raising fertility comes from Norway (Sobotka et al 2020). The childcare expansion in Norway has been enormous; only 37% of one to three-year-olds attended daycare in 2000 increasing to over 80% by 2016, suggesting that demand for childcare can also rapidly increase. The increase was facilitated by a broad political consensus on improving the quality of care by building new kindergartens and subsidising existing daycares. Although it took time, the state focused on the pedagogical training of key staff such as head teachers, but required less training for assistants and other childcare workers. A regulatory system ensured high-quality standards, and by 2009 every child was guaranteed a right to a childcare place. Gradually, parental contributions declined to only about 10% of the average salary and additional support is now provided for low-income families. Overall, the rapid expansion of high-quality childcare led to a considerable boost in fertility, by about 0.10-0.12 children per woman for each 10% increase in availability (Rindfuss et al. 2010). Although Norway has experienced some fluctuations in fertility over the past few years, the childcare system is considered to be integral to its relatively high levels of fertility.

“Childcare expansion has been one of the most successful ways for countries to increase fertility rates” Sobotka et al 2020



“Ukraine has a unique opportunity during the recovery stage to recognise the problem of severe depopulation and labour shortages and enact policies to counteract fertility decline.”

Early childcare provision is now standard across many European countries, including some eastern European countries such as Slovenia, Estonia, and Lithuania (Javornik 2014). However, it is increasingly combined with other policy options, including both men and women’s parental leave (Sobotka et al 2020). For example, Estonia has recently been reforming its family policies towards the Nordic country model to allow more flexibility. Similar to Ukraine, Estonia previously provided a three-year leave with low compensation, but has reformed maternity leave to offer short-leaves with full wage replacement or longer leaves with 70-80 per cent of wage replacement. The gradual increase in public childcare provision allowed women to combine family and work in Estonia, leading to the stabilisation of fertility over time.

Other governments have deliberately expanded free childcare hours arguing that it would boost economic growth. For example, the UK government has recently introduced a plan to increase the free childcare allowance to 30 hours for British working parents by 2025. Although the scheme has been criticised for not being large or sufficiently detailed enough (Drayton et al 2023), the plan is widely supported as a way to promote women returning to work. Note that the British scheme will be phased in gradually in order to increase the skilled childcare workforce and build appropriate facilities.

In Ukraine, the expansion of childcare would also need to be rolled out slowly, and combined with the existing parental leave system,

potentially providing flexibility of uptake, as mentioned above. Ukrainian economists have already identified specific ways to improve the pre-school situation in Ukraine, including subsidising private kindergartens, introducing an electronic queue for enrolment, increasing staff wages, and reducing teacher training requirements (Sakhno and Teleton 2010). By ensuring that the “money follows the child,” childcare spaces can be distributed across both rural and urban areas of Ukraine.

In line with the theme of “Rebuild better,” Ukraine has a unique opportunity during the recovery stage to recognise the problem of severe depopulation and labour shortages and enact policies to counteract fertility decline. Expanding childcare requires time and investment, but could also be funded by private enterprises and non-governmental institutions (Sobotka et al 2020). It must be acknowledged that Ukraine does have other educational priorities, such as rebuilding schools and universities. As of April 2023, an estimated 2,677 educational institutions have been damaged, with 331 completely destroyed (Centre for Information Resilience 2023). The strain on schools, teachers and educators during the war has been immense. Nonetheless, the long-term investment in childcare institutions, in conjunction with rebuilding other educational facilities, will undoubtedly provide long-term pay-offs in terms of maximising the labour force, supporting families to increase household income, while simultaneously encouraging couples to have children.

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Chapter 4: Supporting war veterans

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One of the main debts Ukraine will have to repay after the war is the debt of gratitude to its veterans, who will need help adjusting to civilian life and coping with physical and psychological injuries. The importance of support for war veterans cannot be overstated: it is essential in establishing the credibility of the country, and if overlooked, it might create significant tensions in society.



The current data on members of military service is classified. Before the full-scale invasion, there were 438,834 war veterans in Ukraine, and 7,072 had disabilities due to the war (1). In addition to retirement pensions and payments for veterans with disabilities, war veterans in Ukraine are entitled to a range of benefits, including discounts on utilities, access to medical care, housing assistance programmes, educational support, support with starting their own businesses (4). However, the process of applying for disability benefits is lengthy, inefficient, complex, and sometimes humiliating (2). Even before the full-scale invasion by Russia, veterans stated that accessing benefits required too much paperwork, and that the lack of information often prevented them from receiving benefits (15).

The legislation regulating the social and retirement support for the military veterans (3,4) was adopted in the early 1990s, when no one expected that Ukraine would be involved in a full-scale war. As a result, it is not well-suited to deal with the consequences of such a war. It extends the coverage to many specialized services beyond the army, such as the Administration of State Guard of Ukraine and the Bureau of Economic Security. While these services are essential, providing them with the same benefits as the active military members, who serve in dire conditions, is unfair and not financially prudent. Since the size of the pensions depend on the current payments to the active service members, increasing the financial provision to the current military personnel allows an estimated existing 500,000 retirees, many of whom never participated in combat, to claim that they are entitled to pension increases (5). As a result, the courts have ruled that the government already owes more than \$500 million in military pension payments (18).

Ukraine needs a system that would be both fair and solvent. It must take into account not only the current cost of caring for veterans, but also future obligations, which usually peak about 30 to 40 years after a war as the veterans age (19). For example, total annual

spending per veteran in the USA increased more than four times from 2000 to 2019 (20), and it is estimated that the cumulative costs of their care will exceed \$2 trillion by 2050 (19). For Ukraine, it will be challenging to provide a similar level of support through the government budget, especially while rebuilding its economy — other means of financing need to be considered, for example, establishing a trust fund targeted at veterans' care.

Another critical issue that often does not receive sufficient attention is support for veterans with post-traumatic stress disorder (PTSD). This condition can significantly deteriorate the quality of life for the affected person and their family. The US data shows that recent veterans (those who participated in the wars post-9/11) are more likely to suffer from PTSD, traumatic brain injury (TBI), and depression (“signature disabilities” of the Gulf War) compared to the veterans of previous wars — the result of the changes in the combat methods and advancements in diagnostics. An estimated 30% of recently returned veterans screen positive for one or more of these impairments (10). The problem with these conditions is that they are hard to screen, and many veterans are likely to get diagnosed only after their return to civil life (21). PTSD imposes a significant burden on the economy as well: in the USA, the excess cost associated with PTSD among the military was \$42.7 billion in 2018 (22), including \$10 billion of direct health care cost (or 14% of total veterans' medical care cost (23)).

Disabilities, and “signature” disabilities in particular, degrade veterans' perception of employment prospects. American disabled veterans fear they would be discriminated against in hiring because of their disabilities, and, likely for this reason, most do not intend to disclose their disabilities to an employer or ask for accommodation when employed (10).




438,834 Ukrainian war veterans in Ukraine before the invasion

\$500 million

in military pension payments owed by the government



30% of recently returned veterans screen positive for one or more of these impairments (PTSD, TBI, depression)



“PTSD is also stigmatised, and the public discussion about how the society can help its defenders to cope with psychological problems is just starting.”

In Ukraine, PTSD is also stigmatised, and the public discussion about how the society can help its defenders to cope with psychological problems is just starting. There are no consolidated data on the number of Ukrainian veterans diagnosed with PTSD, but the estimates range from 10% (17) to 25% (16) of the war veterans. Even though the veterans are less ready to admit the problem when talking about themselves, only 7% feel that psychological help is not needed when describing the veterans in general. Veterans may hold back from getting assistance because they “don’t want to demonstrate their problems,” “are not to recognize the problem,” and “do not know where to seek help” (6). The concerns of the veterans are not unwarranted: before the full-scale invasion, 15% of veterans actively searching for a job could not find it because of their disability, 13% felt they were rejected due to their combatant status, and 10% of veterans felt prejudice from colleagues and supervisors due to their war experience (6). These numbers show that despite the high reverence towards Ukrainian veterans, there are significant problems when it comes to interactions with veterans, often caused by the lack of information and experience in this domain.

While the US has the largest number of veterans in absolute terms (9), the American soldiers fought far away from home. In this respect, the experience of Israel, with the wars fought at its doorsteps, might provide valuable insights for Ukraine. Israeli society is closely affected by war and terror, so they better understand their soldiers’ sacrifices on the battlefields. A noteworthy difference possibly stemming from this is that the proportion of Israeli veterans diagnosed with PTSD is lower than in the United States (11, 12). Furthermore, Israeli soldiers have a lower rate of delayed PTSD (Solomon et al. (13)) and a weaker association between PTSD and mortality (Zohar and Fostick (14)). An important takeaway is that while drugs might effectively manage symptoms like anxiety or insomnia, they don’t entirely address the problem (12). The lack of understanding and compassion for the experiences of soldiers by civilians often amplifies the symptoms of PTSD, so government programmes are necessary to help bridge the ‘civic-military cultural gap’ discussed by Demers (8) and Coupe and Obrizan (7). Families and society need to learn about the changes and traumas their close ones might experience after combat; it is essential for a veteran-inclusive environment.

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Chapter 5:

Ensuring monetary-financial stability for successful recovery

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In parallel to Ukraine's intense military defence in the face of Russia's invasion, the National Bank of Ukraine (NBU) has needed to act swiftly to protect the stability of its national currency, the Hryvnia (UAH). This chapter explores the impact of the war from a Ukrainian monetary economics perspective. First, we provide a brief monetary history of Ukraine. Second, we document the NBU's immediate policy response and subsequent policy regime to maintain monetary and financial stability. Third, we provide a road map (and lay out the potential risks) for the NBU in supporting the country's economic recovery and reconstruction, particularly the need to normalise its policies and ensure both internal and external balance.



A brief monetary history of Ukraine

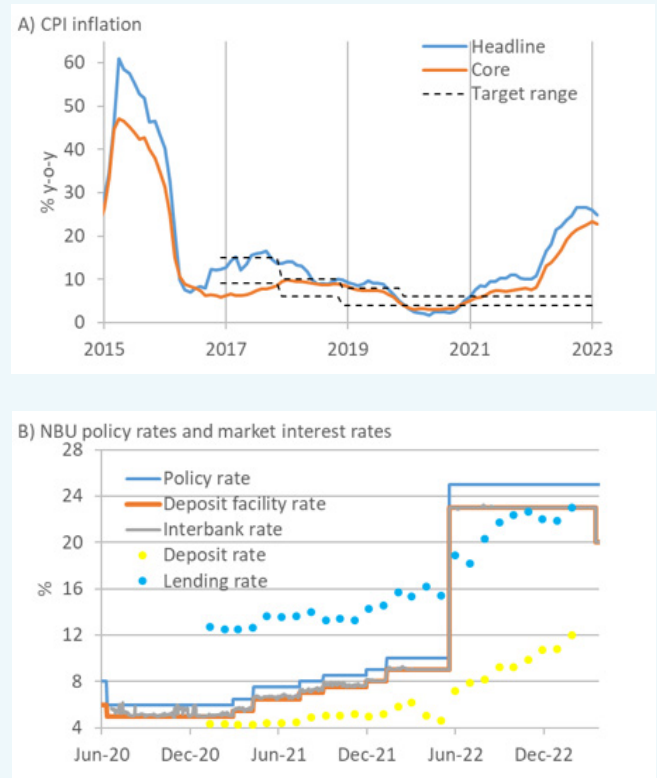
Since its independence in 1991, Ukraine has experienced a turbulent monetary history. In 1993, a hyperinflationary spiral peaked above 10,000 per cent, setting the need for monetary reform in 1996 and a transition to a new currency (at a ratio of 100,000:1).

In 2000, 2008, and 2014-15, three large devaluations of the currency followed, accompanied by further spikes in inflation (see Figure 1A). The last of these, during a period of political instability, followed an unsuccessful bid by the NBU to defend the currency, depleting its stock of international reserves (see Figure 5A). Because of these experiences, Ukrainian households hold large quantities of foreign currency and are quick to convert liquid savings out of the national currency in response to signs of economic or political instability.

In 2015, the NBU became more operationally independent to overcome the problems of fiscal dominance with a mandate to ensure price and financial stability. To achieve the former, the NBU has been operating an inflation-targeting regime, targeting five per cent annual inflation. Thus, in the context of the Mundell-Flemming trilemma, it adopted independent monetary policy and free capital movements while allowing the exchange rate to float freely.

By 2021, the NBU was the image of a typical modern central bank in the middle of a steady policy tightening cycle (see Figure 1B), balancing the need to support the economy through the covid pandemic and preventing inflationary pressures arising from covid-induced global supply chain disruptions. The build-up to and the subsequent Russian invasion of Ukraine, however, dramatically changed the monetary landscape and forced the NBU to rapidly change its operations to prevent a financial collapse.

Figure 1 Inflation and the key policy rate



Source: NBU

%

In 1993, a hyperinflationary spiral peaked above 10,000%



Three large devaluations of the currency followed, accompanied by further spikes in inflation



Depleted stock of international reserves

Monetary-financial challenges in the early days of the invasion

Ever since November 2021, when satellite imagery of new Russian troops near the border emerged, financial pressures on Ukraine were building with every escalation of geopolitical tensions. The first sign of this pressure was turbulence in the foreign exchange market and a slide in the value of the Hryvnia (UAH, the national currency (see Figure 2). In terms of quantities, the volume of Ukrainian government bonds held by non-residents shrank by almost 20 per cent in January-February 2022 and Ukrainian households were rapidly acquiring more foreign currency. As a result, the NBU began intervening in the foreign exchange market, with sales of foreign reserves in January 2022, to smooth exchange rate fluctuations and control the depreciation of the national currency (see Figure 5B).

On 23 February 2022, on the eve of invasion, and with the currency sliding again, the NBU attempted to calm markets by stating it “has a sufficient amount of international reserves” and there is “no

shortage of cash in the banking system”. However, within hours of the invasion, on 24 February 2022, the NBU implemented a pre-developed anti-crisis action plan to prevent panic and stabilise the financial system—a plan developed in the aftermath of the annexation of Crimea in 2014. Five key actions were taken in the first few days of the invasion:

Closing the foreign exchange market

The first part of this plan was suspending the operation of the foreign exchange market (except for the sale of foreign currency to banks), imposing capital controls, restricting withdrawals from foreign currency accounts, and switching from a flexible to a fixed exchange rate regime (at UAH/USD = 29.25).

The closure of the foreign exchange market and fixing of the exchange rate were necessary to prevent a possible uncontrolled devaluation of the national currency caused by a flight to foreign currency amid the panic. From past experiences, households and firms learned that foreign currency was the safer haven for

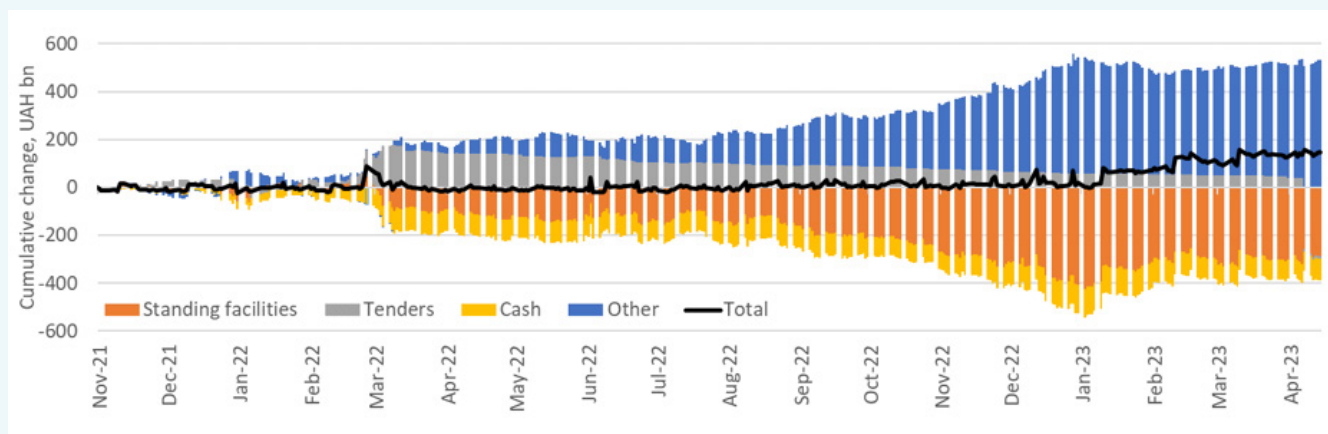
Figure 2 Official hryvnia exchange rate



Source NBU

“Within hours of the invasion, on 24 February 2022, the NBU implemented a pre-developed anti-crisis action plan to prevent panic and stabilise the financial system—a plan developed in the aftermath of the annexation of Crimea in 2014.”

Figure 3 Banks' current accounts at the NBU



Source: NBU.

Note: Total is the cumulative change in banks' current accounts at the NBU since 1 November 2021. These changes split by four factors: two types of NBU monetary policy operations (Standing facilities and Tenders), Cash (the effect of changes in the volume of cash in circulation), and Other (dominated by the government expenditures). On 25 February, the tenders included unsecured funding with maturity up to one year.

savings, while foreign cash remained more readily available than other assets. A temporary fixing of the exchange rate is a common measure for countries with currency vulnerabilities during military conflicts and wars, to stabilise the foreign exchange market and prevent surging inflation. In particular, this measure was employed by Israel (1985–2005), Serbia (2000–2003), Iraq (2004–2006), and Georgia in 2008.

International swap lines

In addition to closing the foreign exchange market, the NBU also received a USD1bn swap line on 24 February 2022 from the National Bank of Poland, to help maintain international reserves and the capacity to ensure financial stability. Although the NBU did not use these funds, the existence of the swap line provided valuable reassurance to banks.

Liquidity for banks

On 25 February 2022, banks borrowed UAH52bn from the NBU through various instruments (see Figure 4A, orange line). To get a sense of the scale of this intervention, banks were holding only UAH58bn in their current accounts with the NBU before the invasion (blue line). This borrowing included access to unlimited refinancing loans in national currency, with a maturity up to one year. Unprecedented, these loans were unsecured, exposing the central bank to credit risk. Over 11 days, banks received UAH62bn of these unsecured loans. The liquidity injections ensured that the interbank market continued to function without visible signs of market stress (see Figure 1B). Yet, the additional liquidity (see Figure 3, orange and grey bars) was quickly offset by additional demands for cash (see Figure 3, yellow bars, and Figure 4 orange and grey lines).

Liquidity for the government

On 24 February 2022, the NBU also supported the liquidity of the government by transferring UAH19bn of 2021 profits to the state budget (equivalent to 1.3 per cent of government expenditure or 10 per cent of the consolidated budget deficit in 2021). On 8 March, the NBU announced that it would support the state budget through the purchase of Ukrainian government securities in the

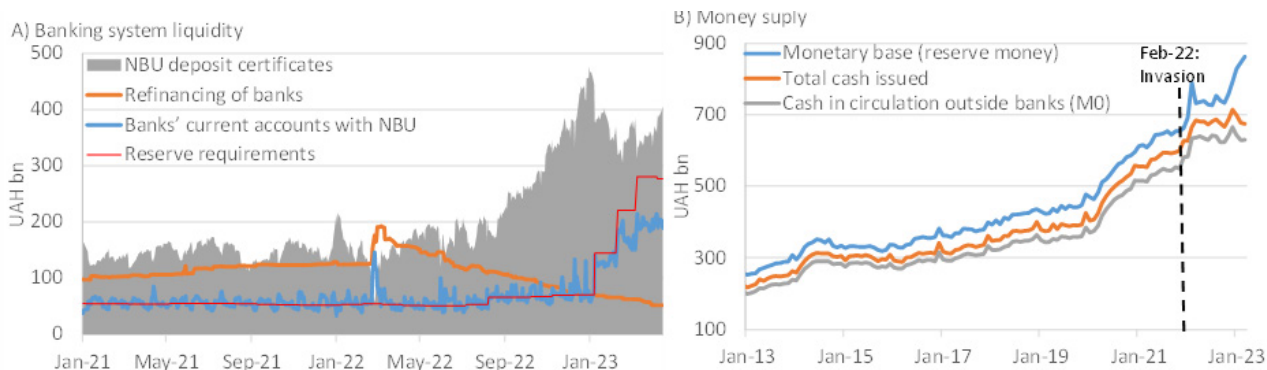
primary market and subsequently purchased UAH20bn in war bonds that day. In the coming days and weeks, the NBU would continue to purchase war bonds. While the need to provide the government with financial support was critical in those early days of the invasion—and therefore justified—the purchase of government bonds on the primary market is usually a red line for independent central banks. Having crossed this line, a key challenge going forward was the ending of this policy as a reliance on monetary financed government spending can quickly end in hyperinflation. We will return to this risk below.

Halt to monetary policy tightening

Prior to the invasion, the NBU had been scheduled to decide on its key policy rate on 3 March 2022 and was set to impose increased reserve requirements on 11 March 2022. Both were promptly cancelled at the onset of the invasion. But, with inflation at 10 per cent in January 2022, well above the five per cent inflation target, the anticipation had been that interest rates would continue to rise in 2022. Greater uncertainty then encircled whether policy rates would need to fall in future (to ease financial conditions) or rise (to defend the currency and mitigate inflationary pressures).

The NBU acted decisively and communicated the above plan clearly. These actions, in the space of two days, most likely prevented a sharp depreciation of the currency, a rapid outflow of international reserves, and a liquidity crisis that could have prompted a financial collapse. The military defence of Ukraine was at its most vulnerable in those early days of the invasion. The counterfactual in which the financial system collapsed would almost surely have resulted in the military defence of the country becoming almost impossible to sustain. However, as the military defence began to strengthen in the subsequent weeks, the consequences of the war on the economy also became more visible.

Figure 4 Banking system liquidity and money supply



Source: NBU. Note: B) Cash in banks vault = Total cash issued – Cash in circulation outside banks (M0).

Monetary-financial challenges in the first year of the invasion

The initial impact of the invasion on the Ukrainian economy was devastating. A third of enterprises immediately ceased operations, caused by the destruction of production facilities and infrastructure, the disruption to supply chains, and dramatic increases in production costs. As a consequence, GDP fell by 29 per cent in 2022, twice as much as during the global financial crisis in 2009.

Within weeks of the invasion, the rebuilding of economic activity in the country had begun. However, high and uncontrolled inflation could prove the longer-term scourge for the Ukrainian economy. While rising inflation has become a global problem, caused by supply chain bottlenecks and rising world energy prices, the risk of persistent high inflation in Ukraine is even greater. Figure 1A shows part of Ukraine's troubled history with inflation, when it rose above 60 per cent in 2015. However, after a period of relative stability, inflation once again began accelerating following the invasion, having already been above the NBU's five per cent inflation target. In the face of surging inflation, the NBU took the unusual step of hiking its policy rate by 15 percentage points in one move on 2 June 2022, to 25 per cent (see Figure 1B). As a result, after peaking at 27 per cent in December 2022, inflation began to slow, reaching 21 per cent in March 2023.

Yet, the policy challenge is more complex than a simple relationship between inflation and interest rates. Another reason for the sharp increase in the interest rate was the need to remove excess liquidity in the financial system and soften the demand for foreign currency, which could lead to a significant depreciation of the national currency. In analysing the NBU's policy response below, we look at

disruptions in monetary policy transmission and its fine-tuning, the pressures on the national currency, the return of fiscal dominance, and support from the international financial community in gauging the risk of inflation moving higher again.

Monetary policy transmission disruption

Despite the NBU's sharp tightening of its policy rate, the pass through to market interest rates has been meagre. As seen from Figure 1, which plots the average interest rate on new deposits and new loans, deposit rates only rose by around six percentage points in the second half of 2022, whereas lending rates increased by about seven percentage points. This lack of pass-through, especially to depositors, has diminished the effectiveness of the policy in incentivising residents to hold national currency.

“While rising inflation has become a global problem, caused by supply chain bottlenecks and rising world energy prices, the risk of persistent high inflation in Ukraine is even greater.”

Part of the reason for the high inertia of deposit rates was that banks did not have strong incentives to compete with each other to raise external funds from the public. The NBU's liquidity policies meant that Ukrainian banks experienced a structural surplus of national currency liquidity, even before the war. Figure 4A shows that banks used excess liquidity to simply invest in the NBU's deposit certificates (CDs), rather than extending credit to the private sector.

Taking this into account, to strengthen monetary policy transmission, the NBU made three significant changes to its monetary policy framework. First, it tightened banks' reserve requirements three times in 2023 (see Figure 4A). Second, in April 2023, it introduced an asymmetric interest rate corridor and "targeted" liquidity operations. The former was designed to reduce the excess liquidity in the banking system. The latter was designed to discourage excessive reserve holdings and link affordable access to central bank funds with the growth of the banks' deposit base. In both cases, the ultimate aim was for banks to compete for retail deposits by pushing up their deposit interest rates while also encouraging credit creation rather than the hoarding of liquidity.

Financial repression

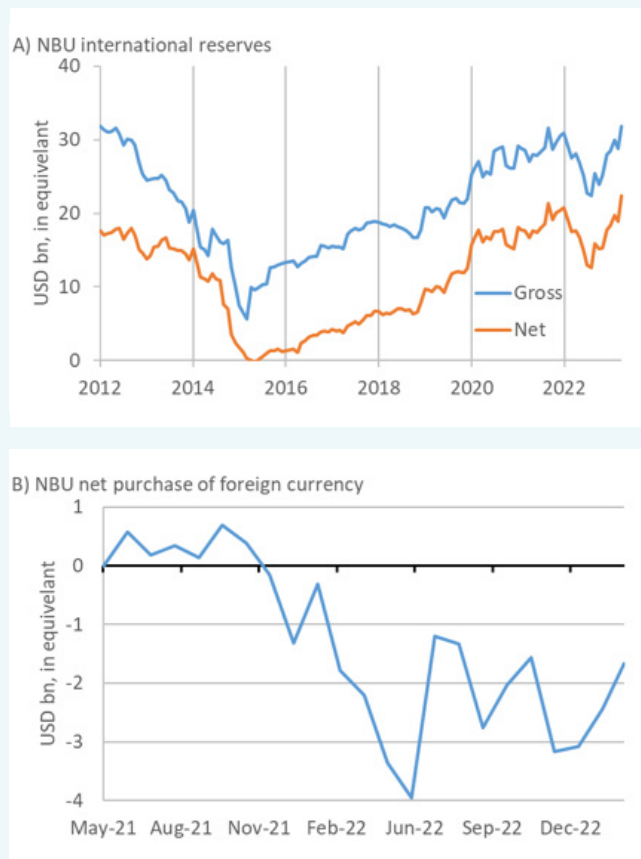
The changes in reserve requirements also included an element of financial repression—creating a captive domestic market for government debt. The NBU achieved this by allowing banks to use domestic government debt securities to meet up to 50 per cent of their total reserve requirements, starting from January 2023. By encouraging banks to participate in the primary bond market, this relieves pressure on the NBU to continue to provide monetary financing of the budget deficit.

The exchange rate and demand for foreign currency

The Russian invasion generated a sharp increase in the demand for foreign currency in Ukraine. Initially, this was caused by Ukrainians seeking to move abroad and needing a means of payment. But, it was also caused by those wanting to protect the value of their liquid savings.

With a fixed exchange rate and a closed official foreign exchange market, the unsatiated demand for foreign currency caused the emergence of a shadow foreign exchange market. Figure 2 shows one such bilateral shadow market on the finance.ua website where individuals can post prices for currency they are willing to buy and sell. The gap between the official and shadow exchange rates is a good proxy of the pressure on the fixed exchange rate. From the onset of the initial fix, the shadow rate has been above the official rate. However, that gap steadily grew over the spring and summer of 2022, eventually forcing the NBU to announce a devaluation of the currency on 27 July (to UAH/USD = 36.57). Despite the interest

Figure 5 International reserves and the NBU's purchase of foreign currency



Source: NBU.

rate hike and the revaluation of the national currency, the gap between the official and shadow exchange rates continued to widen until October 2022. Since then, amid the inflow of international financial support and success in military defence actions, the gap has narrowed, suggesting that the risk of a second devaluation has diminished.

The pressure on the NBU to devalue the currency is evident through the impact of the fixed exchange rate on its international reserves. Figure 5 shows that, while defending the fixed exchange rate, Ukraine's foreign reserves initially fell by almost 40 per cent. The figure also shows the last large devaluation of the currency, in 2015, when the NBU depleted its reserves in an unsuccessful attempt to defend the currency. This time, the depletion of foreign currency reserves was first halted (owing to the devaluation of the exchange rate in July 2022) and subsequently reversed as a result of the inflow of international financial support. As of March 2023, the NBU's stock of international reserves is back above their pre-war level (Figure 5A).

The pressure on the national currency can also be seen through the lens of the balance of payments. First, the stock of foreign cash owned by Ukrainians outside the banking system increased by USD10bn in 2022 (by five per cent of pre-war GDP and 34 per cent of Ukraine's foreign reserves) while trade credits rose by USD11bn. Second, trade volumes plummeted at the start of the invasion, and thereafter imports have recovered much faster than exports. As a consequence, Ukraine's trade deficit was almost USD26bn (13 per cent of GDP) in 2022. Since then, these two items have been covered by remittances and military and humanitarian aid.

A final important factor affecting foreign exchange has been the increase in excess liquidity in national currency in the banking

system. This occurred both because the NBU supported the banking sector, to prevent a liquidity dry-up of financial markets, and the government, to meet its expenditure needs.

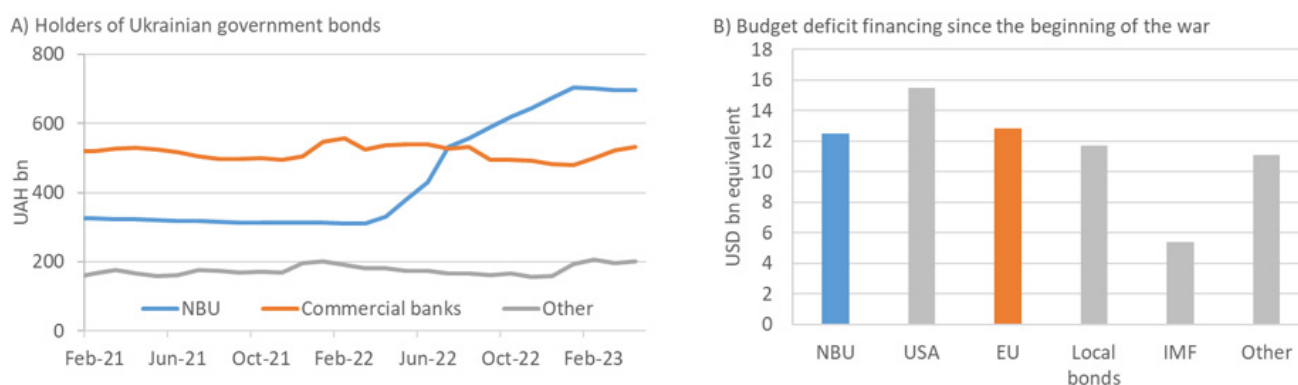
Monetary financing of the budget deficit

While many of the factors described above could be temporary in nature, a more concerning long-term trend has been the monetary financing of the government's budget deficit. The war has caused a significant increase in budget spending on defence and social security. As a consequence, the consolidated government budget deficit rose from 3.4 per cent of GDP in 2021 to a record 27 per cent of GDP (excluding grants) in 2022.

To fund a ballooning budget deficit, the government issued bonds and called on the NBU to buy them. Figure 6A shows that the NBU has quickly become the largest holder of Ukrainian government bonds. The NBU's portfolio grew by around UAH220bn (four per cent of GDP) in February-June 2022. At this point an agreement was reached to limit the NBU's purchases of government bonds to UAH30bn per month. As a result, despite political pressure, the NBU's bond portfolio increased by less than UAH400bn (or about seven per cent of GDP) in 2022 – consistent with the initial NBU's plans announced in summer 2022.

Figure 6B shows a breakdown of how the government's budget has been financed since the start of the war. While significant support has been provided by the United States, European Union and International Monetary Fund (IMF), it has been insufficient to prevent the NBU from being one of the dominant actors in financing this increased spending. In 2023, the NBU halted purchases of government debt completely, with the NBU governor, Andriy Pyshnyi, acknowledging that the purchases had "created huge risks for macrofinancial stability" and that it would no longer

Figure 6 Fiscal dominance returns



Source: NBU and Ministry of Finance of Ukraine. Note: A) Other includes resident households, resident firms, and non-residents. B) Other includes other countries and international financial institutions.

resort to “dangerous” monetary financing to fund the war. This restriction on monetary financing of the budget deficit is imperative to ensure that Ukraine avoids a hyperinflation scenario. However, future risks created by political pressure to resume purchases could re-emerge, and the NBU will need to remain strong in the face of this pressure.

An NBU roadmap and risks ahead

International wartime experience

Historical examples of other countries that have emerged from periods of conflict can serve as valuable case studies, demonstrating the monetary and fiscal policies needed to foster a robust economic recovery. Each such case is different, characterised by a number of factors, including the pre-war macrofinancial state of the economy, the duration and scale of the war, external economic conditions, and international military, political and financial support. Looking past these differences though, we are able to trace a general pattern of measures needed to ensure macroeconomic stability.

Successful stabilisation programmes have usually relied on independent monetary policy, a clear and credible path for long-term fiscal sustainability, access to bond markets to fund budget deficits, and structural reforms. Fixing the exchange rate is usually only a temporary (albeit an effective) measure to stabilise the financial conditions and curb inflation.

Successful cases in which outbreaks of runaway inflation caused by fiscal dominance were tamed included Israel (reducing inflation from 480 per cent to 18 per cent in 1985-86) and Croatia (from 1,839 per cent to four per cent in 1993-94). On the contrary, in other countries, the large-scale monetary financing of the budget generated hyperinflation and significant risks to financial stability².

The IMF programme and financial support for Ukraine

Ukraine has a good opportunity to maintain the stability of its monetary system and avoid the scourge of hyperinflation that so often blights a post-conflict economy. Following the prescription described above, and under the current IMF Extended Fund Facility (EFF) programme (which was announced on 31 March 2023 and directly provides up to USD16bn over four years), this would pave the way for further extensive financial support from the international community³. While the IMF programme has strict conditions attached, both the financial support and the conditions are strongly welcomed⁴. However, Ukraine faces at least four risks going forward that could potentially derail the programme.

First, the IMF programme is predicated on the war ending in the coming years. The implementation of the programme therefore

“Successful stabilisation programmes have typically included controlled and independent monetary policy, a clear and credible path for long-term fiscal sustainability, access to bond markets and structural reforms.”

depends on the duration and intensity of the war. If the war lasts longer than expected—which we think is likely—the economic damage and, therefore the fiscal gaps might be even higher than the programme’s downside scenario predicts.

Second, the IMF programme imposes a debt burden on Ukraine with an interest-bearing repayment schedule. Prior to the programme, Ukraine had enjoyed financial support in the form of grants from the international community. Thus, in the case of a more protracted war, the IMF programme may have arrived too early and Ukraine may find itself in a position where it has difficulty in debt sustainability and being able to access international bond markets for funding.

Third, delays in external financing (from the IMF or other external partners) could disrupt the entire structure of the programme, again calling into question the country’s debt sustainability.

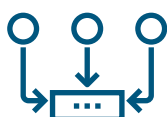
Fourth, the IMF programme will be economically painful both for households and businesses due to demands for fiscal consolidation and the return to pre-war levels of taxation. Households have already seen their living standards fall markedly during the war. Asking them to continue to endure further pain for the longer-term benefit of re-establishing fiscal sustainability and external balance will be a politically difficult policy to sell. Even over the past 25 years—and during periods of peace—the country has always failed to complete its previous IMF programmes when the time came for tough reforms. Completing this IMF programme will be an equally large political challenge.

A road map for the NBU

The war imposes significant uncertainty and risks on the economic outlook for Ukraine. Meanwhile, the NBU is working to achieve stable and predictable monetary and financial conditions needed to recover and foster economic growth. This will require a gradual normalisation of macroeconomic policies, including the following:



A return to the principles of inflation targeting (and re-anchoring the private sector's inflation expectations).



A clear and credible plan for long-term fiscal consolidation (to ensure debt sustainability).



Removal of the fixed exchange rate and foreign exchange market restrictions (transitioning to a floating exchange rate via a managed float) to avoid the accumulation of macroeconomic imbalances.

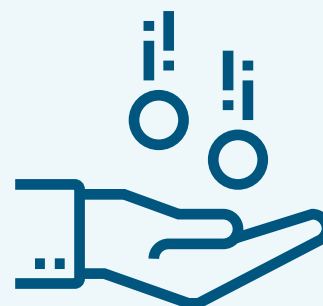


A delicate balance between ensuring the effectiveness of monetary policy transmission and sufficient levels of banking sector liquidity to ensure the financial sector is stable and able to create credit.

In the long-term, it will be hard for Ukraine to survive without building a strong economy capable of generating a steady inflow of foreign currency. From the monetary policy perspective, this task will require addressing the problem of non-performing bank loans accumulated during the war and the need to revive bank lending to promote economic reconstruction. The latter will likely demand not only lower interest rates but also government guarantees for banks in the face of high credit risks. Moreover, possible structural changes in the economy will lead to price adjustments, fraught with upward risks of inflation and a potential conflict between the goals of economic recovery and price stability. Hence, the transition to normality will require not just financial support but also the taking of prudent (and sometimes difficult) policy decisions by an independent and competent NBU and related policy institutions.

Notes

1. The NBU also simplified the rules for commercial banks, including some regulations and statistical reporting.
2. For example, the required reserve ratio on national currency household demand deposits and current accounts increased from zero, rising twice by five percentage points and then by 10 percentage points, to reach a current level of 20%. Similar changes were enacted on other types of deposits accounts. For foreign currency deposits, the reserve requirements are even higher at 30%, further disincentivising dollarization of deposits. On 7 April 2023, the NBU set an asymmetric overnight interest rate corridor by lowering the deposit facility rate from 23% to 20% (while maintaining the policy rate and overnight loan rate at 25% and 27%, respectively). Furthermore, they began selling 3-month CDs at the policy rate, where access to these CDs was linked to the size (and growth) of a bank's retail UAH deposit portfolio.
3. Hyperinflation was experienced by Austria, Germany, Poland after the First World War; Japan, Germany, Hungary, and Austria after the Second World War; and South Korea during the Korean War. More recent examples are Israel after the Lebanon War (with inflation at 480% in 1984), Croatia (1,500% in 1993), Serbia after the breakup of Yugoslavia (1.2 × 1014% in 1994).
4. The IMF programme clears the way for large-scale concessional financing from the international community in the order of \$100bn (\$80bn in pledges for grants and concessional loans from other countries and multilateral institutions, and \$20bn of debt relief commitments).
5. The programme is expected to be implemented in two phases. The first (2023-24) is designed with the anticipation of the war continuing and is therefore less challenging in terms of structural reforms. In particular, Ukraine is committed to providing a credible budget for 2023, rebuilding fiscal revenue generation, ensuring central bank independence and achieving steady disinflation, maintaining exchange rate stability, and pursuing stress-testing of the banking sector to assess the extent of non-performing loans. The second phase (2024-27) is more ambitious, particularly in terms of structural reforms (in anticipation of Ukraine being in a post-war period), and is intended to lay the foundations for macroeconomic stability in the long-run, as well as to support recovery and reconstruction efforts. These reforms require a return to the pre-war policy frameworks, including inflation targeting and a flexible exchange rate, and strengthening public finance management.
6. In April 2023, the NBU estimated that the potential losses of the banks' loan portfolio might reach as high as 30%.



Chapter 6:

War risk insurance mechanism for Ukraine

By Maria Repko, Centre for Economic Strategy

Private investment will be crucial for Ukraine both during Russia's invasion and in the post-war reconstruction process to achieve sustainable economic growth, productivity gains, and green transformation. Political and war-related risks will continue even after the war ends, making investment insurance schemes necessary to attract investors. The conceptual framework of the scheme should include the layers of international guarantees, reinsurance market and private insurance companies as frontiers for ensuring equal access of all businesses in Ukraine to war-related risks insurance. This chapter, briefly outlines the situation and propose principles crucial for the success of the war risks insurance scheme for Ukraine.



The path towards recovery and ensuring decent living standards for Ukraine's citizens hinges on achieving sustainable and rapid economic growth in the years ahead. At the same time, growth is also needed for ensuring debt sustainability - Ukraine finds itself facing a daunting task of redeeming its debt to creditors, which has surged to USD116bn, or 78 per cent of GDP, up from less than 50 per cent before the war, and growing.

However, this growth can only be achieved through investments in fixed assets, which will bolster productivity in light of the expected reduction in workforce following the war and migration. The challenges that Ukraine faces are compounded by the significant loss of USD135bn in fixed assets so far, with USD73bn representing infrastructure and productive sectors. The World Bank has estimated that the total replacement costs could reach USD411bn, of which USD225bn will be required for infrastructure and productive sectors.

Ukraine's economy has been underinvested and has already been hit hard by various crises, including the 2008 financial crisis, the 2014 Crimea annexation by Russia and war in Donbas, and the COVID-19 pandemic. The war has exacerbated these challenges, further complicating the economic maths – facing a probability of physical asset destruction and investors hesitant to take risks, even if there is potential for high returns on equity.

Before 24 February 2022, insurance and reinsurance coverage for war-related risks was available even in areas near the line of contact in Ukraine's Donetsk and Lugansk regions. Logistics, including ships and aviation, were the most commonly covered packages, but property insurance was also available. However, this all changed with the onset of Russia's invasion of Ukraine. Although some individual contracts (eg in marine or aviation industries) are still being negotiated and finalised, major foreign private reinsurance companies are declining to provide coverage for three main reasons.

First, the risks cannot be statistically justified or are even being recognised as incalculable⁵, and the degree of uncertainty is significant, necessitating reserves for the operation to be nearly 100 per cent, rendering it pointless.

Debt has surged to

**\$116
billion**

Estimated total replacement
costs could reach

**\$411
billion**

**“Growth can only be
achieved through
investments in fixed assets.”**


Second, there is a risk of one-off extremely large losses in one territory, making it too dangerous for a single reinsurance company and even too significant for a pool of reinsurance companies, as substantial equity (reserves) coverage would be required.

Finally, the National Bank of Ukraine (NBU), as a part of war-related capital controls, has prohibited foreign currency payments abroad, except for certain types of reinsurance. Before the war, foreign reinsurers provided 95-99.99 per cent of coverage for the insured amount, did the underwriting and claims control². After the NBU's intervention, foreign reinsurance companies are effectively excluded from this market, while domestic companies with total assets of under USD2bn are not enough to cover even a small portion of the risk.

While the political and war-related risks and post-war tensions are not going anywhere in the foreseeable future, this calls for safety for investors provided via specifically designed schemes. A number of scholars and political economy researchers have argued that Ukraine and its partner countries need to consider aligning, enlarging, and establishing new instruments to promote investment insurance, which would significantly reduce the burden on official financial aid from partner countries^{1,2,3}.

The potential demand for war-related risk insurance is estimated to be substantial, particularly in the areas of agriculture, infrastructure, and logistics. It is imperative that priority sectors in Ukraine gain access to war-risk insurance products at the earliest opportunity to bolster the resilience of the country's economy, ensure tax inflows into the state budget and strengthen the country's ability to sustain defence efforts. Additionally, the banking sector should have access to collateral insurance schemes to enable it to resume lending activities and avoid full-blown financial crises during the post-war recovery stage, when the non-performing loans problem will become prominent.

Looking further ahead, a diverse array of war-related insurance products must be made available to both foreign and domestic investors to support Ukraine's economic growth and development. Discussions on this matter between Ukraine and its partner countries are crucial to ensure successful private investment in Ukraine's recovery. A multi-donor fund to cover the risks might be an answer.

An aerial photograph of a city, likely Lviv, Ukraine, showing a dense cluster of buildings with various rooflines and architectural styles. The scene is bathed in a warm, golden light, suggesting either sunrise or sunset. A large, semi-transparent orange rectangle is positioned on the left side of the image, containing white text. The text discusses the importance of war-risk insurance for priority sectors in Ukraine to bolster economic resilience and support defence efforts.

“It is imperative that priority sectors in Ukraine gain access to war-risk insurance products at the earliest opportunity to bolster the resilience of the country’s economy, ensure tax inflows into the state budget and strengthen the country’s ability to sustain defence efforts.”

We present a set of principles aimed at creating an efficient war risks insurance scheme that will enable Ukraine to achieve faster, inclusive, and sustainable economic recovery. These principles are as follows:

- An international guarantee scheme for war risks insurance in Ukraine should be governed by a special vehicle with robust corporate governance, funded by international donors as a money pool that acts as a carrier of war-related risks and implemented by global reinsurance companies consortium to ensure investor confidence. Given the incalculable and non-reinsurable nature of the risk, the only viable approach would be to seek trustworthy guarantees from third-party entities, such as G7+ governments to initiate the market operations. Such guarantees would also help keep insurance premiums rates affordable since, under market terms, the cost of war-related insurance in Ukraine would be prohibitively high for most companies. Additionally, a mechanism for claims against Russia should be established, allowing guarantor countries to recover their funds from the responsible party.
- The insurance should exclusively cover the risks associated with war, such as physical damage to goods and assets, hostile occupation, and contract obligation breaches for war-related reasons, including bank loans, goods, or services supply. Not only a total loss of the property should be covered, but also damages of a moderate scale, which is not the case currently⁷. Commercial risks, the risk of assets nationalisation and/or capital controls imposition by the Ukrainian state, as well as any risks of non-honouring financial obligations by the sovereign/quasi-sovereigns should be excluded from this scheme.
- The insurance should be equally accessible to both Ukrainian and international investors, with coverage for all sizes of investments, large and small. While coverage at the initial stages might be prioritised and channelled towards strategic industries, the goal is to open the market for all players, including SMEs, who can purchase insurance policies from their local suppliers.
- The participation of private insurance companies will be necessary. The scheme should not rely on a single state-owned insurance company, as its capacity would be insufficient to cover all the demand, while governance and corruption-related issues might undermine its credibility. Local insurance companies could broker standardised SME deals, while larger international ones could approach large companies and PPP projects on an individual basis. Proper oversight made possible by the pre-war “split” reform, where the National Bank of Ukraine became the insurance market’s supervisor, would be crucial.
- Ukraine’s government leadership in the process would be valuable at the conceptual stage when the criteria for eligibility of the investors for the insurance and financial service providers for accession to the international guarantee scheme would be determined. It should also be involved in all the stages of negotiations and scheme design. Supervision over local insurance companies during the implementation stage and providing transparency and access to the information is also the Ukrainian counterpart’s task. Still, the funds and the direct management should be out of its hands to eliminate any possible sovereign-related risks which might affect investors’ trust.

“An international guarantee scheme for war risks insurance in Ukraine should be governed by a special vehicle with robust corporate governance, funded by international donors as a money pool that acts as a carrier of war-related risks and implemented by global reinsurance companies consortium to ensure investor confidence. Given the incalculable and non-reinsurable nature of the risk, the only viable approach would be to seek trustworthy guarantees from third-party entities, such as G7+ governments to initiate the market operations.”

Currently, the government, the National Bank of Ukraine, the Presidential Administration, the Ministry of Economy, the Export Credit Agency and InvestUkraine (investment promotion agency) are in the early stages of discussing such a mechanism. While the national recovery plan has added war risk insurance for investment projects in priority areas, the actual process is still in its nascent stage, with some potential progress expected from the Mineconomy and NBU teams in Ukraine.

The Ukrainian insurance market lags behind its Eastern European counterparts and even the local banking services. In 2020, the “split” reform was implemented to enhance the supervision of the non-banking financial sector. As part of this, the regulator (National Commission for Financial Services Market) was dissolved, and the National Bank of Ukraine became the supervisor for insurance companies. In 2020-2021, the NBU carried out a market clean-up and established new regulations for market participants. There are currently 145 licensed insurance companies⁶, a decline from 233 in 2019 due to a market clean-up in 2020-2021. However, the supervision reform was disrupted by the war, and now its implementation is crucial for the war risk insurance scheme to succeed.

On the international front, coordination efforts are slow to take shape as various players slowly integrate Ukrainian programmes into their existing institutions within the regular frameworks of promotion and protection of outward foreign direct investment. The World Bank’s insurance branch MIGA and the US’s DFC have been semi-active in the international arena, and also, few foreign investors either have access (Germany) or anticipate in the near future (Poland) security from guarantee schemes by their nation-states, leaving Ukrainian investors without access to such safety nets.

Finally, the legal framework for war risks and their insurance is new for many Ukrainian counterparties and will require significant effort to increase awareness and financial literacy in this particular product.

Overall, the situation is unique and complicated. Therefore, there remains a lack of dedicated and well-coordinated effort to implement a working international mechanism of war risk insurance for Ukraine’s economic recovery through investment. Despite challenges, progress can still be made with a concerted effort from all parties involved. To achieve success, work must be done on three challenging levels simultaneously. First, establishing a guarantee fund by international financial institutions and donors. Second, creating a pool of reinsuring companies and insurance brokers. Last, establishing a credible and effective mechanism for originating deals in Ukraine that ensure equal access, strong supervision, and efficient support for Ukraine’s resilience and recovery.

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Chapter 7:

The Housing Challenge: A plan for rebuilding residential housing in Ukraine

By Denis Gorea, European Investment Bank

Ukraine needs a plan for how to rehouse all the people who lost their homes due to the war. While Ukraine has received sizable financial support in 2022 and more has been committed for 2023, there has been little attention explicitly devoted to the reconstruction of residential properties in the country. Such support will likely be amplified after the war is over but the experience of South Korea teaches us that post-war residential reconstruction in war-ravaged countries can often become an afterthought rather than a top policy priority (Koh, 2004).



The international community must step up its efforts on this issue before the war is over. This has to be done for two reasons. First, the official financial support currently mobilised for Ukraine will not be sufficient to cover all the damages brought about by Russia's aggression. There needs to be a structured way to involve private capital in the reconstruction process. Second, if the lack of housing continues to remain an acute problem for refugees and internally displaced people, these people might decide to resettle outside Ukraine for good.

The decision of refugees to return will be heavily influenced by the ability of the Ukrainian government to provide adequate housing and any failure on this front will reduce the number of people who return, precipitating an already high pre-war propensity for Ukrainians to emigrate (Dadush and Weil, 2022). Given that there are currently close to 14 million refugees and internally displaced people (UNHCR, 2023), losing even a small fraction of this human capital could have devastating effects on the economic prospects of Ukraine and its survival as a country (Anastasia et al., 2022; Chupilkin and Ko'cza'n, 2022). Furthermore, providing adequate housing options can ensure that refugees return en masse to Ukraine. This can significantly increase Ukraine's economic performance going forward, as returning migrants tend to boost export performance of the firms they work in after their return (Bahar et al., 2022).

This chapter proposes a solution for how to mobilise private capital for the reconstruction of residential buildings in Ukraine and a blueprint for an organisational framework through which a ramp-up in residential development can be achieved. The framework is based on two new institutions: one in charge of attracting private capital to Ukraine and another focusing on the construction of new dwellings for refugees and the internally displaced. The financing part of the framework will be operated by a newly established multinational bank. The bank will be in charge of issuing long-term bonds on international capital markets backed by its capital. Part of its capital will be made up of developable land in Ukraine to entice investors to buy the collateralised bond obligations issued

by the multinational bank and to lower its borrowing costs. The funds obtained from debt issuance will then be employed in the construction of new residential buildings in Ukraine. A new agency within the Ukrainian government will develop the new properties.

The process of reconstruction should not be left entirely to individual countries or institutions and should be centralised internationally to the best degree possible (Eichengreen and Rashkovan, 2022). Leaving the process solely in the hands of existing international institutions is detrimental to Ukraine as geopolitical tensions on the boards of these institutions might hamper the effectiveness and speed of reconstruction efforts. For example, certain EU member states have used their veto power in the European Council on decisions pertaining to Ukraine as a bargaining chip for their own interest. Such perverse situations call for a new financing mechanism to be established which would be based on the common interest of Ukraine-friendly countries and private entities. The framework proposed in this paper can ensure that the flow of private capital into Ukraine's housing market will be properly managed to speed up the reconstruction efforts by avoiding political bottlenecks characteristic for existing multinational institutions.

To set the stage for the proposal, the next two sections summarise the key takeaways from past mass displacements (e.g., West Germany after the Second World War) and the current state of rebuilding efforts in Ukraine. It describes the proposed framework for attracting private capital to Ukraine through two new institutions that would finance and build residential developments for refugees and internally displaced people. The chapter addresses important questions, such as who should start the organisational efforts and why to rebuild before the war is over, and concludes by providing a tentative action plan for the Ukrainian government on how to speed up its own contribution to the framework envisaged in this paper.

“The German government played a key role in reconstruction efforts. It mainly sought to undo two constraints faced by builders after the war. It provided both low-cost public loans to builders and various tax incentives for residential construction.”

Learning from past mass displacements

Wars cause mass displacements due to the destruction of housing stock and the loss of productive activities. Countries that suffered from wars in the past have faced multiple challenges in solving mass displacement. The main challenges are typically lack of adequate financing and improper public policies for the reconstruction process. Below are two major reconstruction episodes following wars that involved the rehousing of millions of refugees and highlight some key takeaways for Ukraine.

West Germany after the Second World War

Following the Second World War (WWII), West Germany struggled to house all refugees and internally displaced people. A large fraction of its housing stock was destroyed during the war. This problem was further aggravated by the decisions of the Potsdam conference in 1945 which redrew the borders of Germany and obliged the German population outside the new borders to move within the new borders. More than 12 million people had to resettle as a consequence of this decision (Schumann, 2014). Roughly eight million people had resettled in West Germany by 1950, representing about 20 per cent of the pre-war population of Germany (Peters, 2022).

Housing and food were the main issues facing West Germany immediately after WWII. The food situation was solved rather swiftly during the initial stages of the Marshall Plan through U.S. shipments of food to Europe. The housing situation remained unresolved for about 15 years. In 1945, West Germany had a shortage of about 5.8 million homes (Wertheimer, 1958). The immediate housing needs of refugees were solved by forcing owners of unaffected or partially damaged homes in West Germany to house the internally displaced and expellees.

In 1951, the shortage was reduced to 4.8 million homes, mainly through repairs of destroyed properties. In 1950, West Germany adopted its first Housing Act that defined the workings of social housing and set a goal of constructing 300,000 residential units each year until 1956. The act also introduced the conditions for financing of new developments. Besides social housing, the law specified the rules for tax-subsidised and market-financed housing. Tax-subsidised loans allowed borrowers to deduct mortgage costs from taxable income, but the builders of homes financed this way had to abide by rules governing social housing, in particular, regarding floor space and rent control. Market-financed housing was not subject to any restrictions and sometimes even received local tax reductions to encourage usage of such financing. In the years that followed the Housing Act and its amendment in 1956, housing completions outpaced the target and the shortage of housing is thought to have been mostly solved by 1962 when the provisions of the Act expired.

The main takeaways for Ukraine from the German postwar housing reconstruction experience are:



Financing

The borrowing of residents in West Germany was severely limited by the Allied Forces during the first decade after WWII. The lack of mortgage credit aggravated housing shortages. The financing issue was partially solved by Germany's Housing Act through tax subsidies and loan contributions, but the shortage of housing still took more than 15 years to be resolved as many of the terms of mortgage contracts were highly regulated. As a consequence, market-financed housing had a slow start in Germany, which to this day has a less developed mortgage market than other advanced economies. Mortgage Pfandbriefe - the main borrowing vehicle in Germany for residential purchases and development - had an outstanding volume of roughly EUR226bn in December 2022 according to the Bundesbank, which represented about six per cent of Germany's GDP³.



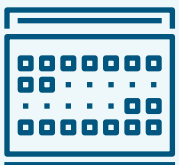
Public involvement

The German government played a key role in reconstruction efforts. It mainly sought to undo two constraints faced by builders after the war. First, it provided low-cost public loans to builders. Roughly 34 per cent of funds used in private residential construction in West Germany came from public sources between 1950 and 1957 (Wertheimer, 1958). Second, the government provided various tax incentives for residential construction. More than half of all private funds used in residential construction relied on some form of tax incentives. Accelerated depreciation for new constructions was also introduced which incentivised builders to invest. Subsidies for low-income earners were used to help such households own a home.



Social housing

Most of the postwar developments were either social housing or had rental and financing conditions similar to social housing (Kaas et al., 2021). The organised push for social housing was motivated by the low levels of income of households that were looking for accommodation. Social housing kept costs low by limiting dwelling space per inhabitant and having a ceiling on the amount of rent that builders could charge for social housing built using advantageous financing provided by the government.



Availability of workers

German expellees and displaced persons were not allowed to resettle outside West Germany after 1945, thus substantially increasing the German labour force and lowering local wages on resettlement. Furthermore, the assignment of refugees was strikingly persistent (Peters, 2022). All refugees, except those fleeing the Soviet Occupied Zone, were settled according to a plan and armed forces were deployed to prevent internal migration. This provided a predictable source of labour for reconstruction efforts in the decades to come and a cheap one at that as refugees earned lower incomes on average compared to the natives after resettlement (Bauer et al., 2013).

South Korea after the Korean war

The Korean war (1950-1953) caused the death of close to two million people (Shin, 2001) and destroyed 20 per cent of the housing stock of the country (Kang et al., 2011). Even prior to this war, some Koreans were struggling to find shelter, as millions of refugees returned to the Korean peninsula from Japan and China after WWII. The Korean war aggravated this issue. Koreans living in the northern part of the peninsula fled South to avoid the Soviet-aligned political regime. Lack of housing forced people to live in sheds on illegally occupied land which eventually became slums, some of which remain occupied to this day.

In the first decade after the war, the South Korean government did little to remedy the housing shortage and devoted most of its investments to developing productive capacities and rebuilding the country's infrastructure. The momentum changed during the 1960s with the establishment of two policy institutions dedicated solely to tackling housing issues: the Korea National Housing Corporation (KNHC) and the Korea Housing Bank (KHB). The KNHC was in charge of public housing construction, while the KHB was responsible for mobilising private and public funds to finance housing projects. Despite establishing these tailored institutions, the annual government contributions to their budgets were insignificant in the 1960s and 1970s. To tackle the lack of public

funding, the KNHC built dwellings and sold them at a profit. It then used those profits to provide accommodation for low income families. This effort was enough to build only 103,000 dwellings between 1962 and 1978 (Rho, 1984), most of which were sold for profit.

The lack of serious public investment in housing led to an increase in housing shortages between 1960 and 1990. Around 18 per cent of Korean households had no home in 1960 and this ratio increased to close to 20 per cent by 1990, or about three million households (Koh, 2004). Housing shortages were especially dire in Seoul, where roughly 40 per cent of the households had no proper accommodation in the 1960s (Jun and Yang, 2012). This housing shortage eventually forced the South Korean government to substantially alter its public policy approach towards housing and led the government to adopt the "Two Million Housing Construction Plan" of 1988-1992. The plan was valued at around 6.5 per cent of South Korea's gross national product and involved the construction of two million new dwellings, both publicly and privately owned (Kang et al., 2011). The plan proved a success in tackling the imbalances between supply and demand of housing in South Korea. By the mid 1990s, South Korea managed to almost entirely eliminate its housing shortage. In 2002, nearly 50 years after the war, South Korea had more homes than households.

The main takeaways for Ukraine from South Korea's postwar housing reconstruction are as follows:



Financing

Mortgage finance took a long time to flourish after the end of the war. As South Korea was undergoing political and societal changes after the war, few investors had interest in purchasing long-term debt collateralised by housing. As most bank funding came from flighty deposit funding, it took roughly 40 years after the war to establish a functional mortgage market in South Korea financed through long-term bonds. In 2022, household mortgage loans outstanding were valued at KRW1013tn according to data from Bank of Korea, representing roughly 50 per cent of South Korea's GDP.



Public involvement

The political turmoil inside South Korea that followed the war was not conducive of a pragmatic housing development policy. Some policy institutions were established to tackle burning issues in the housing market, but these institutions lacked dedicated government funding. The new institutions and their policies started having a visible effect on housing shortages only after the Korean government committed sizable resources to tackle shortages in late 1980s.



Social housing

South Korea had little to no support programmes for socially disadvantaged groups to acquire housing after the war. These groups of households had to live in slums for prolonged periods of time before the "Two Million Housing Construction Plan" of 1988-1992. The situation has improved somewhat since then, with the share of public rentals in total housing stock reaching five per cent in 2012 (Kim and Park, 2016). Given the slow development of social housing, the Korean government opted instead to subsidise housing costs for low-income households through housing benefits (welfare grants) and mortgage loans for low- and middle-income households.

Current state of rebuilding efforts in Ukraine

The Kyiv School of Economics estimates that damages caused by Russian invaders to residential buildings in Ukraine totalled USD54bn at the end of 2022, representing roughly 39 per cent of all property damages³. To put things in perspective, the International Monetary Fund (IMF) found that, by the end of 2022, international donors transferred around USD33bn to Ukraine, of which USD 14bn took the form of grants (IMF, 2022). Roughly EUR64bn were committed by donors during this period (Trebesch et al., 2023), which implies a disbursement to commitment ratio of less than half.

Most of the funds disbursed to Ukraine in 2022 were used for budgetary and balance of payments support. Rebuilding housing destroyed by Russia is currently not prioritised through such assistance as most damaged homes are in occupied territories or in close proximity to the frontline. Furthermore, the Ukrainian government is currently unable to borrow at reasonable interest rates from international markets due to its inability to service debt payments and, as a consequence, cannot finance large residential development projects by itself⁴. The residential reconstruction funding gap is likely to widen further as more budgetary resources will be devoted in the near future to fixing the growing damages to Ukraine's energy and transportation infrastructure.

Besides lack of funding, a pressing issue is the lack of building materials and equipment necessary for the reconstruction efforts. Ukraine needs to rehouse millions of refugees and construction firms will likely face supply constraints when full-scale development begins. Furthermore, Ukraine's land registration system and laws governing land ownership are not favourable to a speedy reconstruction. Land under damaged apartment buildings is often owned by municipalities, state institutions or local communal enterprises. The process governing the privatisation of residential properties that occurred after Ukraine gained its independence was marred by inconclusive attribution of land ownership rights,

\$54 billion

estimated damages caused by Russian invaders to residential buildings in Ukraine at the end of 2022

especially in the case of apartment buildings. The destruction of buildings following the Russian invasion complicates the issue of compensating apartment owners in buildings where land under the structure is not owned by the owners of



the structure. The high level of disaggregation of property rights for damaged buildings among homeowners and municipalities also makes it extremely hard to coordinate the financing of reconstruction.

The issues described here, as well as the lesson that can be learned from Germany's and South Korea's rebuilding efforts, call for prompt action on the housing front. Grants and financial support from international donors will most likely not be sufficient to cover all the reconstruction needs of Ukraine. This is precisely why, this paper, advocates for an active involvement of private capital in the residential reconstruction process. Private capital, unlike grants and loans from foreign governments and international institutions, would take less time to coalesce because private investment decisions are typically taken by smaller and more nimble entities. Using private capital to finance housing development in Ukraine would therefore lead to a speedier reconstruction and return of refugees to their homeland.

Blueprint

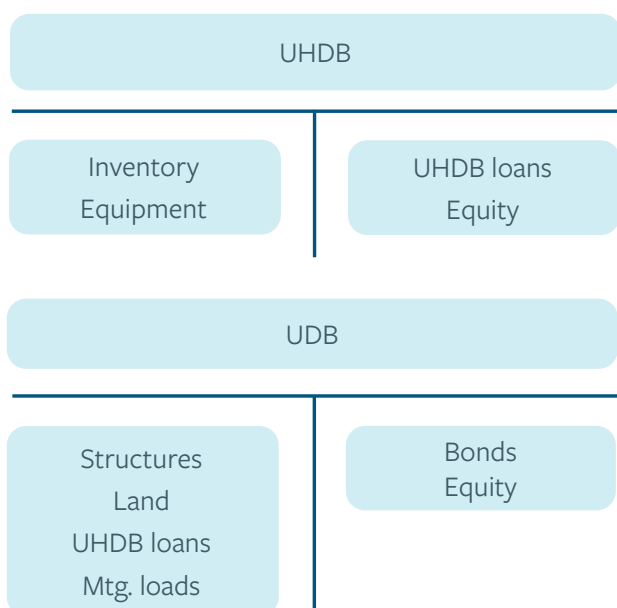
The blueprint centers around two new institutions that would serve as the financing and development arms of the residential reconstruction efforts in Ukraine. The first institution is a multinational development bank which I call the Ukraine Development Bank (UDB). This institution will issue long-term bonds on international debt markets backed by its capital. Its capital will be funded directly by Ukraine-friendly countries and private investors via share issuance. The Ukrainian government will also contribute to the capital of the UDB in kind with land and will be issued shares valued at prices of land before the start of the war.

The second new entity that needs to be established under the proposed organisational framework is a development agency that would be in charge of the reconstruction efforts. This could be called the Ukraine Housing Development Board (UHDB). The UHDB will be the sole developer of new housing for refugees and work as a contractor of UDB. The Ukrainian government will be responsible for establishing and running this agency.

New housing units developed by the UHDB will belong to the UDB and be sold as 99-year leaseholds to owners outright or via mortgages serviced by the UDB. If necessary, sales can be co-financed by the Ukrainian government either through mortgage interest deductions, home purchase grants or growth-linked bullet mortgage repayments. Refugees that cannot afford to purchase the new dwellings will be allowed to rent the dwellings. Rent, in this case, will serve as coupon payments for the bonds issued by the UDB.

Projected balance sheets of the two entities (UDB and UHDB) could function as shown in Figure 1. There is an explanation below on how each of the institutions will be governed and what each of the items on their balance sheets entails. The goal of this chapter is not to nail down precisely all the details of the institutional framework but rather to draw up a blueprint which can serve as a call for action and a basis for future policy discussions on this topic.

Figure 1 Institutional balance sheets



Ukrainian Development Bank

The Ukrainian Development Bank (UDB) should be governed similarly to other multinational development banks (MDBs) with some minor improvements designed to speed up the decision process relative to established MDBs. The UDB would have 10 members on the Board of Directors (BoD). The directors have the decision power on loans and debt issuance. Members of the board are elected by shareholders to serve five-year terms without possibility of renewal. Shareholders that own more than 10 per cent of the bank's equity can nominate a board member. Shareholders who commit funds to the bank's equity for more than 10 years and own more than five per cent of equity can also nominate board members. Each board member has voting rights equal to the nominating shareholder's equity share.

“The second new entity that needs to be established under the proposed organisational framework is a development agency that would be in charge of the reconstruction efforts.”

Day-to-day operations are run by the bank's management committee (MC). The committee has five members including its leader, the UDB President. Committee members are appointed by the BoD to serve a five-year term which is renewable once. Each of the committee members is responsible for a business area of the bank and acts as the main manager of the staff in that area. To lower the setup costs of the institution, most of the initial workforce of the UDB would be sourced through seconded staff from other MDBs, especially in the areas of bond issuance, disbursements and project management. The bank should have its headquarters in Warsaw to ensure it is close to both operations in Ukraine and to the main European financial centres (eg, London, Paris, Frankfurt).



UDB bonds

The international capital markets will be the main source of financing of the UDB. The bank will issue bonds at a quarterly frequency in EUR and USD, which can at a later stage be extended to GBP, PLN, CAD, JPY and UAH depending on investor appetite. The bonds will have an average issuance size of USD 1bn to 3bn with maturities between two and 30 years, with a strong preference for longer maturities. The UDB will also fund its mortgage loan business by issuing mortgage-backed securities (MBS). The mortgages underlying this product will be the ones extended to Ukrainian households in need of financing when acquiring a dwelling developed by the UHDB. The MBS will have a small issuance size of up to USD 1bn. Depending on demand, MBS can be issued in EUR, GBP, PLN, CAD, JPY and UAH. The maturity of MBS will be aligned with that of the mortgage loan book of the UDB.

UDB equity

The equity will be financed from two sources. First, there will be an in-kind capital transfer by the Ukrainian government through the transfer of property rights either to land under affected homes or other land ready for development that the government currently owns. UDB shares will be issued to Ukraine based on the market value of said land before the start of the war. The market value of this in-kind transfer is to be established before the rest of the UDB shares are issued to avoid underpricing Ukraine's shareholding and to incentivise the country to commit development-ready land fast. For land under affected homes, the cost of demolitions will be incurred by the UHDB by recouping the value of rubble.

Second, the UDB will issue ordinary shares when set up, which will be sold to countries and private investors for cash and cash equivalents. Professional private investors (e.g., sovereign wealth funds, pension funds and insurance companies) are able to mobilise resources for share purchases at a much faster pace than governments. Allowing such investors to purchase UDB equity will

enable the bank to start operations in Ukraine faster, which is key for the country's recovery. The UDB will realise a small profit from its servicing business which can then be distributed as dividends to its investors to incentivise contributions. Share issuance and repurchases can occur each year depending on the capital needs of the bank. The ultimate goal is to ensure that the UDB can maintain an AAA credit rating so that it can lower the borrowing costs for its housing investments.

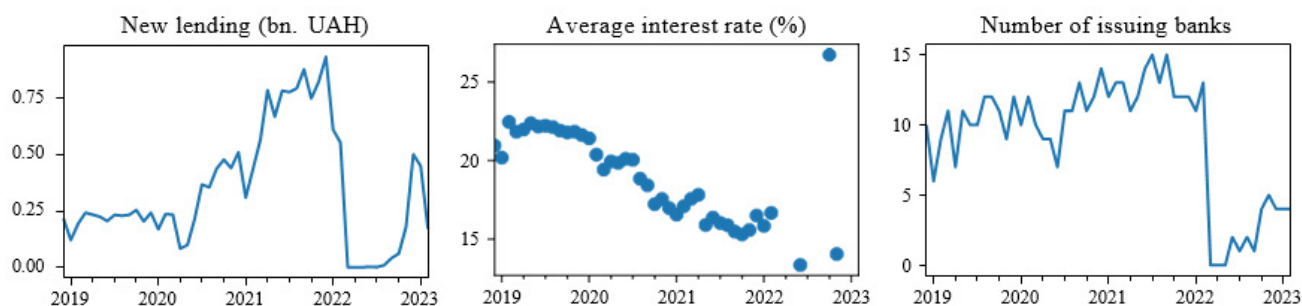
UDB structures

The bank will own all structures that are built on its land. Apartments, townhouses and stand-alone homes erected on its land will be sold via 99-year leaseholds to owners either outright or via mortgages serviced by the UDB. A fraction of its apartments can be also rented out via long-term agreements to households that meet certain wealth and income requirements. These rentals will serve the role of social housing as Ukraine can choose to subsidise rents for such dwellings. Importantly, as rent will be tightly linked to the reduced interest rates that the bank will be paying due to its high credit rating, the rent level paid by Ukrainian refugees and internally displaced people will likely be lower compared to market-based rents even without any rent subsidies from Ukraine. The UDB properties will be managed by the UHDB originally, with the option to expand to other service providers five years after construction.

UDB land

As explained above, the land transferred by the Ukrainian government to the UDB will be under the sole proprietorship of the bank. The final owners of the land are the UDB shareholders. Land is not to be sold by the UDB unless the bank is dissolved through a decision of three quarters of shareholding votes. Land should be redeveloped to maximise the number of units per km² subject to local building restrictions. Building tall during the first five years of land redevelopment is preferred to avoid the overcrowding of new units.

Figure 2 Mortgage market activity in Ukraine



Source: National Bank of Ukraine - Monthly bank survey on loans issued to individuals for the purchase, construction and reconstruction of real estate, secured by real estate. Last update: April 24, 2023.

UHDB loans

To increase the speed of construction in the early stages of UDB operations, the bank would be allowed to lend to the UHDB. This should lower the operational costs of the UHDB and allow the agency to purchase the necessary equipment to start building at scale, and loans will be collateralised by UHDB equipment. The UDB can also open lines of credit for the UHDB if necessary to finance wages and training of construction workers, as well purchases of building materials. To finance imports of building materials or equipment, the UDB can also issue guarantees or trade credit to lower the costs of trade for the agency. However, the UHDB should prioritise as much as possible using local resources. This is especially relevant when it comes to labour used in construction, which needs to involve the employment of Ukrainian refugees and internally displaced people. The UDB credit lines could be linked to fulfilling such requirements.

UDB mortgage loans

To incentivise refugees to move back to Ukraine, the country needs to not only provide them with shelter but also give them a sense of agency for generations to come. The best way to achieve such agency is through ownership rights for the dwellings in which refugees were to reside. Most refugees and internally displaced people have currently little to no wealth available and limited income prospects. As a consequence, they would not qualify for a mortgage from Ukrainian commercial banks and find it close to impossible to become homeowners in the near future. To top that off, the mortgage market in Ukraine is inadequate to provide all the necessary financing that the refugees and internally displaced people require. According to data compiled by the National Bank of Ukraine from the survey of banks issuing mortgages in Ukraine, the total volume of residential mortgages outstanding in Ukraine at the end of 2021 was roughly UAH25bn, which represented only 0.45 per cent of Ukraine's GDP in that year. For comparison, outstanding mortgage credit to GDP in 2021 in neighbouring Romania, while not stellar, was equal to 8.48 per cent according to data from the National Bank of Romania.

Aside from its minuscule scale relative to Ukraine's GDP, the mortgage market has dried out in Ukraine since the start of the war, making the prospects of getting a mortgage for a refugee even gloomier. Figure 2 shows that the amount of new mortgage loans issued by banks in Ukraine dropped to zero between March and May of 2022 and then recovered somewhat at the end of 2022 to about one third of the volume issued in February 2022. Average interest rates on the primary market were not properly reported after the start of the war, but were prohibitively high even before the invasion. In 2021, rates hovered at around 15 per cent while inflation was 9.4 per cent. The number of banks issuing mortgages has also declined substantially since the start of the war. As of February 2023, only four commercial banks reported issuing mortgages in Ukraine down from 13 in February 2022.

Given the precarious state of the Ukrainian mortgage market, the UDB can spur the activity in this market by facilitating the acquisition process for refugees through mortgage issuance. UDB mortgages should be available to refugees irrespective of origin to incentivise the movement of labour to productive cities where refugees can earn higher lifetime incomes and eventually afford to fully own the property. Loan contracts can be structured as conventional fixed-rate mortgages or as let-to-buy mortgages. As explained above, the ownership of dwellings will be based on 99 year leaseholds; this is necessary to ensure the long-term interest of investors in UDB bonds.

The mortgage loans are to be securitised and sold on international capital markets. The mortgage application and approval processes should be automatized as much as possible and operations should be kept inside the UDB and not outsourced to local commercial banks to ensure the reliability of credit standard and the ability to securitise large numbers of loans. The Ukrainian government can co-finance mortgages via lump-sum down payments, mortgage interest tax deductions or, ideally, bullet repayments linked to Ukraine's GDP growth, with the latter preferred given the lack of current budgetary resources.

Ukrainian Housing Development Board

The UHDB should be modelled upon the Singapore Housing and Development Board. I envision it as a government agency under the authority of the Ministry for Communities and Territories Development of Ukraine. The agency will be governed by a Board of Directors consisting of 27 members, one for each of Ukraine's regions. The decision of the board should be approved by a simple majority to increase decision-making speed and representativity. Board members are to be nominated by regional governments.

Ukraine's central government has the power to nominate three members of the management committee (MC) who will serve five-year non-renewable terms to avoid corruption. The MC members will be in charge of day-to-day operations, including hiring staff and contractors for its building operations. Staff recruitment should prioritise the employment of refugees and their retraining, where it is possible. UHDB loans from the Ukrainian Development Bank (UDB) can be linked to such requirements.

UHDB equity

The UHDB equity will be originally fully-owned by the government of Ukraine. When the agency is established, the Ukrainian government should launch an international call for donations of construction equipment and construction materials to be transferred to the UHDB. After five years of operation, the Ukrainian government should aim to issue non-voting shares to be owned by Ukrainian citizens and foreign investors through a public listing. At that point, the agency will be reorganised into a public company. The UHDB will then be allowed to issue dividends to incentivise good governance.

UHDB inventory and equipment

Housing dwellings built by the UHDB will be owned by the UDB. To encourage staff recruitment and retention, the development board will be allowed to purchase through leaseholds from the UDB up to 10 per cent of the units constructed to be rented out as rent-to-own dwellings to the construction staff of the agency. Besides its inventory of housing units, the agency will own the construction materials and equipment used in the construction process. As explained above, the acquisition of these assets can be financed through UHDB loans from the UDB. Aside from new construction materials, the UHDB should aim to reuse as much as possible the demolition rubble to ensure a lower cost of production. The agency should prioritise the use of local construction materials and equipment to foster small business growth in Ukraine. During the first five years of operation of the agency, all purchases should be based on special public procurement laws designed to optimise decision time and the cost of procurement. During procurement, the UDB has full audit rights if any of its loans were used to acquire equipment or materials for a given tender.

Further considerations

Why can't existing private entities close the reconstruction funding gap?

In normal times, other key economic actors could fill in the funding gap necessary to redevelop properties that were destroyed by unforeseen events such as natural disasters. Ukrainian commercial banks could, for example, issue debt on international markets to finance the reconstruction efforts. However, during times of war and immediately after, such private bonds issued by Ukrainian banks would entail a significant premium for counterparty risk that would severely limit the amount that property owners could borrow to rebuild. Furthermore, the pricing of such bonds would also include the margins charged by banks. Such margins are warranted market outcomes in normal times in a market-based economy but are far from optimal when a nation is fighting for its survival. Organising financing through the UDB will solve these issues and allow Ukraine to close its reconstruction funding gap.

“Organising financing through Ukrainian Development Bank will allow Ukraine to close its reconstruction funding gap.”

Why rebuild before the war is over?

Rebuilding during war is costly due to the high degree of uncertainty generated by military operations. Nevertheless, there are three important considerations that make the initiation of rebuilding during conflict opportune. First, Russia will continue to be Ukraine's aggressive neighbour even after the current war is over. Since the collapse of the Soviet Union, Russia has been an involved party in four conflicts (in Georgia, Moldova, Tajikistan, and Ukraine) either directly or by financing and arming so-called separatist forces. This pattern will not change as long as Russia remains an undemocratic society with natural resources that are valuable on international markets, which makes waiting to rebuild a pointless proposition as Russia has never been a true democracy and has plenty of resources to count on for its imperialistic ambitions.

Second, waiting to rebuild is extremely costly for Ukraine as it risks losing its refugees that would resettle elsewhere if housing options remain scarce inside Ukraine. Depopulation will likely imply lower economic growth over the medium to long term, which will surely embolden Russia to invade again in the near future.

Third, starting to rebuild now will allow Ukraine to avoid the mistakes it made when integrating the internally displaced people that left the Donbas region in 2014. These people failed to integrate in host communities due to lack of proper housing. They had to rely mostly on poorly developed rental markets to satisfy their housing needs, as the Ukrainian government did not build enough new housing units to rehouse the internally displaced (Zavisca et al., 2023). These three reasons alone outweigh any concerns regarding rebuilding before the war is over.

Who should start the efforts to create the UDB?

The creation of the bank requires upfront capital from its shareholders. Countries with limited fiscal space will have trouble coming up with new capital to kick off the operations of the UDB. Norway should take the lead on efforts to establish a development bank for Ukraine. Norway had a budgetary surplus of USD 140bn in 2022, roughly 26 per cent of GDP. It also has significant expertise

“Waiting to rebuild is extremely costly for Ukraine as it risks losing its refugees that would resettle elsewhere is housing options remain scarce inside Ukraine.”

in directing investments through its Government Pension Fund, which can even take a small equity stake in the UDB or buy the bonds issued by the UDB. Other Nordic countries (ie, Denmark, Sweden and Finland) could also provide valuable expertise on setting up a functional mortgage market and on social housing, as well as contribute to the initial capital allocation of the bank. The US government could also provide initial capital and valuable expertise

for setting up the mortgage securitisation programme of the UDB based on the US Department of Housing and Urban Development’s experience of operating the Government National Mortgage Association (Ginnie Mae). Expertise on covered bonds from Nordic countries could also be drawn upon if mortgage-backed securities prove too hard to market in the case of the UDB.

How should the rebuilding efforts proceed?

Most damaged properties are close to the war zone or in occupied territories. Given the acute need for housing, rebuilding by the UDB should occur in two stages. During the first stage, rebuilding should take place close to or inside large cities that are away from the frontline and from the border of Ukraine to Russia and Belarus (eg, Lviv, Vinnytsia, Khmelnytskyi). Once the UDB and UHDB operations acquire the experience in funding and developing housing in these cities, residential developments can be extended to include large cities close to the war zone or the border of Ukraine with Russia and Belarus (eg, Kyiv, Kharkiv, Odesa). Freed territories should be prioritised during the second stage to avoid the decline of regions that were most affected by the war. Given the staggering reconstruction efforts described above, Ukraine should first identify land in regions away from the frontline to contribute in kind to the UDB. In the second stage, other land can be pledged to the bank.

How to ensure that new bombardments by Russia do not hamper the reconstruction efforts?

The new residential buildings will need to be insured. The cost of insurance can be passed on to the prospective homeowners or renters and should be minimal in the first stage of the reconstruction process due to the distance from war zone of cities included in stage one. The insurance costs will increase once rebuilding starts in cities closer to the frontline and the north-east borders of Ukraine. The UDB could leverage the experience of the World Bank Multilateral Investment Guarantee Agency to seek out partial guarantees for its bond holders, thus lowering the insurance costs for Ukrainian refugees and internally displaced that would resettle in cities involved in stage two of the reconstruction efforts.

Top priorities for the ukrainian government

The plan relies heavily on the ability of the Ukrainian government to commit land and public resources to the reconstruction efforts. Land is necessary to entice private capital to invest in the UDB bonds as land will serve as the main collateral backing these financial instruments. To this end, the Ukrainian government should start as soon as possible consolidating property rights to all land under buildings destroyed or damaged beyond repair by the Russian invaders. This tentative action plan for the Ukrainian government suggests how to achieve this so that land could be provided to the UDB to start its operations.



- 1.** In cases of apartment buildings for which land is owned by owners of damaged apartments, this land should be bought from owners through a state decree on the compulsory acquisition of such land. Owners should be compensated through tax rebates, lump sum transfers based on the value of their land before the war, or via mortgage down payment contributions to acquire new UDB dwellings. The compensation process will not be an easy one and should start as soon as possible. The Ministry for Communities and Territories Development of Ukraine should manage this process.
- 2.** In most cases, destroyed apartment buildings will sit on land owned by municipalities, or other forms of local government (Green et al., 2022). Such land should again be transferred promptly in the ownership of the central government to be used as an in-kind contribution to the UDB. While Ukraine should decentralise its organisation of government as much as possible after the war (Mylovanov and Roland, 2022), in the case of its residential reconstruction efforts decentralisation would make coordinating and acquiring private investments much more expensive for Ukraine due to higher operational costs. The speed of implementation of residential investments will be key to attracting back refugees to Ukraine, and centralisation of development is likely the best way forward to achieve a fast reconstruction.
- 3.** The Ukrainian government should also identify any free land available at its disposal that is suitable for residential development. Such land can come from state-owned enterprises or regions and should be transferred to the central government and rezoned promptly to increase the speed of reconstruction efforts.
- 4.** In case of a severe deficit of buildable land despite the actions described above, the Ukrainian government should consider a compulsory acquisition of agricultural land near major municipalities and rezone this land in a prompt manner before contributing it in kind to the UDB.

Once land is consolidated at the central government level, Ukraine should approve all necessary laws allowing the transfer of said land to the UDB in exchange for shares of the institution. The laws should include an assessment of the land value based on market prices prior to the war. Such an assessment should be certified by a reputable land assessor from outside Ukraine to ensure its reliability.

The Ukrainian government should simultaneously start working on setting up the UHDB, staff its operations and settle on all legal provisions to ensure the proper functioning of the agency. A top priority in this respect should be the approval of a special law governing the public procurement of construction materials and equipment. The special law should prioritise speed of acquisition rather than costs as the speed of reconstruction is essential during the first phase of the process. This law can have an expiry date of two years, which will hopefully provide enough time to the UHDA to ramp up operations and deliver the first set of new residential buildings.

The government should also initiate as fast as possible the process of retraining of refugees and internally displaced people for jobs in construction. To achieve this, the UHDB should cooperate with the country's construction colleges, vocational schools and specialised higher-education institutions to form a national retraining programme. Slots in the programme should be free of charge and can be subsidised via a scholarship by the Ukrainian government, or by tax rebates to parents sending their children to such courses.

This chapter proposes an organisational framework to garner the interest of private investors in the reconstruction efforts of Ukraine. The proposed framework is motivated by the concern that Ukraine will not have enough resources to rehouse all its refugees and internally displaced citizens if relying solely on international donors. Such a deficit of resources will jeopardise Ukraine's ability to succeed as a nation state, as refugees may decide to never come back to Ukraine, depleting the country of its most valuable resource.

Given that funding from foreign donors has been slow to materialise up to now, strong action should be taken to incentivize the flow of private capital to Ukraine. Such funding should not substitute existing institutional funding instruments, rather complement them. Institutional funding from international financial organisations, MDBs, specific countries and the EU should prioritise the reconstruction of infrastructure and social development initiatives. Private funding should be the main source for the reconstruction of homes in Ukraine as it is much faster to react to investment opportunities and comes with a much larger scale than current donors' commitments.

To mobilise private funding, an international community of supportive countries should set up a development bank for Ukraine. This institution will source its funding from international capital markets based on bond issuance, which should lower the borrowing costs for residential development in Ukraine. The proceeds of bond issuance will then be invested in the development of housing units in Ukraine. The Ukrainian government should establish a stand-alone agency that will develop all the buildings necessary to rehouse the refugees and internally displaced people. While some may think of the proposal as overly ambitious, the hope is that it can set the stage for more discussions on how to involve private capital in Ukraine's reconstruction efforts.

“Private funding should be the main source for the reconstruction of homes in Ukraine.”



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Case Study:

Data collection to inform policy-making

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To best inform policy it is crucial to have high quality data. Population-level data, social statistics, and surveys can provide important insights into how Ukraine can address societal challenges and rebuild.

For several decades, Ukraine has suffered from a lack of social science data. The last full census was conducted in 2001, which has hampered detailed population estimates. Ukraine did have a nationally-representative longitudinal household survey, the Ukrainian Longitudinal Monitoring Survey (ULMS), but it was discontinued in 2012. Although the State Statistics Agency of Ukraine has collected substantial data, for example through its labour force survey, most surveys have been sporadic, small, and underutilized by the international community. The lack of data has meant that Ukraine has often been missing from international academic discourse and policy discussions.

The UK has deep expertise in data collection, which could be beneficial for assisting in training, advising, and funding Ukrainian social science research. The UK has developed a strong data infrastructure that supports numerous data collection initiatives.

For example, the UK has fielded a world-leading household panel survey (Understanding Society) and invests in data services and datasets, used not only by researchers, but by government, the third sector and business.

Although Ukraine has a developed system for collecting official statistics, for example birth and death records, these systems have been under pressure and need updating. Given the lack of a census and mass mobility, expertise is necessary to understand and model population change. Investment is also needed to train the next generation of data collectors and analysts. The UK could host Ukrainian students and academics in targeted research methods training and exchanges.

Conducting a household survey would provide a valuable resource both for policy-makers in Ukraine and for the wider academic community. Very few large-scale surveys, especially in Europe, have been conducted during or directly after a war. This survey would contribute an important resource to study the consequences of conflict and disaster, essential for understanding demographic change. We know very little about how populations cope under the



extreme stress of invasion or how individuals make basic decisions. We would interview individuals and their household members about experiences with displacement, family separation and support, economic and uncertainty, job loss, health and well-being. Following individuals over time would provide insights into how these experiences influence their future lives. The survey would contribute to supporting Ukraine as it copes with the adverse consequences of war, but also resilience as it rebuilds.

The research would provide important knowledge about migration under the circumstances of war. Most research on forced displacement investigates refugees or internally displaced persons, but few compare the two groups, much less interview those who decided to remain or return home. By conducting a thorough household roster that includes all members before the war, the survey would ask about those who have not moved, temporarily moved and returned home, and the location (or death) of absent household members. It would ask specific questions of internally displaced persons, including their origin and route to finding their current accommodation. Using video technology, the survey could include a sub-sample with interviews of household members abroad to gain even further perspectives on displacement. The survey would provide information on father absence, mothers with children who are located abroad, and plans for return.

One of the key issues facing policy makers is how to house internally displaced persons. This survey would provide further information about where IDPs are located, who they live with, challenges in finding rental accommodation, and quality of housing. By asking questions about priorities for homeownership and rebuilding, the survey could investigate how best to rebuild housing for those who have lost their homes, thereby contributing to a key priority area.

The survey would delve into other demographic issues such as depopulation and fertility decline. Recognizing Ukraine's very low fertility rate, the survey would include questions about children ever born, partners and step-children, and future fertility intentions. It would ask about the need for childcare or other family policies to help prioritize effective policies to help raise fertility. Understanding fertility intentions and the obstacles to having children will be crucial for encouraging the stability of the Ukrainian population for years to come.

The survey would also address one of the key aspects of building back a resilient economy – strengthening the labour force. Similar to the ULMS, our survey would include a section on individuals'

“Conducting a household survey would provide a valuable resource both for policy-makers in Ukraine and for the wider academic community.”

employment, occupational sector, and skills attainment. We would ask about job loss since the outbreak of the war, efforts to seek new employment, and retraining. Since the survey would be longitudinal, it could track changes in the Ukrainian labour market during recovery. This would provide important information on how to target policies to develop a resilient economy.

Finally, the survey would ask questions about health and well-being. Given the scale of the war's impact, it is important to document specific effects on the population's health. The health module of the survey could be designed to obtain information on certain health conditions and disease, such as cardiovascular disease or tuberculosis. Research has already investigated the prevalence of trauma and how exposure to violence is associated with PTSD; however, little is known about the broad demographic and socioeconomic correlates of mental and physical health in this context. The survey would also include key indicators of resilience, to better understand how individuals cope with adversity.

In conclusion, social science data is key to understanding societal challenges and informing public policy. The UK has long invested in infrastructure to collect high quality data and recognised the value of longitudinal and cohort studies. Here UK funding agencies have the unique opportunity to help fund and develop a survey in a context wracked by war and uncertainty, which will provide an unparalleled resource for decades to come. Most importantly, the results of this research will directly provide much needed evidence to support the reconstruction and recovery of Ukraine.

List of Annexes

Table A-1. Key labour market indicators for the population aged 15-70 years (%), 2013-2021*

	Labour force		Employment		Unemployment		Long-term unemployment	
	Number, thousand	Rate, %	Number, thousand	Rate, %	Number, thousand	Rate, %	Number, thousand	Rate, %
2013	21,980.6	65.0	20,404.1	60.3	1,576.5	7.2	321.3	1.5
2014	19,920.9	62.4	18,073.3	56.6	1,847.6	9.3	230.6	1.2
2015	18,097.9	62.4	16,443.2	56.7	1,654.7	9.1	388.2	2.1
2016	17,955.1	62.2	16,276.9	56.3	1,678.2	9.3	413.6	2.3
2017	17,854.4	62.0	16,156.4	56.1	1,698.0	9.5	443.9	2.5
2018	17,939.5	62.6	16,360.9	57.1	1,578.6	8.8	333.9	1.9
2019	18,066.0	63.4	16,578.3	58.2	1,487.7	8.2	188.9	1.0
2020	17,589.5	62.1	15,915.3	56.2	1,674.2	9.5	344.6	2.0
2021	17,321.6	61.8	15,610.0	55.7	1,711.6	9.9	418.6	2.4

Source: State Statistics Service of Ukraine (based on the Labour Force Survey).

Note: *2013 – statistics is provided for the original territory of Ukraine as of 1991, 2014-2021 statistics is provided for the territory excluding Crimean AR, Sevastopol city and temporarily occupied territories of Donetsk and Luhansk oblasts. The age group 15-70 years has been used in Ukraine since the first Labour Force Survey (LFS) in 1995 as the main target group.

Table A-2. Labour market indicators by gender, place of residence, age and education (%), 2021

Age/ Education group	Indicator	Total	Women	Men	Urban	Rural	Gender gap	Urban-Rural gap
Total (15 years and over)	LFPR	54.6	47.8	62.9	55.8	52.3	15.1	3.5
	ER	49.3	42.9	56.9	50.5	46.7	14	3.8
	UR	9.8	10.1	9.5	9.5	10.6	-0.6	-1.1
15-24 years	LFPR	30.6	28.1	33	28.2	35	4.9	-6.8
	ER	24.8	22.4	27.1	22.7	28.7	4.7	-6
	UR	19.1	20.3	18	19.7	18.1	-2.3	1.6
25-29 years	LFPR	77.7	65.1	89.7	80.3	73.1	24.6	7.2
	ER	70.4	59.8	80.5	73.8	64.4	20.7	9.4
	UR	9.4	8.2	10.2	8.1	11.8	2	-3.7
30-34 years	LFPR	80.8	70.4	90.8	82.7	76.9	20.4	5.8
	ER	74	63.9	83.7	75.5	70.9	19.8	4.6
	UR	8.4	9.3	7.8	8.7	7.8	-1.5	0.9

Age/ Education group	Indicator	Total	Women	Men	Urban	Rural	Gender gap	Urban-Rural gap
35-39 years	LFPR	83.9	76.4	91.4	85.1	80.6	15	4.5
	ER	75	67.2	82.7	75.8	72.7	15.5	3.1
	UR	10.7	12.1	9.5	11	9.8	-2.6	1.2
40-49 years	LFPR	85.2	82.6	87.9	86.8	81.6	5.3	5.2
	ER	76.8	74.2	79.5	78.7	72.5	5.3	6.2
	UR	9.8	10.1	9.6	9.3	11.2	-0.5	-1.9
50-59 years	LFPR	75.4	73.6	77.6	76.3	73.6	4	2.7
	ER	68.3	66.5	70.3	69.7	65.5	3.8	4.2
	UR	9.5	9.6	9.4	8.7	11.1	-0.2	-2.4
60-70 years	LFPR	12.8	11	15.5	12	14.5	4.5	-2.5
	ER	12.8	11	15.4	12	14.4	4.4	-2.4
	UR	0.3	0.2	0.4	0.3	0.4	0.2	-0.1
71 years and over	LFPR	2.2	1.7	3.3	1.7	2.9	1.6	-1.2
	ER	2.2	1.7	3.3	1.7	2.9	1.6	-1.2
	UR	-	-	-	-	-	-	-
Complete higher	LFPR	71.7	66.7	78.2	71.7	71.9	11.5	-0.2
	ER	65.7	60.8	72	65.8	64.9	11.2	0.9
	UR*	-	-	-	-	-	-	-
Basic higher	LFPR	67.2	62.7	72.8	68	65.1	10.1	2.9
	ER	58.2	51.8	65.9	58.2	58.1	14.1	0.1
	UR*	-	-	-	-	-	-	-
Incomplete higher	LFPR	59.4	53.4	69.8	57.8	63.6	16.4	-5.8
	ER	53.7	48.2	63.2	52.7	56.2	15	-3.5
	UR*	-	-	-	-	-	-	-
Vocational	LFPR	62.8	53.7	69.3	61.5	65	15.6	-3.5
	ER	56.5	48	62.4	55.3	58.3	14.4	-3
	UR	10.1	10.6	9.9	10.1	10.3	-0.7	-0.2
Complete secondary	LFPR	41.1	33.8	50.2	35.5	48.2	16.4	-12.7
	ER	36.4	29.8	44.7	31	43.2	14.9	-12.2
	UR	11.4	12	11	12.6	10.4	-1	2.2
Basic secondary, primary or no education	LFPR	11.4	8.5	15.8	9.6	13	7.3	-3.4
	ER	9.8	7.4	13.4	8.1	11.2	6	-3.1
	UR	14.2	12.6	15.5	14.9	13.8	2.9	1.1

Source: State Statistics Service of Ukraine.

Notes: LFPR=Labour force participation rate (per cent of population); ER=Employment rate (per cent of population); UR=Unemployment rate per cent of the labour force); Gender gap = Male – Female indicator (percentage points).

* Statistics on the unemployment rate for 3 groups of individuals with higher education is not provided by SSSU.

Table A-3. Labour market indicators by region (%), 2021

	LFPR	ER	UR		LFPR	ER	UR
Ukraine	54.6	49.3	9.8	Odesa	54.1	50.2	7.2
Vinnitsia	54.4	48.4	11.0	Poltava	53.8	47.1	12.4
Volyn	50.2	43.8	12.7	Rivne	56.0	50.7	9.5
Dnipropetrovsk	55.8	50.9	8.8	Sumy	54.1	48.6	10.1
Donetsk	49.3	41.8	15.3	Ternopil	51.2	45.1	11.9
Zhytomyr	54.2	48.1	11.2	Kharkiv	56.2	52.4	6.7
Zakarpattia	54.4	48.4	11.1	Kherson	56.5	49.8	11.7
Zaporizhia	55.2	49.2	11.0	Khmelnyskyi	53.2	47.7	10.2
Ivano-Frankivsk	53.4	48.9	8.5	Cherkasy	53.7	48.3	10.1
Kyiv (oblast)	54.6	50.7	7.2	Chernivtsi	56.4	51.3	9.1
Kirovohrad	52.4	45.5	13.2	Chernihiv	54.4	47.7	12.3
Luhansk	57.0	48.0	15.9	Kyiv City	59.7	55.4	7.1
Lviv	53.8	49.7	7.7				
Mykolaiv	56.2	49.8	11.3				

Source: State Statistics Service of Ukraine.

Notes: The reference age group for population is 15 years and over.

Table A-4. Indicators of informal employment by gender, place of residence, age and education, 2021

Age/Education group	Indicator	Total	Women	Men	Urban	Rural
Total (15 years and over)	Informality rate, %	19.5	16.5	22.3	12.1	35.9
	Number of informally employed in the formal sector, thd.	1114.4	417.3	697.1	792.8	321.6
	Number of employed in the informal sector, thd.	1947.2	809.7	1137.5	516.2	1431
15-24 years	Informality rate, %	27.0	22.3	30.7	17.8	40.3
	Number of informally employed in the formal sector, thd.	112.6	40.8	71.8	67.4	45.2
	Number of employed in the informal sector, thd.	134.3	48.7	85.6	28.2	106.1
25-29 years	Informality rate, %	20.1	16.4	22.7	12.7	35.3
	Number of informally employed in the formal sector, thd.	140.1	47.1	93	91.4	48.7
	Number of employed in the informal sector, thd.	195.1	66	129.1	50.3	144.8
30-34 years	Informality rate, %	19.0	14.9	22.0	12.7	32.8
	Number of informally employed in the formal sector, thd.	191.4	57.3	134.1	130.8	60.6
	Number of employed in the informal sector, thd.	236.6	85.5	151.1	66.2	170.4

Age/Education group	Indicator	Total	Women	Men	Urban	Rural
35-39 years	Informality rate, %	17.4	13.4	20.6	12.0	32.7
	Number of informally employed in the formal sector, thd.	172.2	55.3	116.9	130.1	42.1
	Number of employed in the informal sector, thd.	241.6	86.8	154.8	81.4	160.2
40-49 years	Informality rate, %	17.6	14.6	20.7	11.6	32.6
	Number of informally employed in the formal sector, thd.	270.5	109.1	161.4	199.6	70.9
	Number of employed in the informal sector, thd.	480.9	199.2	281.7	149.6	331.3
50-59 years	Informality rate, %	19.0	16.8	21.5	11.1	35.7
	Number of informally employed in the formal sector, thd.	204.5	98.9	105.6	154.1	50.4
	Number of employed in the informal sector, thd.	458.9	212.2	246.7	108.2	350.7
60-70 years	Informality rate, %	27.5	28.3	26.7	10.8	58.1
	Number of informally employed in the formal sector, thd.	21.7	8	13.7	18.3	3.4
	Number of employed in the informal sector, thd.	158	87.2	70.8	27.5	130.5
71 years and over	Informality rate, %	51.8	55.6	47.4	14.0	90.1
	Number of informally employed in the formal sector, thd.	1.4	0.8	0.6	1.1	0.3
	Number of employed in the informal sector, thd.	41.8	24.1	17.7	4.8	37
Complete higher*	Informality rate, %	7.5	5.6	9.7	6.4	14.0
	Number of informally employed in the formal sector, thd.	202.2	75.1	127.1	181.1	21.1
	Number of employed in the informal sector, thd.	188	77.6	110.4	105.2	82.8
Basic higher*	Informality rate, %	14.6	11.7	17.4	11.6	23.4
	Number of informally employed in the formal sector, thd.	25.3	10.2	15.1	18	7.3
	Number of employed in the informal sector, thd.	19.5	7.4	12.1	8.4	11.1
Incomplete higher*	Informality rate, %	13.8	12.2	16.1	9.9	23.9
	Number of informally employed in the formal sector, thd.	186	90.4	95.6	143.3	42.7
	Number of employed in the informal sector, thd.	243.9	125.7	118.2	77	166.9
Vocational*	Informality rate, %	25.6	22.7	27.2	18.0	37.6
	Number of informally employed in the formal sector, thd.	399.9	122.5	277.4	262.6	137.3
	Number of employed in the informal sector, thd.	663.1	209	454.1	192.6	470.5

Age/Education group	Indicator	Total	Women	Men	Urban	Rural
Complete secondary*	Informality rate, %	36.8	36.4	37.1	22.6	49.6
	Number of informally employed in the formal sector, thd.	265.6	105.1	160.5	166.4	99.2
	Number of employed in the informal sector, thd.	684.8	319.6	365.2	110.6	574.2
Basic secondary, primary or no education*	Informality rate, %	49.7	47.8	51.3	32.9	61.4
	Number of informally employed in the formal sector, thd.	34	13.2	20.8	20.2	13.8
	Number of employed in the informal sector, thd.	106.1	46.3	59.8	17.7	88.4

Source: State Statistics Service of Ukraine.

Notes: * The reference age group for employed population is 15-70 years.

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