THE INVASION OF UKRAINE: THE IMPACT, IN NUMBERS

23 SEPTEMBER 2022

Data and analyses collected by the ETF from various sources.

The contents of this document are the sole responsibility of the source institutions and do not necessarily reflect the views of the ETF or the EU institutions.
Overview

7.4m
Refugees from Ukraine recorded across Europe*
7.27m on 13/09
(UNCHR: 22/09/22)

2,551
Damaged & destroyed education facilities (8.11% of total)
2,477 on 09/09
(Ukrainian MoES: accessed 23/09/22)

$4.4b
Direct damage estimates in education infrastructure**
$3.8b on 22/08
(Ukrainian MoE & KSE 05/09/2022)

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* Individual refugees from Ukraine recorded across European countries, see UNCHR.
** See source for an updated note on the calculation of the estimates.
Population

Total population
(for 2022; Statistics Service of Ukraine estimates; 14/06/22)

41.1m

7.4m Refugees across Europe*
7.27m on 13/09 (1.8% increase)
(UNCHR: 22/09/22)

6.97m Internally displaced
6.64m on 23/07 (5% increase)
(IOM estimates: 23/08/22)

5.01m Total returnees**
5.54m on 23/07 (15% increase)
(IOM estimates: 23/08/22)

5m Population with education needs
children, teachers & personnel in need of
education programmes
(Education Cluster Dashboard***: 07/09/22)

1m Internally displaced children
(Education Cluster Dashboard***: 07/09/22)

0.7m Children returnees
5.54m on 23/07 (15% increase)
(Education Cluster Dashboard***: 07/09/22)

* Individual refugees from Ukraine recorded across European countries, see UNCHR.
** Note: Including returns of former IDPs from other locations within Ukraine, as well as self-reported returns from abroad (16%). See p.1 of IOM.
*** Analytical figures available in OCHA (Aug 2022) and its annex.
Note: Damages refer only to replacement cost at market value; Losses are decreases in revenues in the private sector due to the shutdown of the operation and a decline in demand, rent revenues & planned budgetary expenditures; Total Reconstruction & Recovery needs includes technological modernization and the principle "Build Back Better" when rebuilding destroyed assets.

Source: Ukrainian MoES & KSE; 05/09/2022
### Human capital & education: impact on infrastructure

**Direct damage estimates in education infrastructure***

<table>
<thead>
<tr>
<th>Region</th>
<th>Damaged &amp; Destroyed</th>
<th>Direct Damage Estimates in Education Infrastructure***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donetsk</td>
<td>61.5%</td>
<td>2,551 education facilities (8.11% of total)*</td>
</tr>
<tr>
<td>Kharkiv</td>
<td>33.3%</td>
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<tr>
<td>Luhansk</td>
<td>29.1%</td>
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<tr>
<td>Mykolaiv</td>
<td>20.7%</td>
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<td>Kyiv</td>
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<td>Chernihiv</td>
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<td>Luhansk</td>
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<tr>
<td>Kherson</td>
<td>30.7%</td>
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</tbody>
</table>

**Destroyed VET schools**

- Donetsk: 2,551 education facilities (8.11% of total)
- Kharkiv: 2,260 damaged; 291 totally destroyed
- Luhansk: 2,260 damaged; 291 totally destroyed
- Mykolaiv: 2,260 damaged; 291 totally destroyed
- Kyiv: 2,260 damaged; 291 totally destroyed
- Chernihiv: 2,260 damaged; 291 totally destroyed

**Most damaged & destroyed VET education facilities as % of total, per region**

- Donetsk: 77.2%
- Kharkiv: 46.1%
- Mykolaiv: 35.4%
- Chernihiv: 30.7%
- Luhansk: 33.3%
- Kyiv: 56%

**Note**: Estimates include kindergartens and secondary & higher education infrastructure. See source for an updated note on the calculation of the estimates. **Source**: Ukrainian Government & Kyiv School of Economics; updated 05/09/2022.

**Sources**: Ukrainian MoES for the damaged & destroyed education facilities; Statistics Service of Ukraine, Statistical Yearbook (2020) for the (national and regional) number of institutions; accessed 09/09/22.
Human capital & education: impact on infrastructure damaged & destroyed education facilities (as % of total, per region)

Note: % of total education facilities; incl. primary, secondary, TVET and tertiary ones;
Sources: ETF calculations based on Ukrainian MoES for the damaged & destroyed education facilities; Statistics Service of Ukraine, Statistical Yearbook (2020) for the (national and regional) number of institutions; updated 09/09/22. Differences from previous versions refer to revisions from MoES and updates on the number of VET schools.
Human capital & education: back to school

Current situation:
- Out of approx. 13,000 secondary schools in the country 27% returned to in-class learning, 30% to a mixed mode (in-class & remote) and 43% to remote only (OCHA Sep 2022 & MoES Aug 2022).
- 164,000 internally displaced learners
- >4000 education institutions are used for purposes other than education
- 25% of teachers are involved in services other than education (humanitarian support, volunteer services, etc.)  
  
Source: Education Rapid Needs Assessment Survey

Gaps:
- Current conflict makes the full reopening of schools in-person unlikely; meaning the continued heavy reliance on online learning (OCHA, Aug 2022)
- Displacement, the damage and destruction of educational facilities, and a lack of access to technology & internet connection have seriously affected students’ ability to learn (WB, May 2022)
- “Schools have been targeted or used by parties, resulting in families not feeling safe to send their children to school” (UNICEF, Aug 2022)

Impact on Opportunity to Learn & Learning Outcomes:
- School disruptions due to war or pandemics can have; persistent negative effects on learning because they impact all elements of a student’s opportunity to learn:
  i. less time spent on learning, and
  ii. lower quality of instruction via remote/online modalities, leading to
  iii. less content covered during instruction.
  
Source: (WB, May 2022)
Human capital & education: how and where teaching is being delivered

**164k**

IDP learners

**4,000**

Education institutions used for other purposes

<table>
<thead>
<tr>
<th>IDP learners</th>
<th>Distance / Online</th>
<th>In person</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDP learners per region (in thousands)*</td>
<td>1050</td>
<td>5</td>
<td>32</td>
</tr>
</tbody>
</table>

### # of Municipalities

- General education
- Preschool

### Teaching Modalities

- Distance/Online
- In person
- Mixed

#### IDP learners per region (in thousands)*

<table>
<thead>
<tr>
<th>Region</th>
<th>18.7</th>
<th>15.8</th>
<th>14.6</th>
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Note: Survey was conducted on 6 May 2022 at municipality (Hromadas) level and 1,141 of 1,451 municipalities replied (79% response rate). * Including General and Preschool level

Source: Ukraine Education Rapid Needs Assessment Survey
Human capital & education: challenges to education delivery

Needs & challenges for continuation of education services

- **202k** tablets required
- **165k** laptops required

Challenges for teachers to facilitate online learning (# of municipalities)

- 825 High speed Internet access
- 747 Lack of tech devices
- 621 Security Situation
- 272 Lack of Digital Skills
- 206 Household Duties
- 56 Other

Note: Survey was conducted on 6 May 2022 at municipality (Hromadas) level and 1,141 of 1,451 municipalities replied (79% response rate).

Source: UKRAINE EDUCATION RAPID NEEDS ASSESSMENT SURVEY
**Needs for Inclusive Education**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Count</th>
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<tbody>
<tr>
<td>Equipment for organisation</td>
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</tr>
<tr>
<td>Teacher Training</td>
<td>823</td>
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<tr>
<td>Teaching Guides</td>
<td>721</td>
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<td>Equipment for Children Impairement</td>
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<td>Equipment For Children Schools</td>
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<td>Gender Sensitive</td>
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<td>GBV</td>
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<td>Equipment For Children Specialized Schools</td>
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<td>Equipment for IRC</td>
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**Desired Topics For Professional Development**

<table>
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<th>Topic</th>
<th>Count</th>
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<tr>
<td>First Aid</td>
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<td>Other</td>
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</table>

**Source:** UKRAINE EDUCATION RAPID NEEDS ASSESSMENT SURVEY

**Note:** Survey was conducted on 6 May 2022 at municipality (Hromadas) level and 1,141 of 1,451 replied (79% response rate). Answers refer to number of municipalities.
**Human capital & employment: characteristics of Internally Displaced Persons (IDPs)**

- **Lost their job due to the war:** 64%
- **Job status unimpacted by the war:** 34%
- **of IDPs who lost their job due to war attempted to find work:** 52%

### Work Status
- **Work remotely:** 51%
- **Temporary unemployed:** 43%
- **Retired; parental leave; not working for medical reasons:** 6%
- **9% found a new job**

### Top sectors for current & future job search
- **Services:** 15%
- **Trade:** 11%
- **Transport:** 7%
- **Construction:** 6%
- **ICT:** 5%

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**Note:** All figures refer to Internally displaced persons only. *As they plan to resume work upon returning home.* **Includes also unemployed before the displacement; 29% of respondents did not look for work, 17% did not have a need to work (retired, disabled, maternity leave, etc.), and 1% - did not answer the question. ***Refers to those IDPs who did not search for a job yet or did not find it after moving from their habitual place. **

*Source: International Organization for Migration (IOM), Ukraine International Displacement Report, Round 5, 23 May 2022*
Human capital & employment: profiles of refugee population

- **Female/Male**: 86% Female, 14% Male
- **60+ age**: 12%
- **35-39 age**: 49%
- **18-34 age**: 26%

**Top occupations***
- Education: 12%
- Wholesale & retail: 12%
- Healthcare: 6%
- Hotel & restaurant: 4%
- Construction: 49%
- Mining industry: 49%

* Status before leaving Ukraine
Note: Based on 23,054 interviews contacted in Belarus, Bulgaria, Hungary, Republic of Moldova, Poland, Romania and Slovakia between May and mid-August 2022. While respondents are randomly selected to reduce bias, non-probability sampling is used and results cannot necessarily be extrapolated to the population of refugees from Ukraine as a whole.

Source: UNCHR (Aug 2022) "Profiles, Needs & Intentions of Refugees from Ukraine"
Human capital & employment: the potential contribution of Ukrainian refugees to the labour force in European host countries

Labour market integration challenges

Facilitated by:
- Education profile
- Existing social networks
- Immediate access to employment

Hindered by:
- Single mothers with children and other dependents

Labour force relative change projections*

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<tr>
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<th>Relative Change</th>
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<td>Czech Republic</td>
<td>2.2%</td>
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<td>Poland</td>
<td>2.1%</td>
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<td>Estonia</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

Employment relative change projections**

<table>
<thead>
<tr>
<th>Country</th>
<th>Relative Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>All European countries</td>
<td>0.4%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1.9%</td>
</tr>
<tr>
<td>Poland</td>
<td>1.9%</td>
</tr>
<tr>
<td>Estonia</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

* Relative change in labour force due to inflows of Ukrainian refugees by the end of 2022; all European countries refer to all European host countries together.

** Relative change in employment due to inflows of Ukrainian refugees by the end of 2022; all European countries refer to all European host countries together; estimates for Czech Republic, Poland and Estonia refer to a change of at most 1.9%.

Source: OECD (July 2022) “The potential contribution of Ukrainian refugees to the labour force in European host countries”
Human capital & employment: characteristics of refugee population

- **Employed**: 43.5%
  - Full-time: 87.4%
  - Part-time: 7.7%

- **Unemployed**: 3.7%

- **Outside labour force**: 52.8%
  - Skills level 1 (low): 15.5%
  - Skills level 2 (medium): 35.5%
  - Skills level 3&4 (high): 49.0%
  - Basic education: 15.3%
  - Intermediate education: 18.5%
  - Advanced education: 66.2%

- **Professionals**: 25.2%
  - Managers: 8.3%
  - Technical & Professionals: 15.5%
  - Clerical Support workers: 5.7%
  - Service & Sales Workers: 21.7%
  - Skilled Agricultural, Forestry & Fishery Workers: 4.3%
  - Craft & Related Trades Workers: 3.2%
  - Plant & Machine Operators & Assemblers: 15.5%
  - Elementary Occupations: 14.0%

*Note: All indicators except labour force status pertain to previously employed refugees. Refugees are estimated at 5.3m, based on UNHCR calculation on 24 April 2022. Source: ILO (May 2022) “The Impact of the Ukraine Crisis on the World of Work: Initial Assessments”*
Looking ahead: estimates of reconstruction costs & infrastructure losses

Estimates of reconstruction costs:

- $564b - $600b
  (including direct and indirect losses; Ukrainian Government & Kyiv School of Economics)

- $330b - $550b
  (30% to 50% capital stock destroyed assumption, CEPR)

- $200b - $500b
  (based on previously EU funded countries for their accession, CEPR)

Estimates of infrastructure losses* (08 September):

- $114.5b overall direct loss
- $35.1m transportation infrastructure
- $47.8m on housing

According to preliminary estimates, the recovery needs for destroyed assets is at least $197.8b

Source: Ukrainian Government & Kyiv School of Economics

Productive capacity estimates:

- 7.5% of Ukraine’s productive capacity has been lost since the start of the invasion (incl. 2.5% of the primary, 3.2% of the secondary & 1.6% of the tertiary sector).

- This includes among others: 20% of land unavailable for agricultural production, 40% of the productive capacity in the steel sector and, 43% of the energy sector being occupied or damaged (mainly nuclear & thermal)

Source: Blinov & Djankov, Sep 2022)

* As noted, compared to the previous estimate of June 8, 2022, the total amount of damages decreased by $8.4 billion. The key factor in the decrease was the updated information and microdata from government agencies that made it possible to refine calculations regarding the amount and average cost of damages; See Source
Looking ahead: SMEs, business surveys & reallocation program

SMEs in war time survey:
- 42% do not operate at all
- 31% suspended their operations
- 27% continue to pay full wages vs 21% not being able to pay

The Ukrainian business survey:
- 86% of companies slowed down, reduced or stopped their operations
- 37% of companies are transforming their business due to war (completely/partially or in the process to)
- 16% will transform their business in the near future
- Orders (50%), logistics (29%), supplies (21%) and payments (20%) are the main difficulties faced

MoE reallocation program
- 300 enterprises have reallocated, from impacted regions, following the Ministry of Economy initiative.
- 1,500 reallocation applications have been submitted.
- 121 business are already operating.

Source: EBA Unlimit Ukraine survey, March 2022
Source: Kyiv School of Economics, March 2022
Source: Ukrainian Ministry of Economics, April 2022
Looking ahead: institutional forecasts

<table>
<thead>
<tr>
<th>GDP (% change)</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Bank</td>
<td>3.4%</td>
<td>-45.1%</td>
<td>2.1%</td>
<td>5.8%</td>
</tr>
<tr>
<td>IMF</td>
<td>3.4%</td>
<td>-35.0%</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>EBRD</td>
<td>3.4%</td>
<td>-20%</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Statistics Services of Ukraine</td>
<td>-15.1% 2022 Q1</td>
<td>-37.2% 2022 Q2*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment Losses**</th>
<th></th>
<th>-30.2% (based on current situation)</th>
<th>-43.5% (based on military escalation)</th>
<th>-8.9% (based on hostilities cessation &amp; withdrawal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILO</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Poverty rate***</th>
<th></th>
<th>1.8%</th>
<th>19.8%</th>
<th>18.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Bank</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNDP</td>
<td></td>
<td>2.5%</td>
<td>4.2% - 28%</td>
<td>..</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vulnerable population ^</th>
<th></th>
<th>46.4%</th>
<th>49.7% - 62.5%</th>
<th>..</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: 2022 and 2023 refer to forecasts, except for Statistics Service Ukraine referring to 2022Q1. Real GDP change compared to Q1 & Q2 2021, respectively (seasonally adjusted). % changes compared to pre-conflict period; scenarios for next three months; Upper middle-income poverty rate ($5.5 in 2011 PPP); UNDP: range of four crisis scenarios projections based on initial partial equilibrium analysis and GDP shocks ranging from 7% to 60% decrease.

^ Vulnerable population to income poverty is defined if his/her income is above $5.50 a day but below $13 a day.
Looking ahead: proposals

Estimates:

• **Learning losses** due to a combination of extended pandemic-related closures and the war are estimated to be more than 1 (schooling) year. Also, the **loss of future earnings per student** is estimated to be more than 10% (*Angrist, Djankov, Goldberg & Patrinos, 2022*).

Demographic & labor market shock

• Ukraine’s population has been **ageing fast**; the (median) age was 35 in 1990, reaching 41 at the start of the war. Proposed policies include: i) incentives for Ukrainians to **return from abroad**, incl. monetary rewards to rebuilding homes and businesses, ii) priority support in the form of welfare payments for refugees who have **lost their family**, iii) **child support policies** to increase fertility rates (lower cost childcare) (*Blinov & Djankov, 2022*).

• Set up a plan for the reconstruction of post-war Ukraine; including support measures to **encourage the return of those migrants** currently flooding out of the country (*WiiW*, April 2022).

• In the **reconstruction process**, foreign firms with functioning supply chains and organisational capital can be utilized to address shortages of **expertise and workforce**, while encouraging the **use of local labor force** (*CEPR*, April 2022).
Looking ahead: proposals

Long-term cost of wars on wartime children

• There is little doubt that the trauma and fear Ukrainian children are experiencing will have a tremendous effect on their **physical and mental health**, an effect that may last for life.

• A number of studies provide mounting and alarming evidence on the potential impact that the Russian invasion may have on the **human capital and physical and mental health outcomes** of the Ukrainian children who are being exposed to war and large-scale destruction.

• Findings from historical episodes underscore **the importance of policies that prioritise the child**. Such policies are essential not only to improve the wellbeing of wartime children and their children, who are also impacted by warfare, but also to facilitate peacekeeping operations (for a review see Akbulut-Yuksel, May 2022)

• According to historical lessons on displacement in Europe, **refugees, and by extension their children**, will be keen to make the most of a traumatic experience. **Access to education can be a silver lining of forced migration**, allowing refugee children to invest in a brighter future (see Becker, March 2022)
Looking ahead: proposals

Technology & education:

- Build back better: **R&D reversing - brain drain actions**, including the use of EU educational and research programs (Erasmus, ERC), while attracting **modern technologies and skill-intensive capital investment** (CEPR, April 2022).

- Upholding Ukraine’s ‘intellectual sovereignty’: ensuring the on-going presence of the country’s research and educational sector within the worldwide scientific community and, providing reach and profile to the country’s intellectuals, teachers and researchers in the global community (Cooper, Brik, Shapoval, LSE Policy Brief, 2022).