

Economic implications of the war on Ukraine`s regional dynamics: A sectoral view

**Garry Poluschkin, Ievgenii Cherviachenko and Robert
Kirchner**

Berlin, June 2022

Structure

1. Introduction
2. Review of the macroeconomic situation
3. Regional economic trends
4. Regional sectoral indicators
5. Preliminary thoughts on reconstruction
6. Summary and conclusion

1. Introduction

Background:

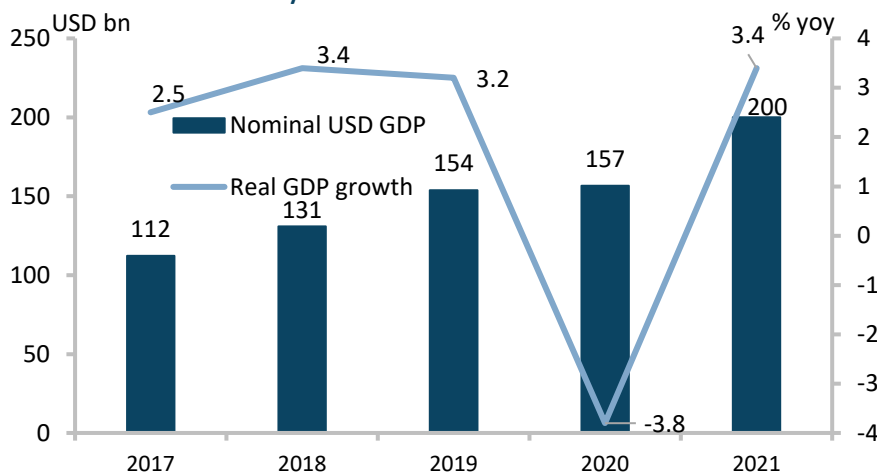
- Russia`s invasion of Ukraine has caused immense humanitarian and social suffering, as well as significant economic damages
- Its impact is visible both on the national, regional as well as sectoral levels
- However, the sectoral development differs across different regions (oblasts) of Ukraine
- This distinction is important, and must be taken into account when the reconstruction process is programmed

Purpose of this Policy Briefing:

- Short review of the current macroeconomic situation
- Analysis of the key sectoral developments in Ukraine`s oblasts
- Providing recommendations for the reconstruction process

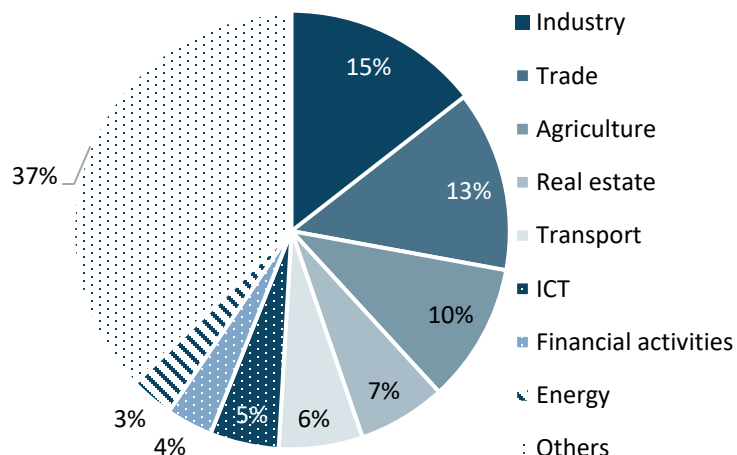
2. Review of the macroeconomic situation (1/3)

GDP dynamics before the invasion



Source: Ukrstat

Supply side of the economy



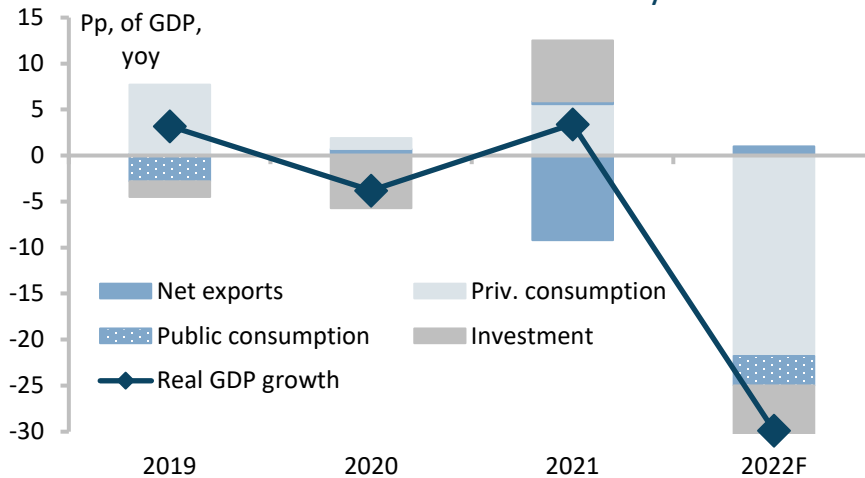
Source: Ukrstat 2021, excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

© Berlin Economics

- Ukraine had experienced an average of 3.1% real growth since 2017, except for 2020 (COVID) and had almost doubled nominal GDP (USD) during that time
 - Ukraine's economy was consumption driven (75% of 2021 GDP), while investment was rather low
 - The share of industry had gradually declined (ca. 4pp since 2017), facing challenges of old technologies
 - Agricultural sector played an increasing role before the war
 - Also, ICT and financial services had increased their economic contribution
- **Before the war, declining share of industry, while stronger sectoral contributions of agriculture and financial/ICT sectors**

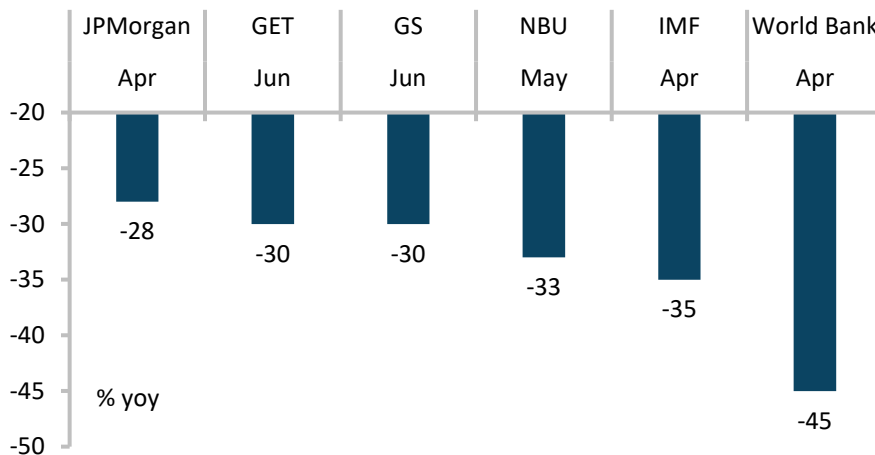
2. Review of the macroeconomic situation (2/3)

Demand side of the economy



Sources: Ukrstat, own forecast

GDP decline forecasts for 2022

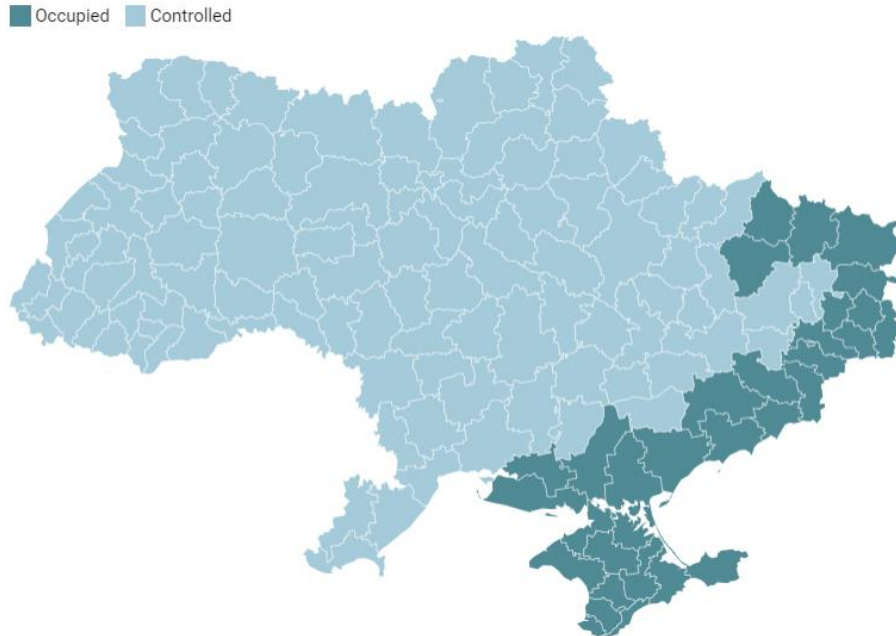


Sources: respective institution, own forecast

- Russia's invasion has a dramatic impact on the economy
 - Occupied territories where active hostilities take place
 - Households were displaced or lost their incomes
 - Exports decline due to blocked / destroyed infrastructure
- Consumption decline caused by the war is forecast to explain 2/3 of GDP fall in 2022
 - **Forecasts currently range between ca. 30% - 45% GDP decline**
 - **But: uncertainty is very high; outcome depends on the further duration and intensity of the war**

2. Review of the economic situation (3/3)

Territories occupied by Russia

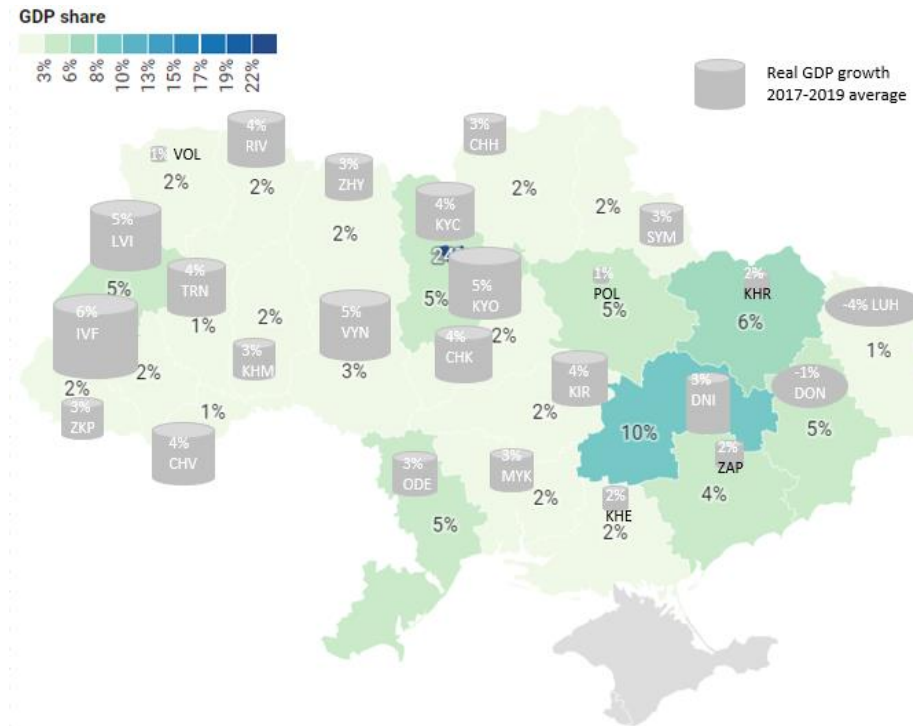


Source: Own illustration, Jun-22

- Currently, ca. 20% of Ukraine's territory are occupied (incl. Crimea and territories occupied before 24-Feb in Donetsk and Luhansk Oblast)
- Infrastructure damage is currently estimated at **USD 104 bn** (KSE, as of 8 June)
 - 40% are public logistic infrastructure
 - 38% are residential buildings
 - 11% are industrial objects
 - 11% others
- Besides the destruction, Russia blocks seaports which account for **>60% of exports (in value)**
- Appr. **6.5 m people left Ukraine** and ca. **8 m people are internally displaced (IDPs)**
- IDPs are from Kyiv region (37% City + Oblast), Kharkiv (21%), Donetsk/Luhansk (20%)
- Dnipro, Kyiv Oblast and Lviv are most important target regions for IDPs (May, Ministry of Reg. Dev.)

3. Regional economic trends: GDP

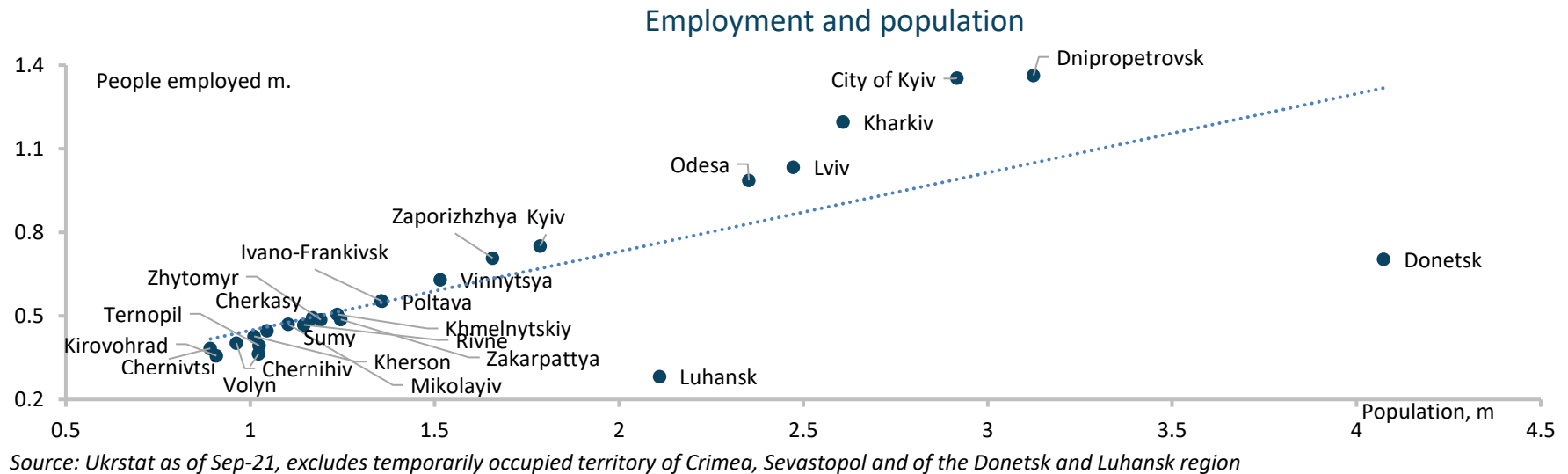
GDP trends by regions



Source: Ukrstat, own display, GDP share (2019), excludes temp. occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

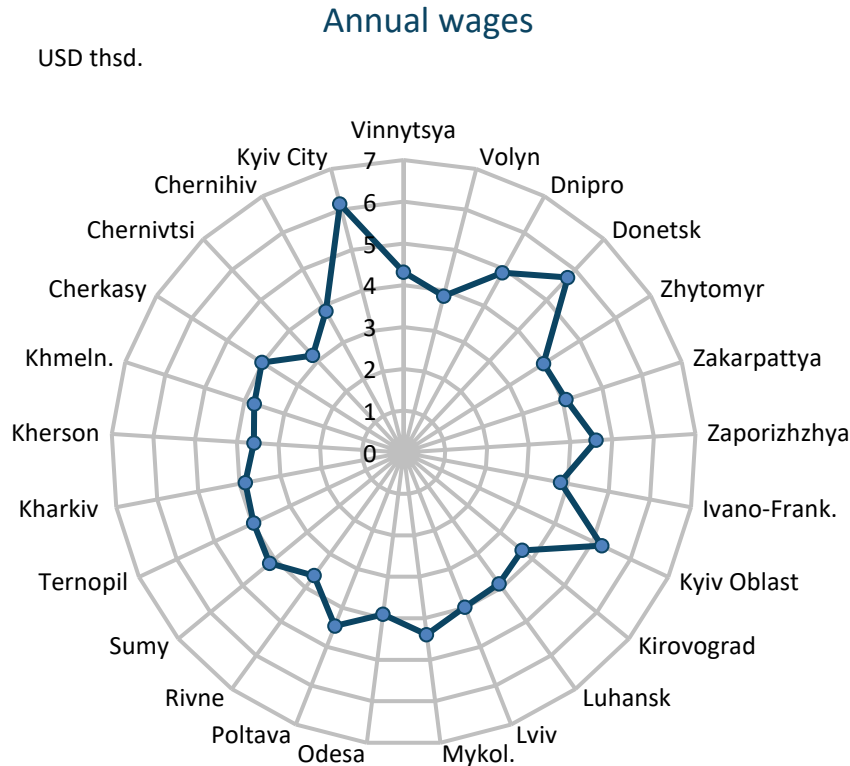
- The lion's share of the GDP is concentrated in the Kyiv region (29% of 2019 GDP in City and Oblast)
 - Between 2017 and 2019 the economy has grown by 3% p.a. in real terms
 - The most dynamic regions included the West of the country and the Kyiv region, while the East is diverging
 - Luhansk and Donetsk experienced even negative growth rates before the war
- While economic substance was concentrated in the Kyiv region, the Western part had grown steadily before the invasion

3. Regional economic trends: Employment



- Employment is concentrated in regions with largest cities: Dnipro, Kyiv, Kharkiv, Lviv and Odesa
 - The mentioned regions also displayed the lowest unemployment rates between 6.1% and 8.8% while average in other regions 12% and country average 10% in Sep-21
 - Donetsk and Luhansk are clear outlier driven by missing data collection and migration
- **Employment will be negatively affected by the war and by internal and external migration**

3. Regional economic trends: Wages



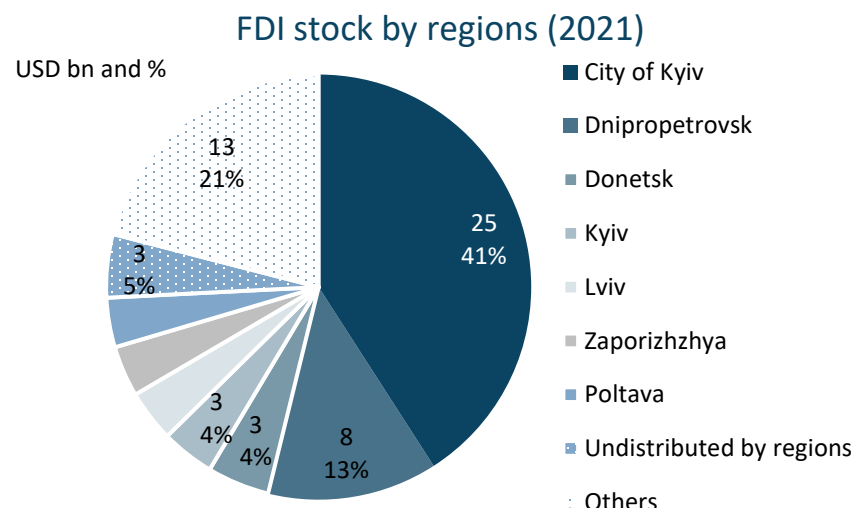
Source: Ukrstat, 2020, excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

- In Ukraine, average annual wage ca. USD 4.800 in 2020
- Wages in Kyiv City and Oblast are 30% resp. 10% above average
- Metallurgy and mining industry regions of Dnipro and Donetsk also experience above-average wages
- High correlation (0.77) between wages and share of large companies in the regional economy

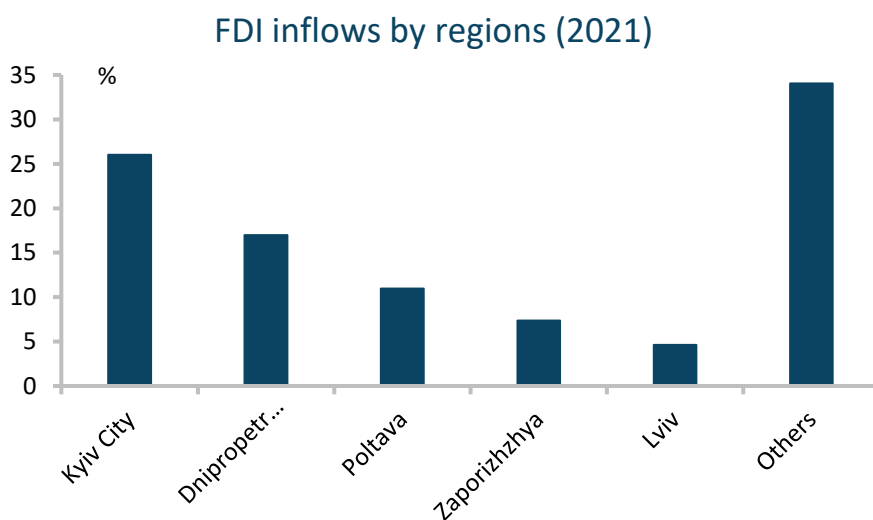
➤ **Above-average wages in regions where large companies account for more than 50% of wages**

➤ **Steep recession will put pressure on wages**

3. Regional economic trends: FDI



Source: National Bank of Ukraine (NBU), excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

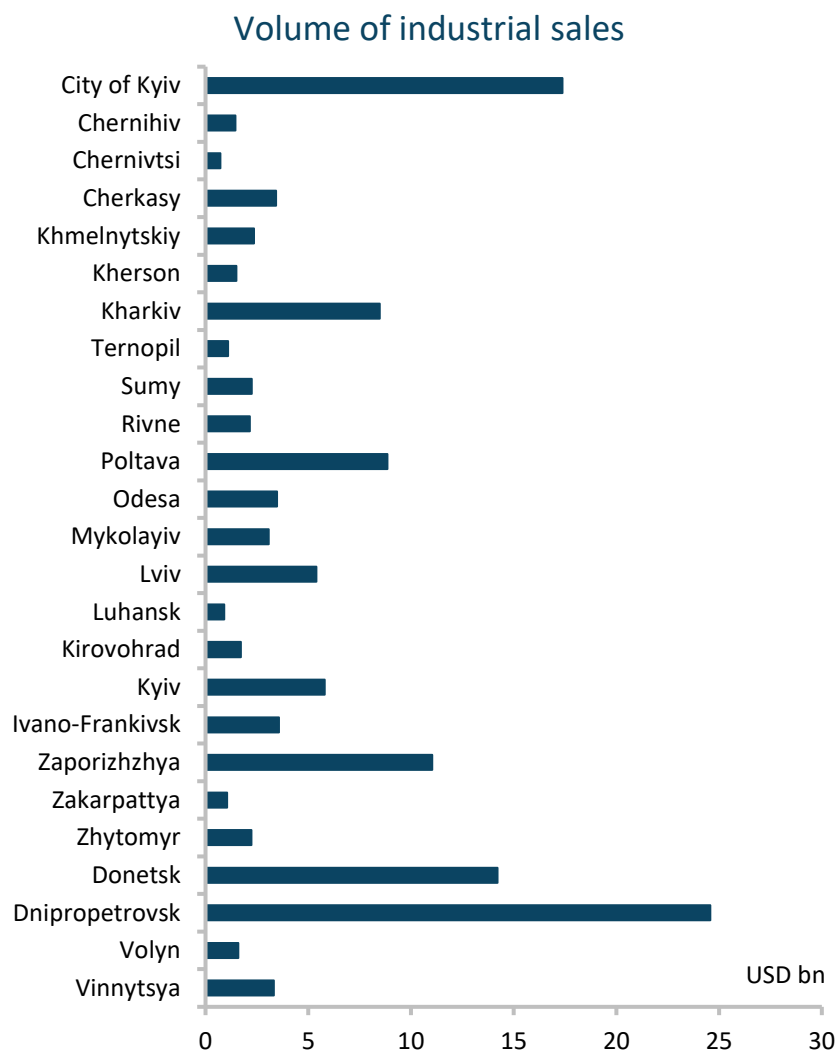


Source: National Bank of Ukraine (NBU), excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region
© Berlin Economics

- FDI stock of USD 62 bn is mainly concentrated in Kyiv City
- Industry-related FDI drives share in Dnipro (70% of FDI in industry) and Donetsk (80%)
- Dnipro and Poltava have benefited from recent FDI inflows

- **FDI inflows will be important for reconstruction phase, but security situation will be a challenge**
- **Political risk insurance will gain in importance**

4. 1. Regional economic sectoral indicators: Industry (1/2)



Ukraine's industrial sector:

- Industry, particularly mining and metallurgy, contributed 14.5% to national GVA in 2021, 3.5pp less than 2017
- Still, minerals and metallurgy account for 36% of goods exports

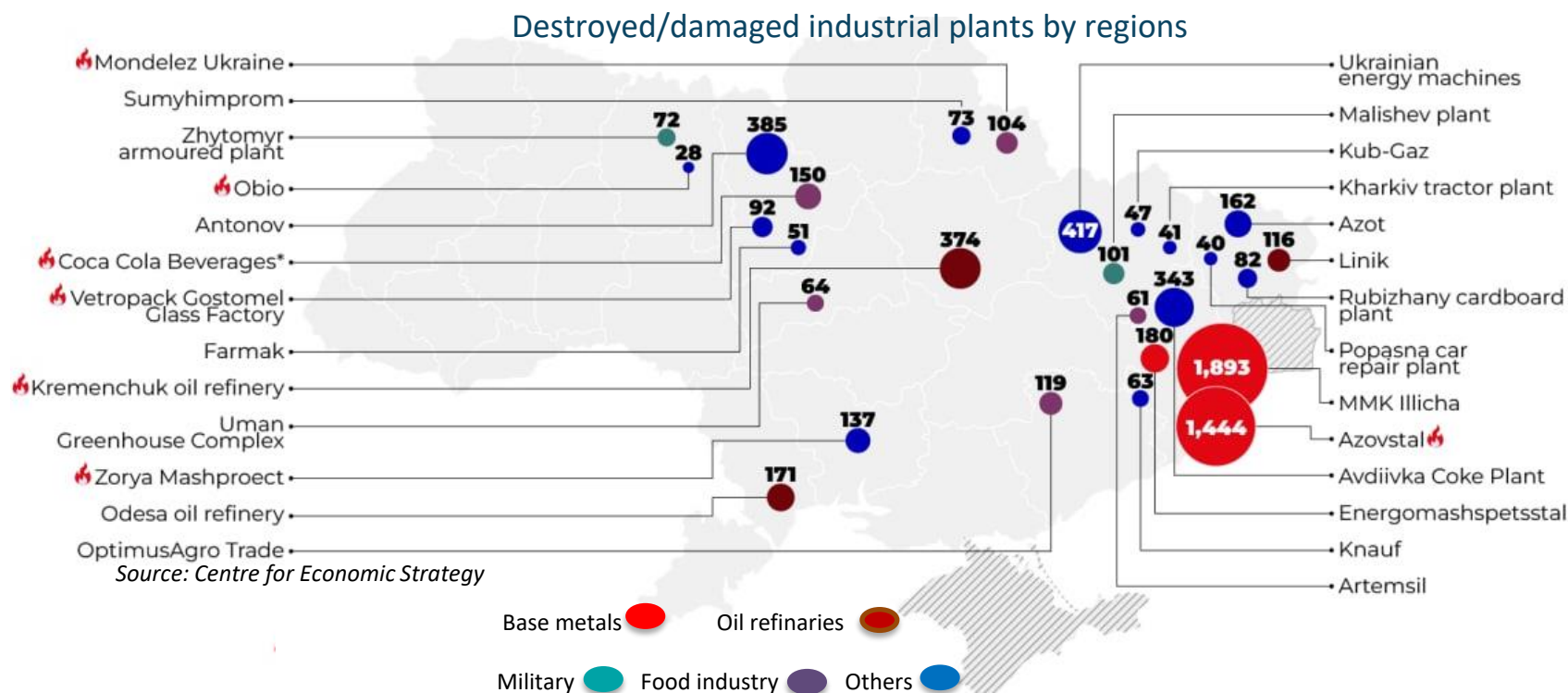
Regional distribution:

- Main hubs are in Dnipro and Donetsk with >29% of production
- Mining is important in the Eastern oblasts where >80% of employment was concentrated in a few towns in the Luhansk, Donetsk and Dnipropetrovsk oblast in 2019

- **Sector requires focus on green transformation as part of reconstruction**
- **Export focus will support this path**

Source: Ukrstat, 2021, excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

4. 1. Regional sectoral indicators: Industry (2/2)



- Currently, damaged industrial assets are estimated at USD 11.5 bn; while the main industrial objects affected are located in the Eastern regions
 - Heavy damage and occupation of base metal infrastructure in Mariupol (24% of goods exports in 2021) impede future export development
- **Need for reconstruction and sectoral export reorientation**

4. 2. Regional sectoral indicators: Energy (1/2)

Regional distribution fossil fuel production locations

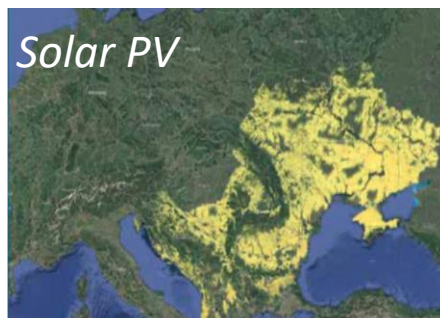
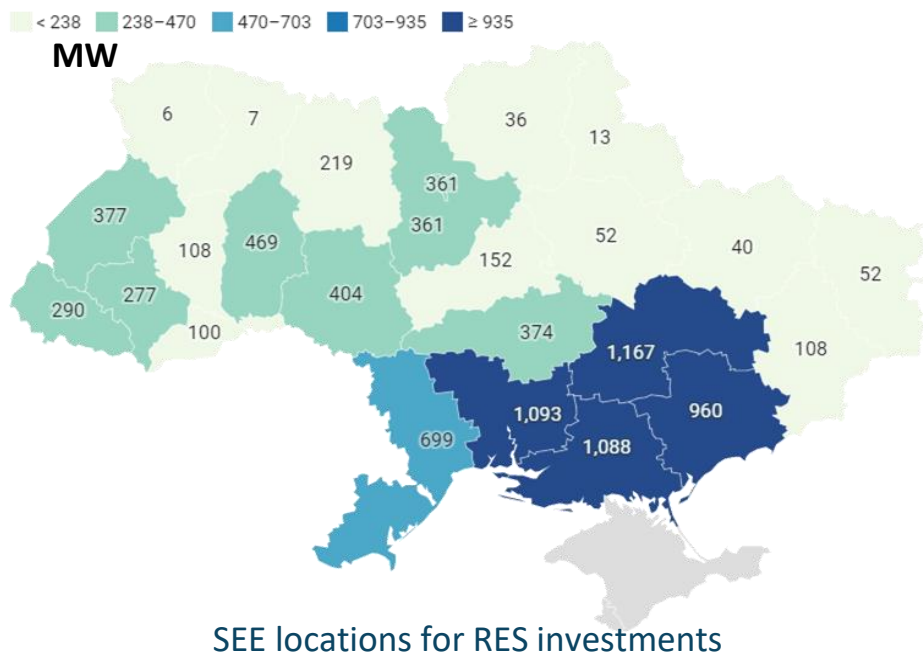


Source: own analysis

- Recent ENTSO-E emergency **integration** of Ukrainian and European systems despite invasion, reduced electricity demand in Ukraine provides space for export within ENTSO-E
 - **Gas production** is less affected, but close to areas where hostilities take place
 - Ukraine will have to **reconsider development** of energy sector given large consumers, fossil fuel producers and infrastructure is damaged or destroyed as well as to diversify energy supply away from RUS/BLR
- **RES is a solution to replace coal-fired TPPs, including green hydrogen production/transportation**

4. 2. Regional sectoral indicators: Energy (2/2)

RES capacities in Ukraine as of 2021



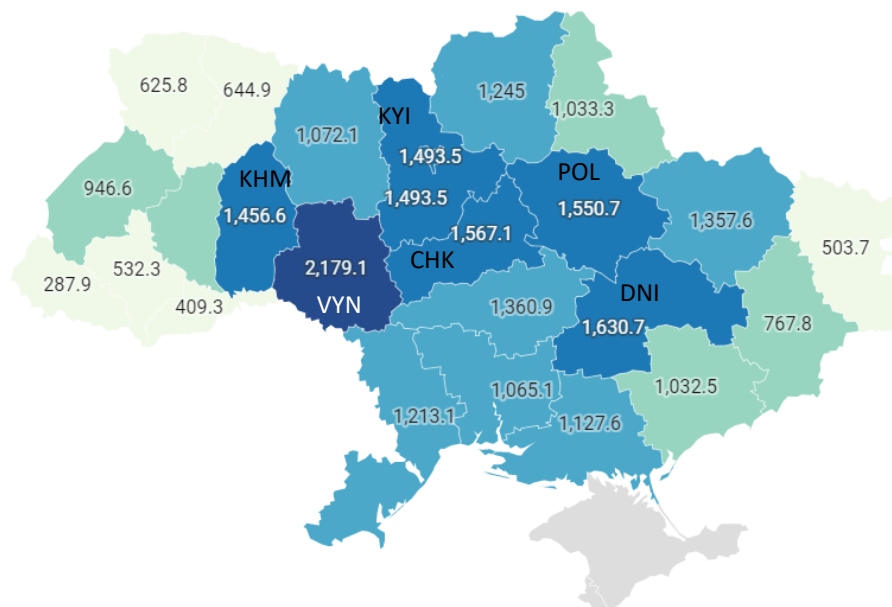
- Ukraine has vast potential for wind and solar energy as part of Southern Eastern Europe (SEE) region
 - As of Dec-21, Ukraine had **8.4 GW** (excluding small RES and large hydro) of RES installed **capacity (14% of total)** and electricity **production** in 2021 amounted to **8% of total** production
 - Significant part of installed capacity (35%, 2.9 GW) is located in the southern regions, which are now occupied or affected by ongoing hostilities
- **Green transformation will become an essential pillar of the reconstruction process**

Sources: NEURC data on installed RES capacity as of 31.12.2021, own illustration, IRENA research 2017

4.3. Regional sectoral indicators : Agriculture

Agricultural production (2021)

Constant 2016 prices, USD bn
666 1,044 1,423 1,801



Main regions by different crop production

Barley	Corn	Millet	Rape-seed	Soy-bean	Sunflower-seed	Wheat
Odesa	Poltava	Khar-kiv	Odesa	Khmeln-nytsky	Kharkiv	Kharkiv

Ukraine`s agri-food sector

- Sector`s share is 10% in national GVA
- Sector accounted for 25% of goods exports to the EU and 35% (18% cereals) to the world driven by record grain harvest of 81 mt in 2021
- Now, blocked/destroyed seaports impede exports and war limits new harvest: current forecast ca. 50 m t (-40% yoy, Ministry, 2022)
 - Corn: -43%, wheat: -40%, sunflower seed: -40%
 - Production declines mainly located in the Eastern regions

Regional development

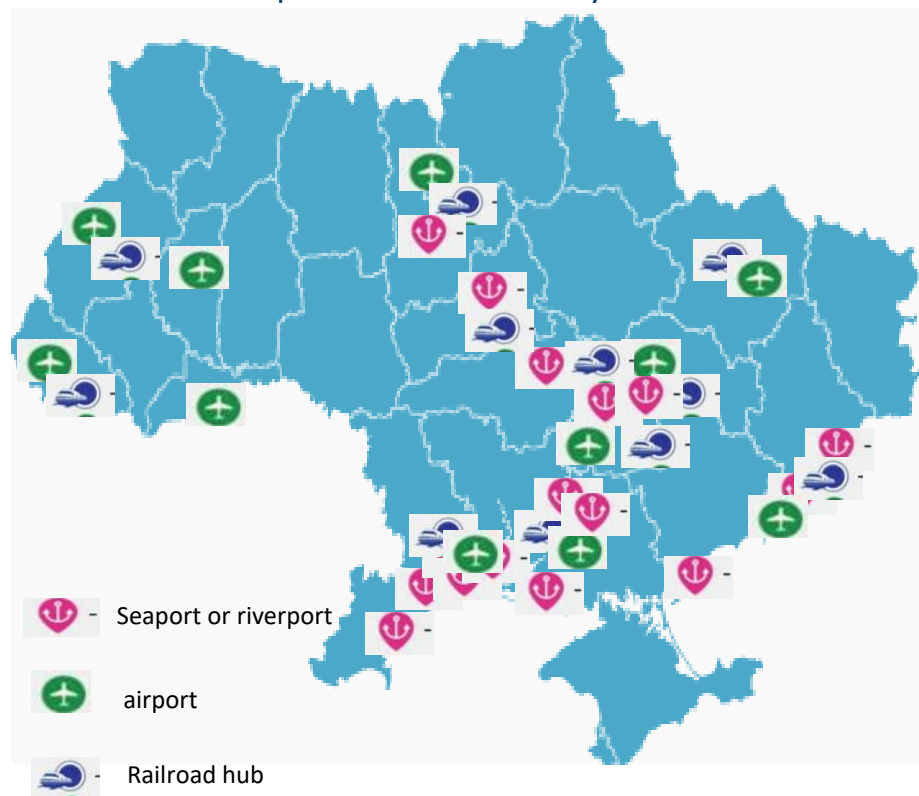
- Main agriculture production in the central and southern parts of the country
- Production is dominated by large enterprises
- Destroyed planted area, export infrastructure require regional focus for reconstruction

➤ **Export strength reveals international comparative advantage**

Sources: Ukrstat, 2021, USDA, 2020 excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

4. 4. Regional sectoral indicators: Transport

Transport infrastructure by oblasts

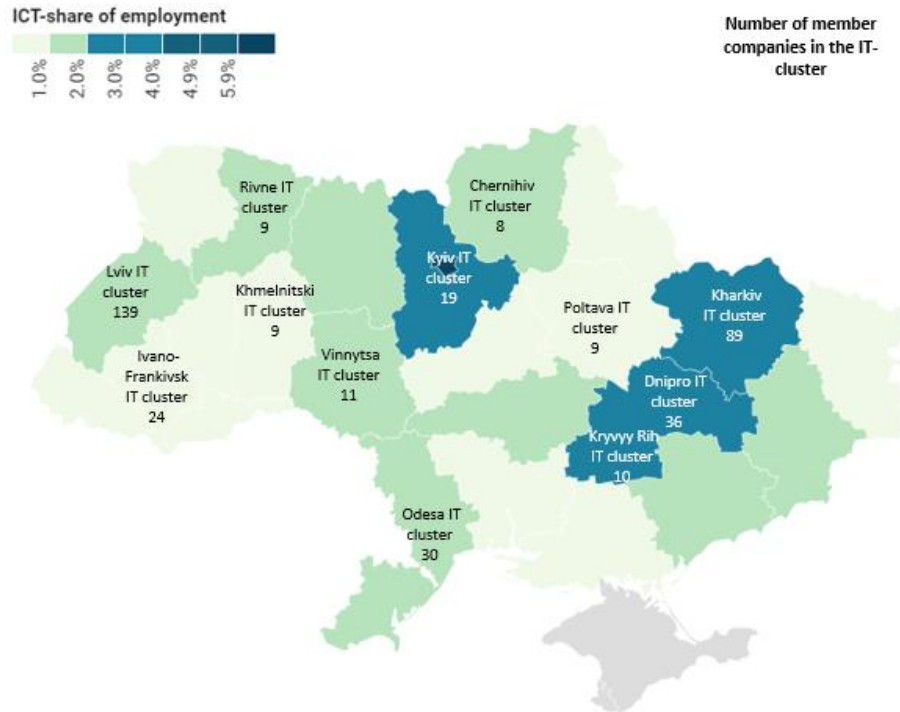


Source: National transport institute Kyiv

- Ukraine has an extensive transport infrastructure, including railroads, roads, airports, seaports, riverports
 - Sea transport infrastructure is developed through the Dnipro river as well as on the South coasts of Donetsk oblast (Mariupol, Berdyansk) and Odesa oblast
 - Seaports are export-oriented accounted for >60% exports and imports, in value, esp. agriculture and metals
-
- **Main transport infrastructure is damaged / blocked by Russia**
 - **Reconstruction effort to be focused on high-standard transport to account for its export importance**
 - **Diversification of transport ways and adjustment to EU-standards (e.g. to rail) important as part of reconstruction**

4. 5. Regional sectoral indicators: ICT-sector

Regional distribution of employment and IT-clusters



Sources: Regional cluster websites, ucluster.org, map is created with Datwrapper, data for 2021

Ukraine`s ICT-sector

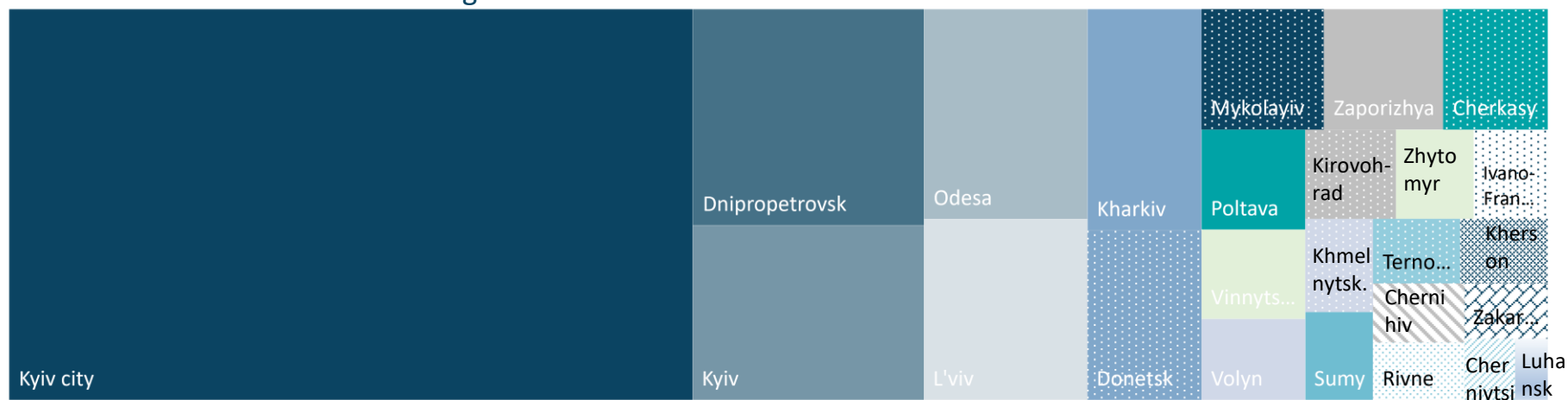
- ICT accounts for 5% (3% IT) of GVA; strong growth over past few years
- Paying above-average wages, IT sector has matured from simpler outsourcing to complex products
- Positive trade balance: sector contributes 5% to total exports and is second important service export sector

Regional ICT employment and cluster

- Highest employment share in Kyiv City/Oblast with 9% and more than 110k employed
- Followed by Lviv and Kharkiv with ~2% ICT-share of employment and strong clusters
- **Sector has been growing driven by strong clusters in Lviv, Kharkiv and Kyiv**
- **COVID has accelerated positive dynamics**
- **Sector has been supporting government and financial services also during the war**

4. 6. Regional sectoral indicators: Domestic trade

Regional share of retail and wholesale trade turnover

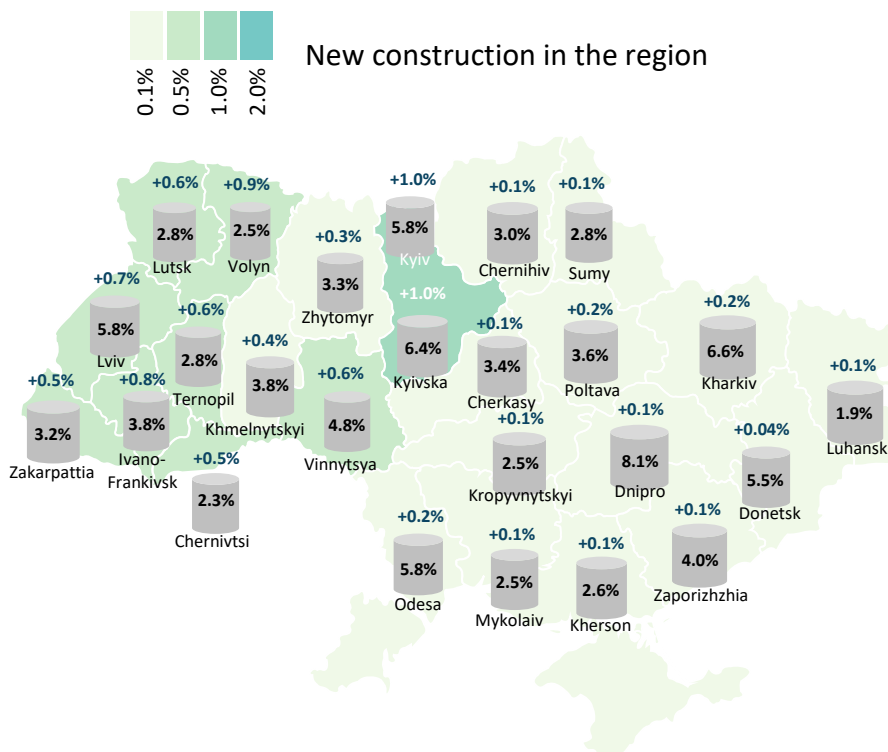


Source: Ukrstat, 2021, excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

- Domestic trade sector accounts for 13% of Ukraine's GVA with wholesale and retail trade concentrated in Kyiv region with a share of >50% of turnover
 - Eastern regions and oblasts without large cities play only a marginal role
- **Domestic trade is concentrated in Kyiv city which is another sign of centralisation of economic activities in the capital**

4. 7. Regional sectoral indicators: Real estate

Real estate development (2020)



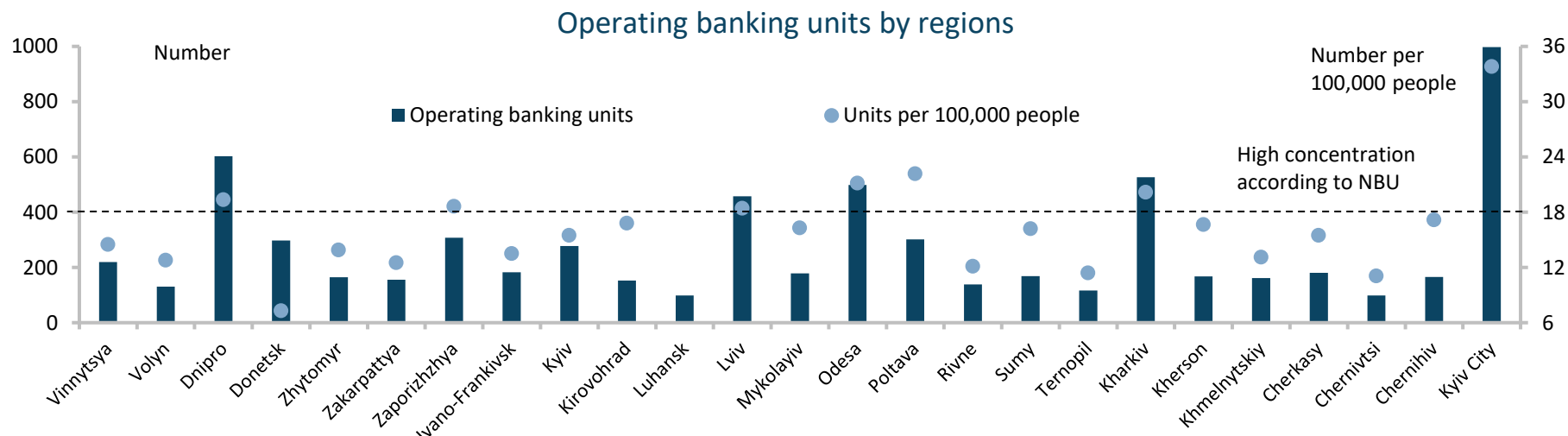
+0.8% - new construction for 2020

3.2% - share of the housing stock in 2020

Source: Ukrstat, excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

- In 2020, regions with the largest **housing stocks** were Kyiv oblast, Dnipro oblast, Kharkiv oblast, Lviv oblast and Kyiv city
 - Ukrainian **average housing stock growth** was 0.4% yoy
 - The largest **construction growth** was in Kyiv city and Kyiv region (+1% yoy, respectively)
- **Urban centres have significant experience with housing construction**
 - **Reconstruction of regional housing has to start as soon as possible to ensure housing during winter season**

4. 8. Regional sectoral indicators: Financial activities



Source: NBU, Nov-2021, excludes temporarily occupied territory of Crimea, Sevastopol and of the Donetsk and Luhansk region

- High concentration of financial activities in Kyiv City, Dnipro, Kharkiv, Odesa, Poltava and Zaporizhzhia, also FDI is mainly concentrated in Kyiv City (USD 4.6 bn)
- Population in regions without large cities faces lower density of financial activities and thus less access
- During war, sector showed its resilience, caused by **wise reaction by the NBU, its advanced digitalisation and important past reforms** → no bank-runs have occurred

- **Sector maintains stability and keeps supporting operation of companies**
- **Concentration of services rather in large cities**


5. Preliminary thoughts on reconstruction: Sequencing

List of ongoing emergency projects

Agency	Description
EU / Stand up for Ukraine	Global fundraising campaign (total sum is ca. EUR 9 bn, EUR 1 bn is pledged by EC). Aim: needs of internally displaced people in Ukraine
UN	Targeted financial support to IDPs in Ukraine (UAH 2200 per person or UAH 6600 per family)
US	US agreed to allocate USD 8 bn to Ukraine for military assistance and humanitarian aid.
GIZ	EU4Business - support to SMEs in the military time. Urgent support to Ukrainian hromadas: generators, water tanks, tents. TA – consultancy on repairment, urgent reconstruction, etc
USAID	Disaster Assistance Response (energy security, countering disinformation, cybersecurity support)
KfW	EUR 150 m loan to support “5-7-9” programme
Certain countries	40+ countries are providing humanitarian support like clothes, food, medicine, special vehicles, fuel and other necessary goods

Sources: respective institution, *list of initiatives could be inexhaustible

Stages of reconstruction

Continuation of economy	Reconstruction of infrastructure	Reconstruction of institutions	Transformation of institutions
Digitalisation, Special economic zones	Focus on sectors of comp. adv	Simplification of bureaucracy	EU integration, Green transition
			
Stage 0: War time	Stage 1: 0 to 6 months after war	Stage 2: 3 to 24 months after war	Stage 3: Long-term perspective

Source: Becker et al. 2022, A Blueprint for the reconstruction of Ukraine, own illustration

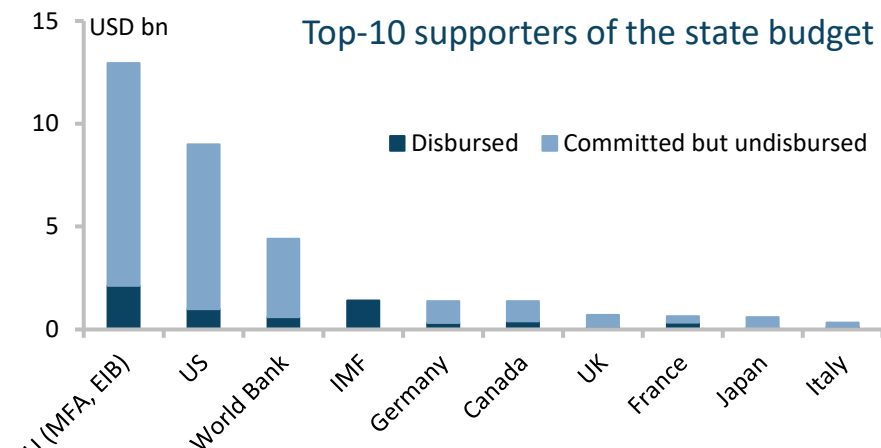
Current key priorities

- Humanitarian/emergency support
- Emergency repairs of critical infrastructure

Reconstruction stages:

- Reconstruction is a long process which needs preparation already at current stage 0 as the war still continues
- It **requires domestic and international** coordination, framework, programming, institutional capacity building
- Ultimately, Ukraine requires preparation to follow the long-term path to EU membership and green economic transformation

5. Preliminary thoughts on reconstruction: National level



Sources: Ministry of Finance Ukraine, Kiel Institute for the World Economy

List of initiatives for UA reconstruction

Party	Description of activities
EU/ RebuildUkraine	<ul style="list-style-type: none"> EU is working on the reconstruction platform to recover after the war, approved the Reconstruction plan. The programme to be jointly managed by UA and EU
UA government	<ul style="list-style-type: none"> Prime minister said UA after-war reconstruction plan to be presented on July, 4-5th. National council recovery was established in April
G7	The G7 is preparing a USD 15 bn package of economic support to Ukraine to cover Ukraine's budget deficit
World Bank	<ul style="list-style-type: none"> WB is providing more than USD 4 bn for support package. WB also developed roadmap for Ukraine support. It consists short, medium and long-term support actions.
IFC	Ukraine's PM proposed IFC to establish financing platform based on IFC to finance reconstruction of Ukrainian housing stock, social and transport infrastructure
EBRD	EBRD envisages a reconstruction program that is going to start when the situation becomes more stable

Sources: respective institution, *list of initiatives could be inexhaustible,
© Berlin Economics

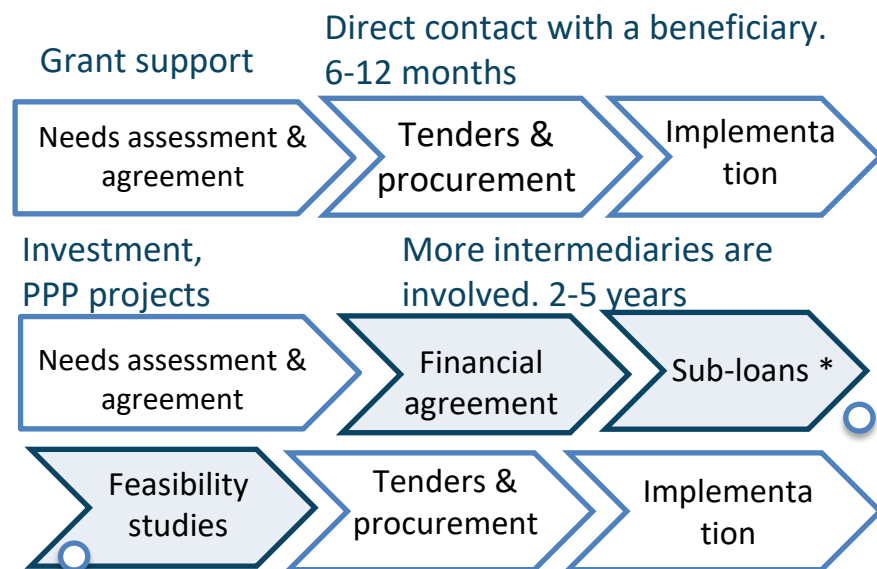
Current macro-financial / fiscal support

- UA currently runs a budget deficit of ca. USD 5 bn per month (!), which needs to be covered externally
- Grants are preferred, as loans give rise to debt sustainability concerns
- Macro-financial support of **USD 6.7 bn** was already disbursed to **cover budget deficit, and more pledged**

Reconstruction plans

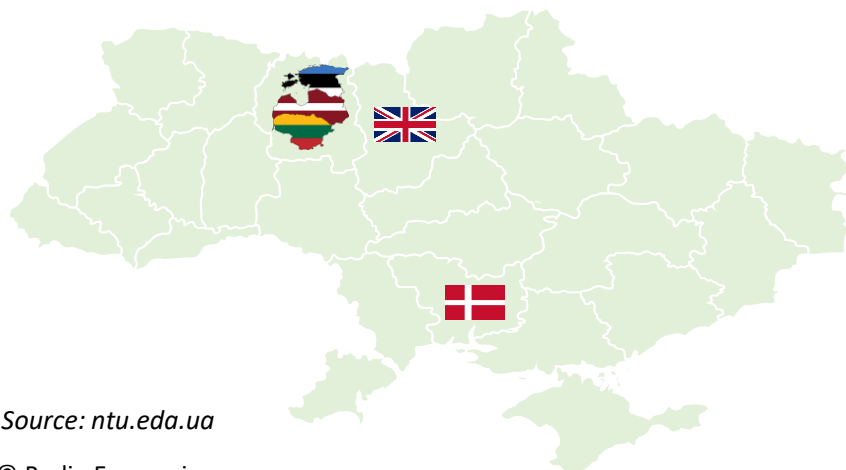
- EU leaders agree to set up a reconstruction fund and smaller donor funded initiatives exist for SMEs, and different sectors
- Ukrainian authorities **also design recovery plans** and manage small-size crowd-funded funds

5. Preliminary thoughts on reconstruction: Regional level



Source: own illustration, Depends on the type of guarantee (sovereign or sub-sovereign). Can be structured as a commercial banking loan with a low interest rate ("soft loan")

Countries to provide reconstruction support for regions



Source: ntu.edu.ua

- Regional projects are more **complex**
- **Grants** are a faster way to support regional authorities.
- It is a **more targeted** instrument to address urgent needs (housing, IDPs, reconstruction of critical infrastructure) but they require clear supervision
- Currently several programme exist (for example, Lviv received modular houses for IDPs; USAID and GIZ procure equipment for municipalities and utilities)
- **Investment projects** (PPPs) are a better option for the **next stages** of the reconstruction process

6. Summary and conclusion

General situation:

- The current economic situation is very challenging, as:
- GDP will decline by around 30% this year,
- Infrastructure damage of USD 104 bn caused by the war, and counting,
- ca. 20% of Ukraine`s territory is occupied,
- More than 14 m Ukrainians are internally or externally displaced.

Regional view:

- Economic substance is concentrated in the Kyiv region, but the Western part had grown steadily before the invasion
- The war and the damages affect the industrial sector, which is dominated by production and employment in the East
- The agricultural sector is concentrated in the Central and Southern regions, but is currently affected by blocked / destroyed important transport infrastructure (e.g. seaports)
- The ICT sector is very mobile and highly adaptable with clusters in Kyiv, Kharkiv and Lviv

Recovery and Reconstruction:

- Beyond humanitarian emergency aid, Ukraine currently needs massive fiscal support by international partners and IFIs; grants are preferred over loans
- Reconstruction can start in full only once a ceasefire is in place; EU accession perspective and green recovery aspects should guide the discussion (incl. institutional aspects); “Build Back Better”

6. Summary and conclusion

Sector	Top-5 regions	Sectors affected by war	Reconstruction focus
Industry	1. Dnipro, 2. Kyiv City, 3. Donetsk, 4. Zaporizhzhia, 5. Poltava	Mining and metallurgy in Donetsk	Metallurgy and mining assets in Donetsk, green transformation
Agriculture	1. Vynnytsa, 2. Dnipro, 3. Cherkassy, 4. Poltava, 5. Kyiv	Corn production/harvest in Poltava	Reconstruction of planted areas, silos, export infrastructure
Energy	1. Dnipro, 2. Mykolaiv, 3. Kherson, 4. Zaporizhzhia, 5. Odesa	Kherson is occupied and RES under threat, Nuclear power station in Zaporizhzhia oblast occupied	Reconnection of occupied territories to Ukraine energy system, Green transformation, Reducing dependency on RUS/BLR
Transport	*Donetsk, Odesa, Kherson, Kyiv, Dnipro	Seaports occupied in Donetsk and Kherson / blocked in Odesa	Reconstruction of transport infrastructure, reorientation to rail infrastructure
ICT	1. Kyiv, 2. Lviv, 3. Kharkiv, 4. Dnipro, 5. Odesa	IT-cluster in Kharkiv	Work very mobile but cluster structure need to be preserved
Trade	1. Kyiv, 2. Dnipro, 3. Odesa, 4. Lviv, 5. Kharkiv	Massive population outflow from Kharkiv	Incentivize remigration
Real estate	1. Kyiv, 2. Dnipro, 3. Kharkiv, 4. Lviv, 5. Odesa	Housing destruction in Kharkiv	Rebuilding before winter season, green transformation
Financial activities	1. Kyiv, 2. Kharkiv, 3. Odesa, 4. Dnipro, 5. Lviv	Kharkiv, but extent not clear	Further digitalisation would improve access in smaller regions

Source: own illustration, *no ordering possible

About the German Economic Team



Financed by the Federal Ministry for Economic Affairs and Climate Action, the German Economic Team (GET) advises the governments of Ukraine, Belarus*, Moldova, Kosovo, Armenia, Georgia and Uzbekistan on economic policy matters. Berlin Economics has been commissioned with the implementation of the consultancy.

**Advisory activities in Belarus are currently suspended.*

CONTACT

Garry Poluschkin, Project Manager Ukraine
poluschkin@berlin-economics.com

German Economic Team
c/o BE Berlin Economics GmbH
Schillerstraße 59
10627 Berlin

Tel: +49 30 / 20 61 34 64 0
info@german-economic-team.com
www.german-economic-team.com

Implemented by

