Transition Report 2022-23

European Bank
for Reconstruction and Development

BUSINESS UNUSUAL

#ebrdtr

interactive charts | online downloads | country assessments

tr-ebrd.com

Visit **tr-ebrd.com** for the digital report, country assessments and multimedia content

ABOUT THIS REPORT

The EBRD seeks to foster the transition to an open market-oriented economy and to promote entrepreneurship in the economies where it invests. To perform this task effectively, the Bank needs to analyse and understand the process of transition. The purpose of the *Transition Report* is to advance this understanding and to share our analysis with partners.

Responsibility for the content of the report is taken by the Office of the Chief Economist. The assessments and views expressed are not necessarily those of the EBRD. All analysis and data in the online country assessments are based on information as of late October 2022. In the report chapters, all assessments and data are based on information as of late August 2022.

CONTENTS

3

4

5

EXECUTIVE SUMMARY

Companies around the world are facing "business unusual" as they experience the aftershocks of a global pandemic and as a devastating war rages in Europe. Russia's invasion of Ukraine has resulted in the largest forcible displacement of people in Europe since the 1940s, while individuals and firms face unprecedented increases in the prices of energy and food. At the same time, supply chains continue to be upended by the Covid-19 pandemic, and many companies have accumulated record levels of debt, often as a result of loans issued on favourable terms. This report examines those various exceptional circumstances in turn, discussing their implications for public policy.

Wars have a profound impact on people's livelihoods and economic activity. In a typical war, government debt increases by 47 percentage points of gross domestic product (GDP) and the state assumes a more proactive role in the economy. Even if income per capita manages to recover after a few years of reconstruction, there may still be lasting scars affecting stocks of labour and capital.

While wars have become less common overall since the 1990s, the number of forcibly displaced people worldwide has grown rapidly in recent years (being forecast to exceed 100 million by the end of 2022), with low and middle-income economies hosting 75 per cent of the world's refugees. Ukrainian refugees in European Union (EU) member states have been granted access to their host countries' labour markets, and survey results suggest that they tend to be satisfied with the support provided.

Many firms have recently experienced major disruption to their supply chains. Across the EBRD regions, firms have adjusted to this disruption, primarily by increasing stocks of inputs and sourcing goods from larger numbers of suppliers (predominantly from abroad). The climate crisis is likely to bring more disruption in the future.

After a decade of rising indebtedness and the shocks caused by the Covid-19 crisis, corporate debt levels in the EBRD regions are at record highs. The "evergreening" of cheap loans to vulnerable firms represents a significant risk, as "zombie firms" create negative spillovers for healthy companies. Undercapitalised and state-owned banks have stronger incentives to support zombie firms, as do banks in countries where insolvency frameworks are weak.

The EBRD regions have seen unprecedented increases in the prices of energy and food. Countries have implemented a wide range of measures in response, with differences in policy choices reflecting variations in national priorities and in citizens' preferences.

The economics of war and peace

This chapter provides an overview of the impact of wars and post-war recoveries over the last two centuries. While a typical war sees GDP per capita drop by 9 per cent relative to pre-war levels, with inflation increasing by 8 percentage points, the most damaging wars see GDP per capita decline by 40 to 70 per cent. As most wars are financed via domestic borrowing, government debt increases by an average of 47 percentage points of GDP.

Post-war recoveries vary widely. In 29 per cent of cases GDP per capita returns to the trend levels observed for comparator countries without wars within five years, but in almost half of all instances it remains below those levels 25 years later. Reconstruction is particularly difficult if peace is fragile, and more than half of all civil wars are followed by another conflict within six years, with only a fifth of all wars being followed by 25 years of peace.

A focus on GDP may significantly understate the lasting damage done by wars. Even 25 years on, the populations of such economies are typically considerably smaller than those of comparator countries, reflecting casualties, outflows of refugees and declining birth rates. This loss of human capital adds to the long-term cost. On average, capital stocks are also 12 per cent smaller five years after the end of a war (with the corresponding figure for the EBRD regions standing at 23 per cent, as wars in those regions have often coincided with transition recessions).

While wars do have the potential to bring about improvements in states' administrative and fiscal capacity, meaningful upgrading of economic and political institutions in the wake of an armed conflict is the exception rather than the rule.

https://2022.tr-ebrd.com/economics-of-war-and-peace

War, conflict and migration

The number of people being forcibly displaced – either internally or across international borders – has increased considerably of late, with the total figure worldwide forecast to exceed 100 million by end 2022. Almost two-thirds of all refugees come from Syria, Ukraine, the West Bank and Gaza, Venezuela or Afghanistan, and nearly half are children.

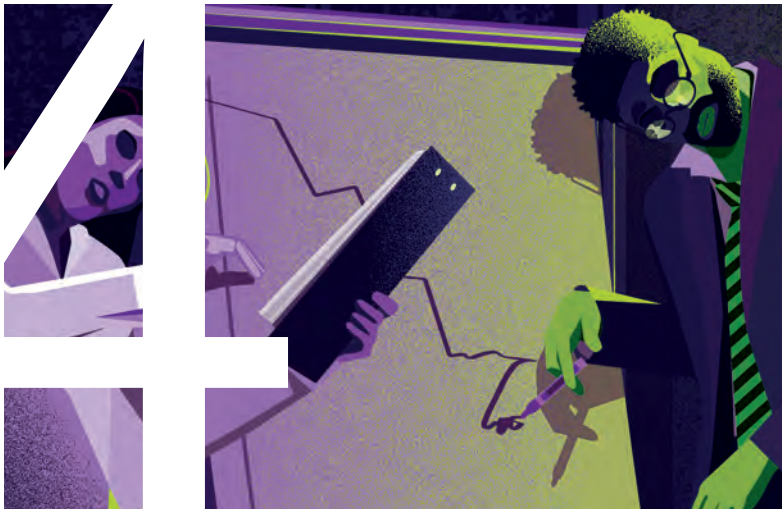
Low and middle-income countries host three-quarters of the world's refugees, with EBRD economies hosting 33 per cent. Refugees tend to be younger and better educated than the average person in their home country, and effective integration policies can help them to make meaningful contributions to their host countries. On average, the policies of EBRD economies in the EU are marginally to moderately supportive in this regard.

In many economies, Ukrainian refugees have been granted access to work, healthcare, education and social services. Those refugees could increase the EU's labour force by an estimated 0.5 per cent by end-2022 – about twice the size of the increase that followed the influx via the EU's southern borders in 2015-16. This could alleviate some labour shortages in rapidly ageing European economies if mismatches between available jobs and skills are minimised.

Survey data indicate that nearly three in ten Ukrainian refugees in Europe are already employed in their current host country, while 20 per cent are working remotely in Ukraine. Overall, their living conditions and the help provided by locals are regarded as very good, although feelings of homesickness and helplessness are common.

Polish data suggest that Ukrainian refugees are more likely to head for places with higher tax revenues and areas that had larger Ukrainian communities before the war. Almost half of all school-age refugees are enrolled in Polish schools, with many others attending Ukrainian schools remotely.

https://2022.tr-ebrd.com/war-conflict-and-migration



Global supply chains in turbulence

Technological advances have incentivised firms to spread production across borders, with many choosing to specialise in a particular task rather than manufacturing an entire product. Consequently, trade in intermediate goods accounted for around half of all global trade in 2020. EBRD economies are, on average, more entwined in global supply chains than the typical middle-income country.

While trade theory suggests that specialisation on the basis of comparative advantage is optimal, policymakers are often concerned about the vulnerability that arises from the concentration of exports and imports. The last few years have seen considerable disruption to trade, with causes ranging from Covid-19 to extreme weather and the war in Ukraine.

A recent survey shows that more than three-quarters of firms participating in global supply chains have taken steps to boost the resilience of their supply chains (with the most common measure being an increase in stocks of inputs, followed by diversification of the supplier base, predominantly using new suppliers from abroad). Despite pandemic-related disruption, relatively few firms have dropped Chinese suppliers.

Given the growing frequency of extreme weather, firms may experience such disruption more often in the future, as well as having to deal with new policies seeking to mitigate the impact of climate change. For example, firms exporting aluminium, steel and other products to the EU will soon be subject to the Carbon Border Adjustment Mechanism, a price correction applied at the border which seeks to level the playing field as regards the effective carbon price faced by EU and non-EU producers. While awareness of that initiative remains limited in EBRD economies, producers with better green management practices are more likely to have assessed their carbon intensity as a result.

https://2022.tr-ebrd.com/global-supply-chains-in-turbulence

Corporate debt and business dynamism

After a decade of rising corporate indebtedness and the events of the Covid-19 pandemic, firm-level debt is at record levels in the EBRD regions. The onset of the pandemic was a major shock to the global economy, triggering an extraordinary decline in activity and considerable uncertainty for businesses. The vast majority of firms in the EBRD regions suffered substantial negative cash-flow shocks, while day-to-day banking operations were also disrupted, making it difficult for lenders to assess firms' viability.

Policymakers responded by taking far-reaching steps to help businesses navigate the pandemic. Many firms benefited from the deferral of loan repayments, with some repayment holidays being mandated by governments and others being offered voluntarily by banks. Largely as a result of the generous support provided by governments, corporate defaults are currently at record lows in many economies, despite the severity of the Covid-19 crisis. This is uncharacteristic of recessions in general, and those exceptional support measures will need to be withdrawn as the pandemic subsides.

A significant number of firms with weak financial performance indicators have constant access to cheap (often subsidised) credit. Such evergreening of loans to vulnerable firms is a concern, as zombie firms – indebted companies that are in distress, but avoid default thanks to their continued access to cheap funding – create negative spillovers for healthy firms. Indeed, strong firms see lower investment, revenue and employment when they operate in sectors with more zombie firms. Such negative spillovers are particularly pronounced along the value chain, exacerbating the economic impact of global supply-chain disruption. Undercapitalised and state-owned banks have stronger incentives to support zombie firms, as do banks in countries where insolvency frameworks are weak.

https://2022.tr-ebrd.com/corporate-debt-and-business-dynamism

Structural reform

This chapter presents the latest assessment of transition challenges in the EBRD regions, tracking progress in the area of structural reform. It focuses on six key qualities of a sustainable market economy, looking at whether economies are competitive, well governed, green, inclusive, resilient and integrated.

Since 2016, reform scores have been converging in most areas, notably with regard to competitiveness, resilience and economic integration. This contrasts sharply with developments in the area of environmental reform, with growing divergence between greener and less green economies. Almost all of that convergence was observed before the Covid-19 pandemic, with progress having slowed in the last couple of years.

To some extent, progress on reforms is aligned with citizens' preferences. Such alignment is strongest in the area of inclusion and weakest with regard to the green economy, and it tends to be greater in countries with free media. On average, survey data suggest that people in EBRD economies have a greater desire for economic integration than their peers in advanced comparator economies, whereas support for the green economy is stronger in comparator countries.

Faced with unprecedented increases in the prices of energy and food staples, policymakers across the EBRD regions have used a wide range of measures to mitigate the impact on households and firms, with most countries taking action of some kind. The varied nature of that response reflects the multitude of objectives that policy measures seek to pursue in terms of reaching out to those in need, ensuring cost-effectiveness, avoiding negative externalities (such as excessive consumption of energy) and achieving broad consensus on such measures within society. The overall effectiveness of those measures is estimated to be lower than in advanced comparator economies, partly reflecting inferior administrative capacity.

https://2022.tr-ebrd.com/structural-reform

FOREWORD

A global pandemic, lockdowns, working from home, supply-chain disruption, extreme weather, war in Europe, rocketing gas prices, forced migration on a massive scale, high inflation, growing debt burdens, reshoring, friendshoring ... This non-exhaustive – yet quite exhausting – list of events would be challenging enough for governments and firms if it was spread over a decade or more. And yet, all of this has happened in the space of just three years, with the prospect of more turbulence to come.

It is clear that there will be no going back to the "business as usual" of the pre-pandemic period. Our approach to work has been revolutionised, while the invasion of Ukraine and the resulting energy crisis are transforming our thinking on energy and food security, prompting a major reassessment of how economies and businesses obtain critical raw materials and complex parts and components.

The title of this year's report – "Business Unusual" – encapsulates the tectonic shifts that policymakers and businesses have had to deal with (and will continue to face for some time yet). The report naturally focuses on the ways in which these developments have played out in the EBRD's regions of operation. Drawing on a plethora of fresh survey data, as well as other newly compiled information, the report presents rich analysis that can inform both public policy and corporate decision-making.

The report begins with an exercise in economic history, taking a broad look at the economics of war and peace and examining the impact that armed conflicts have had on economies over the last two centuries. Such a retrospective is useful and necessary in the current circumstances, as it provides some indication of the sheer scale of the challenges that Ukraine has been subjected to and will face when the war ends. This, in turn, can help to inform policymakers' short and long-term responses to those challenges.

The focus of the report then shifts to an area where the war has already had a major impact and further policy responses may be needed, namely, the recent mass migration of people escaping the conflict. That wave of Ukrainians fleeing the country is just the latest in a string of refugee crises precipitated by armed conflict, having been preceded by waves of migration from Syria, the former Yugoslavia and many other theatres of war. Newly collected survey data document the human toll of escaping such conflict and refugees' uncertainty about what the future has in store for them, but they also showcase examples of refugees successfully integrating into the economies of their host countries.

Another key focus of this report is the rethinking of supply chains in the face of major disruption and geopolitical shifts. Until fairly recently, high levels of efficiency and low costs were the only considerations when it came to sourcing raw materials and deciding where to set up production facilities. This paradigm started to be challenged during the trade wars at the end of the last decade and the debate really ignited in the early months of the Covid-19 pandemic, when the supply of critical goods and equipment was disrupted. The war in Ukraine and Russia's weaponising of energy supplies and raw materials have provided further impetus for the rethinking of supply chains. As this report shows, the process of reorganising supply chains to boost their resilience has already begun. At the same time, however, the report also provides a stark warning: there is a real danger that, if taken too far, such a focus on resilience will result in a world that is split into trading blocs, causing substantial welfare losses for the vast majority of countries.

The various shocks to business activity over the last few years have resulted in ever-increasing levels of corporate debt. This raises questions of sustainability, especially with interest rates rising rapidly in response to the increase in inflation. Although shielding firms from creditors was the right thing to do in the extraordinary circumstances of the pandemic, the perpetual rolling-over of credit to non-viable firms leads to their zombification – and that, in turn, hampers creative destruction, which is a vital element of a healthy and vibrant economy.

Where do all of these observations leave us? One thing is sure: decision-making under extreme uncertainty is here to stay. Governments and firms will need to equip themselves better in the face of this formidable challenge. And while they are implementing short-term stabilisation measures in response to the immediate storm, policymakers and business leaders should keep their eyes firmly fixed on the long-term prizes: green energy and free trade – the foundations of future economic growth.

Beata Javorcik
Chief Economist
EBRD

Motivated by the invasion of Ukraine, this chapter provides an overview of the impact of wars and post-war recoveries over the last two centuries. The most damaging wars see GDP per capita decline by 40 to 70 per cent, while post-war recoveries vary widely. In 29 per cent of cases GDP per capita returns to the trend levels observed in comparator countries without wars within five years, but in almost half of all instances it remains below those levels 25 years after the conflict. Reconstruction is particularly difficult if peace is fragile. Furthermore, even if GDP does recover, there may still be lasting scars affecting labour and capital.

Introduction

This chapter provides an overview of the impact of wars and post-war recoveries over the last two centuries. This analysis is motivated by the invasion of Ukraine, which has led to the largest displacement of people in Europe since the Second World War (see Chapter 2). However, the analysis presented here adopts a broader perspective, looking at the history of armed conflicts – both within states (civil wars) and interstate – and highlighting a number of common trends in the data.

The chapter starts by looking at how common wars have been over time and presenting key stylised facts on what a "typical" war looks like. It then considers the characteristics of economies in wartime, looking at short-term disruptions, examining what happens to economies during such periods, and considering the question of how countries finance wars, looking at the evolution of fiscal balances and government debt. The analysis finds that while wars have become less common overall since the 1990s, civil wars now account for a larger share of total armed conflicts. The economic effects of wars and post-war recovery paths both vary widely. While a typical war sees gross domestic product (GDP) per capita drop by 9 per cent relative to its pre-war level, with inflation increasing by 8 percentage points, the most damaging wars see GDP per capita decline by between 40 and

1 THE ECONOMICS OF WAR AND PEACE

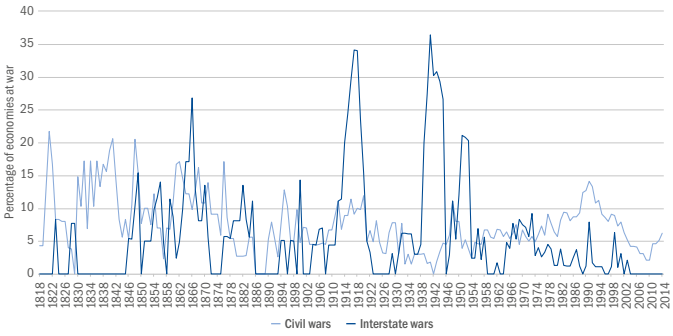
70 per cent. As most wars are financed via domestic borrowing, government debt-to-GDP ratios typically increase by around 47 percentage points. (For more information on trade flows in wartime economies, see Chapter 3.)

The next part of the chapter considers the lessons that can be learned from previous reconstruction episodes, looking at how long it takes for economies to recover and match the growth trends of similar economies that have not experienced wars, and seeing which country-level characteristics are associated with faster recoveries. It then seeks to apply those lessons to Ukraine. The analysis reveals that in 29 per cent of cases GDP per capita returns to the trend levels observed for comparator economies without wars within five years, but in almost half of all cases it remains below those trend levels 25 years after the conflict. Reconstruction is particularly difficult if peace is fragile. More than half of all civil wars are followed by another war in the next six years, and only a fifth of wars are followed by at least 25 years of peace.

The final part of the chapter looks at the lasting effects of wars and the "new normal", focusing on whether wars have a long-term impact on populations, capital stocks and productivity, and whether "wars make states" – that is to say, whether countries see significant improvements in their administrative and fiscal capacity or their institutions after wars. This section finds that a focus on flows – such as changes in the value added (GDP) which is generated each year – may significantly understate the lasting damage that is done by wars. Even 25 years on, the populations of such economies are often significantly smaller than those of similar economies that have not experienced armed conflict, reflecting casualties, outflows of refugees and declining birth rates. The loss of human capital also adds to the long-term cost of wars. On average, stocks of physical capital are still 12 per cent smaller five years after the end of the war (with the corresponding figure for the EBRD regions[1] standing at 23 per cent, as wars in those regions have often coincided with transition recessions). While wars do have the potential to support improvements in states' administrative and fiscal capacity, meaningful upgrading of economic and political institutions in the wake of an armed conflict is the exception rather than the rule.

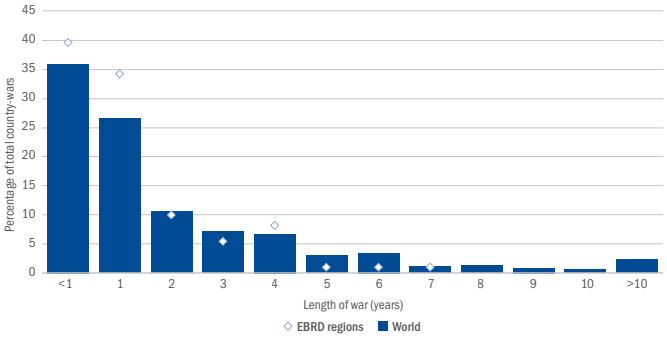
Wars do not only affect the economies that are actually engaged in armed conflict; they also have wider spillover effects – on those countries' neighbours and trading partners, for example. This chapter does not examine such spillover effects, nor does it look at the causes of wars.

CHART 1.1. Wars have become less common overall since the 1990s



SOURCE: Correlates of War and authors' calculations.
NOTE: Percentages are based on the Correlates of War database's definition of countries.

CHART 1.2. The median war in the dataset lasted one year



SOURCE: Correlates of War and authors' calculations.
NOTE: For definitions of the start and end dates of a war, see the Correlates of War database. Since an interstate war will, by definition, involve more than one country, the term "country-war" is used in this chapter to indicate that data describe a single war from the perspective of a single country. It should be noted, too, that the dataset includes territories that are no longer considered to be countries.

A novel dataset

This chapter constructs a novel database of conflict episodes by combining information from the Correlates of War database with data from several other sources. Data on the financing of wars are taken from the Confronting the Costs of War Project (CCWP), which covers the principal belligerents in all interstate wars lasting more than six months in the period 1823-2003. Socio-economic indicators such as GDP, inflation and fiscal variables are taken from the *World Economic Outlook* produced by the International Monetary Fund (IMF), Reinhart and Rogoff (2009) and the Maddison Project Database. Information on populations, investment, capital stocks and total factor productivity (TFP) comes from the Penn World Tables (which cover the period from 1950 onwards).

The dataset used in this chapter follows the Correlates of War database in defining a war as a sustained period of combat involving organised armed forces which results in a minimum of 1,000 battle-related deaths per year (excluding civilian fatalities). This database covers more than 700 wars over the period 1816-2014, providing information on the warring parties, the start and end dates of the war, whether the conflict was a civil or interstate war, which side is generally perceived to have won the war and whether the conflict has been resolved.[2]

[1] For a definition of the EBRD regions, see tr-ebrd.com.

[2] See Sarkees (2007).

This is complemented by a manually coded variable for each war indicating whether it took place on a country's own territory. All civil wars are regarded as taking place on a country's own territory; however, interstate wars are only given that classification if there were substantial battles within the country's own borders (excluding minor attacks, border disputes and attacks only targeting military infrastructure).

Wars have become less common overall since the 1990s

The percentage of economies that are involved in interstate wars spiked around the time of the First and Second World Wars and has fallen in recent decades (see Chart 1.1). Civil wars now account for a larger share of total wars, following a peak in the 1990s.[3]

The median war in the dataset lasted a year, while the average duration was 2.4 years (see Chart 1.2), driven by a few very long (mostly civil) wars, such as the conflicts in Angola (1976-91), Myanmar (1965-93) and Sudan (1983-2002). In the following charts, wars of varying duration are condensed into two symbolic years by computing average growth rates for the first and second halves of the war and treating them as the growth rates for the first and second years of a "typical" war.

The median country in the dataset was at war 3 per cent of the time (compared with an average of 6 per cent), although Sudan and Iraq, for example, were at war in 50 and 33 per cent of the years in the dataset, respectively. Some countries, such as China and the former Soviet Union, were involved in up to five wars in a single year. Approximately half of all conflicts in the dataset are civil wars – that is to say, wars waged between a state and a group within its borders. More than 72 per cent of observations are wars on a country's own territory.

Countries at war

This section considers the characteristics of economies in wartime, looking at disruptions to economic activity and examining the ways in which countries finance wars (including the implications for fiscal balances and government debt).

Economies can undergo significant structural shifts in wartime

Economies can undergo significant reorientation during wars. For instance, military spending reached 40 per cent of GDP in the United Kingdom and the United States of America during the First and Second World Wars, while military employment accounted for up to 10 per cent of the population.[4] While military production can boost GDP, wars – particularly those fought on a country's own territory – can also result in significant disruption to economic activity.

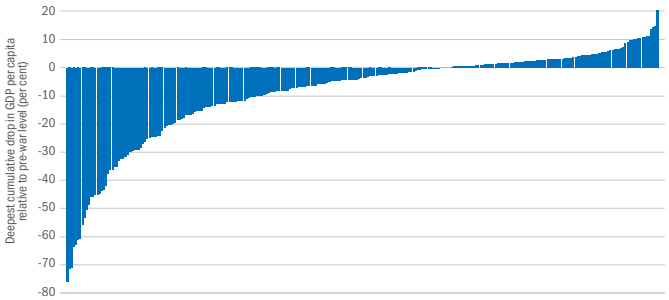
THE WARS IN THE DATASET HAVE AN AVERAGE DURATION OF
2.4
YEARS

AROUND **HALF** OF ALL CONFLICTS IN THE DATASET ARE CIVIL WARS

MORE THAN
72%
OF OBSERVATIONS ARE WARS ON A COUNTRY'S OWN TERRITORY

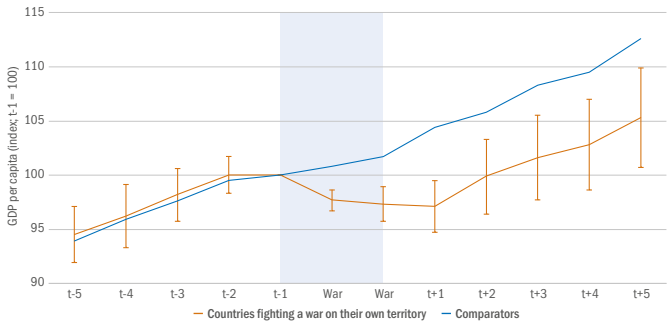
[3] See also Poast (2006) and Blattman and Miguel (2010).
[4] See the Correlates of War National Material Capabilities database.

CHART 1.3. There is very considerable variation in the economic impact of wars



SOURCE: Correlates of War, Maddison Project Database and authors' calculations.
NOTE: Includes only wars fought on a country's own territory. "Deepest cumulative drop in GDP per capita" refers to the difference between GDP per capita in the last year before the war and the lowest level of GDP per capita recorded during the war.

CHART 1.4. On average, countries fighting a war on their own territory see their GDP per capita fall 7 percentage points below that of comparator countries by the end of the war



SOURCE: Correlates of War, Maddison Project Database and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Comparators are synthetic controls based on economies that were not at war in the five years before or after the war in question. "t-1" denotes the year before the start of the war. 90 per cent confidence intervals are shown.

THE
20
SHARPEST CONTRACTIONS IN THIS DATASET SEE GDP PER CAPITA DROP BY BETWEEN
40%
AND
70%

There is a very large degree of variation in the impact on GDP per capita, even when focusing solely on wars fought on a country's own territory (see Chart 1.3). On average, GDP per capita drops by 9 per cent relative to its pre-war level before starting to recover, while the median decline is 3 per cent. The 20 sharpest contractions in the dataset see GDP per capita drop by between 40 and 70 per cent relative to the pre-war level at some point during the war. These include several countries during the Second World War (France, Italy and Romania), as well as a number of wars in the Middle East (Iran, Iraq, Kuwait, Lebanon and Syria), in Africa (Angola, Liberia and Libya), and in transition economies in the 1990s (Azerbaijan, Bosnia and Herzegovina, Georgia, Moldova and Tajikistan).

While studies of conflicts have tended to focus on such highly devastating episodes, these are not representative of the "typical conflict".[5] Indeed, most wars are significantly shorter and less damaging. Projections as at September 2022 already suggest that the contraction in GDP per capita in Ukraine will be among the deepest 10 to 20 per cent of all declines resulting from wars in the last 200 years.

Drops in GDP per capita are larger for economies in the EBRD regions

The following analysis compares GDP per capita during a war with a path that could be expected in the absence of war on the basis of a weighted average of the experiences of similar economies that did not experience armed conflict during the relevant period (a "synthetic counterfactual growth path"). The economies that are used to construct this synthetic control are similar to the economy at war in terms of their pre-war GDP per capita at purchasing power parity (PPP), population size and growth.[6] Comparator economies are considered in the same year as the economy at war, so the methodology and standard errors take year effects into account.

On average, income per capita in the year after the war ends is 7 percentage points below the level observed for a synthetic comparator economy (see Chart 1.4). Drops are larger (up to 26 percentage points) for economies in the EBRD regions, owing to the fact that wars in those regions often coincided with deep recessions during the transition from central planning to market economies with liberalised prices. While estimates for the EBRD regions should be treated with caution given the small sample size, the figures recorded are broadly in line with those seen in earlier case studies.[7]

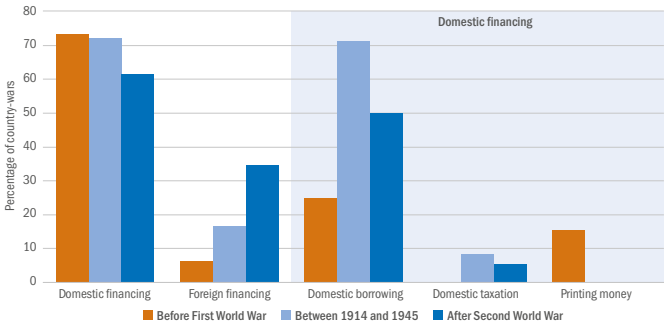
[5] See also Hendrix (2017).
[6] This analysis is based on Chupilkin and Koczan (2022).
[7] See, for instance, Cerra and Saxena (2008), Rodrik (1999) and Blattman and Miguel (2010).

Contractions in GDP per capita are larger for lost interstate wars and unresolved conflicts

There is no significant difference between a civil war and an interstate war fought on a country's own territory in terms of the drop in GDP per capita. However, civil wars are followed by more sluggish recoveries. Those wars are twice as long on average (three years), and the conflict is more likely to remain unresolved (29 per cent of cases, compared with 19 per cent for interstate wars). This may, in part, be due to the rapid formation and disintegration of alliances and fractionalisation within them. Evidence from 53 multi-party civil wars suggests that almost half of the original sides in those conflicts suffered some form of internal fractionalisation, and 85 per cent of those wars saw at least one change of alliance, with over half experiencing three or more changes.[8]

Contractions in GDP per capita are more severe for economies that lose an interstate war. This partly reflects the fact that countries with stronger economies are also more likely to win wars. (As Louis XIV of France supposedly said, "the last guinea will always win".)[9] GDP per capita also drops more during unresolved conflicts – conflicts that end in stalemate, where fighting ceases without a satisfactory agreement or morphs into continued low-intensity conflict – and that is particularly true of unresolved civil wars.

CHART 1.5. Most interstate wars are financed through domestic borrowing, though the role of foreign finance has increased



SOURCE: CCWP database and authors' calculations.
NOTE: For each form of financing, this chart indicates the percentage of interstate wars for which that financing method covered at least half of the cost of the conflict. It is based on country-years with a single war.

Public opinion, fear of inflation and administrative capacity can all affect how wars are financed

Economies can pay for wars in various ways. Domestic sources of financing can include borrowing (such as war bonds), taxation (through new war taxes, or increased rates for pre-existing taxes) or the printing of money. Foreign financing may take the form of external borrowing, grants or plunder.

The types of financing that a country uses will depend on various factors. For instance, low public support for a war will reduce a government's ability to raise taxes and increase its reliance on external borrowing, as will insufficient administrative capacity. For example, when Mexico's revenue administration was weakened by the Mexican-American War of 1846-48, the state resorted to borrowing from the church and the British, as well as plunder.

Foreigners may become more reluctant to lend as conflicts drag on. Longer wars are therefore more likely to be financed domestically.[10] Meanwhile, a general fear of inflation will result in a country favouring taxation over the printing of money or borrowing. Borrowing can, however, reduce the distortions that are associated with major increases in taxes or inflation, with debt repayments (and any associated tax rises) spread out over a longer period.[11]

Most interstate wars are financed via domestic borrowing

There is significant variation in the manner in which economies pay for wars, with several types of financing typically being used. For instance, while the United Kingdom and the United States of America used high levels of taxation to finance the First World War, France, Russia and the United Kingdom all borrowed both domestically and abroad, while Germany and Russia relied mainly on the printing of money.

While Russia relied on a combination of domestic borrowing, taxation, the printing of money and foreign finance during the Russo-Japanese War of 1904-05, most of Russia's military conflicts between 1914 and 1920 were financed predominantly through the printing of money, with some foreign borrowing.[12]

Most interstate wars are financed domestically through borrowing, though the role of foreign finance has increased over time (see Chart 1.5). The printing of money and plunder have become less common over time (with plunder not being shown in the chart, since there are no wars in the sample where it accounts for at least half of total financing).

[8] See Christia (2012).
[9] See Plender (2003).
[10] Based on the CCWP database.
[11] See North and Weingast (1989) and Broz (1998).
[12] See Cappella Zielinski (2016) and the CCWP database.

INFLATION TYPICALLY INCREASES BY

8

PERCENTAGE POINTS

Wars are typically inflationary

In the median interstate war on a country's own territory, inflation increases by 8 percentage points relative to its pre-war trend (see Chart 1.6). (The inflationary pressures that have been observed in Ukraine in 2022 – which are due in part to the disruption of production and logistics – are broadly in line with this median historical increase.) Meanwhile, average inflation spikes to stand at several hundred per cent, driven by episodes of hyperinflation in the dataset.

Increases in inflation have become shorter-lived over time as the printing of money has become less popular as a way of financing wars and monetary frameworks have improved.[13]

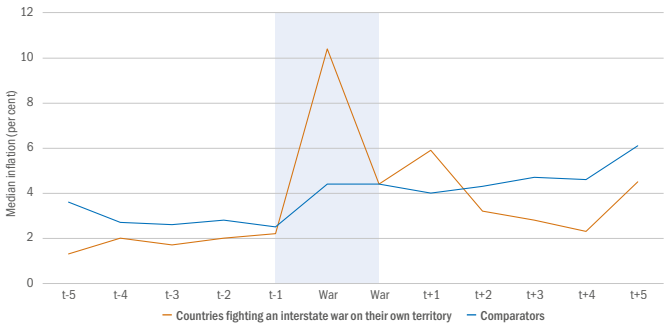
Countries with civil wars are different in many ways from economies which do not experience war, even in the years before the war.[14] For instance, they are, on average, characterised by higher inflation even in the run-up to the war, and inflationary episodes tend to persist for longer.

Wars result in a significant build-up of sovereign debt

Government revenue drops during wars as economic activity collapses, although in some cases it later recovers because of investment in fiscal capacity and the introduction of new taxes. Meanwhile, government expenditure rises and fiscal balances tend to worsen: on average, primary deficits increase by about 5 percentage points relative to before the war (see Chart 1.7). These patterns tend to be more muted for civil wars.

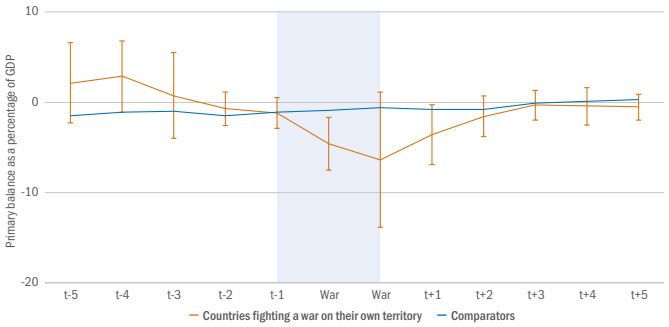
As borrowing rises and economic activity contracts, government debt-to-GDP ratios increase sharply, peaking at around 47 percentage points above their pre-war levels (see Chart 1.8). The current forecasts for Ukraine foresee an even larger increase. Increases are typically larger for interstate wars on a country's own territory than for civil wars and lost wars, although those differences are not statistically significant given the small sample sizes.

CHART 1.6. In a typical interstate war on a country's own territory, inflation rises by 8 percentage points relative to its pre-war level



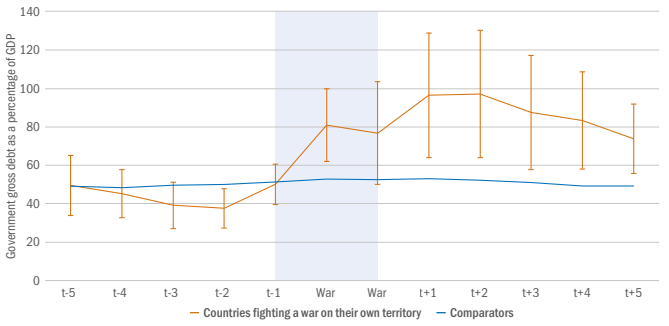
SOURCE: Correlates of War, IMF, Reinhart and Rogoff (2009) and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Comparators are synthetic controls based on economies that were not at war in the five years before or after the war in question.

CHART 1.7. Fiscal balances worsen during wars



SOURCE: Correlates of War, IMF and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Given the shorter time series available, comparators are a simple average of economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

CHART 1.8. General government debt peaks at around 47 percentage points of GDP above its pre-war level



SOURCE: Correlates of War, IMF and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Given the shorter time series available, comparators are a simple average of economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

[13] See also Cappella Zielinski (2016).
[14] See also Poast (2006).

After a war, debt is often restructured or inflated away

Fiscal consolidation is seldom used to pay for past conflicts, as wars tend, on average, to be followed by primary fiscal deficits, which contribute to a further build-up of government debt. However, inflation often helps to erode the value of debt accumulated during wars. In around 60 per cent of cases, wars result in inflation rising above pre-war levels.

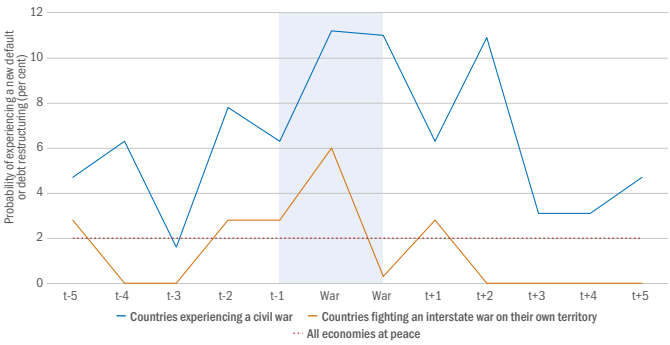
Debt restructuring and debt forgiveness are also common after wars. The following analysis looks at defaults since the 1800s using the database constructed by Reinhart and Rogoff (2009), as well as data on restructuring since the 1960s taken from the Bank of Canada-Bank of England Sovereign Default Database. (Before the Paris Club was established in 1956, restructuring was nearly always prompted by a default event.) The sample covers a total of 143 country-wars, for which conflict data are also available.

On average, an economy that is not at war (and is not already in default or having its debt restructured) has an unconditional probability of just under 2 per cent of defaulting or undergoing restructuring in a given year (see Chart 1.9).

In 32 per cent of cases a country fighting a war on its own territory experienced a *new* default or debt restructuring within five years. (As countries can remain in default for many years, the overall percentage of economies experiencing default – as opposed to experiencing a *new* default event – is much higher at around 57 per cent.) Examples of large-scale debt relief include a number of European economies in the 1930s, the 1953 London Agreement on German External Debts and Paris Club agreements after the Second Gulf War and the Yugoslav Wars. Restructuring typically reduced debt by 20 to 30 percentage points of GDP.

Economies that are experiencing civil war are up to six times more likely to default or experience restructuring during that war than economies which are at peace, and this difference is statistically significant. The likelihood of default/restructuring increases by 5 percentage points relative to the pre-conflict period. (Economies that experience civil wars are also more likely to default in some years preceding the conflict, although this difference is not statistically significant.)

CHART 1.9. Economies that experience wars are more likely to default during those wars than economies at peace



SOURCE: Bank of Canada-Bank of England Sovereign Default Database, Reinhart and Rogoff (2009) and authors' calculations.
NOTE: This chart shows the probability of a country experiencing default or restructuring in a given year (provided that it was not in default or experiencing restructuring in the previous year). The comparator group of economies at peace are economies that were not at war in the five years before or after the year in question.

In contrast, economies that fight an interstate war on their own territory are around 2 percentage points *less* likely to default during some pre-war years than the comparator group of economies at peace, and this difference is statistically significant. This probably reflects a selection effect: economies that are likely to default are unable to acquire the financing necessary to fight a war (and will therefore avoid paths to war).[15]

However, the probability of these economies defaulting or having their debt restructured also increases during the conflict (by 3 percentage points on average, implying a 6 per cent chance of experiencing default or restructuring in any given year), although the difference relative to economies at peace is not statistically significant, given the wide variety of default experiences in a relatively small sample.[16]

PRIMARY DEFICITS INCREASE BY ABOUT
5
PERCENTAGE POINTS ON AVERAGE

[15] See Shea and Poast (2018).
[16] Whether countries at war are more likely to default depends on the definition of default and the sample of wars that is used. Shea and Poast (2018), for instance, find that economies at war are no more likely to default, partly reflecting the strength of their finances in the pre-war years.

External imbalances widen during wars

Exports and imports both fall sharply as a share of GDP during wars (see also Chapter 3), before largely rebounding after the conflict has ended.[17] External deficits widen during interstate wars on a country's own territory, increasing by an average of 5 percentage points of GDP relative to pre-war levels on account of a collapse in exports (which is, in part, mitigated by a contraction in imports as aggregate demand collapses; see Chart 1.10).

Deficits remain larger for longer in the case of civil wars and where economies are subject to sanctions, as these tend to remain in place after the war. Economies that are subject to sanctions (including, for instance, Afghanistan, Kuwait and Libya) tend to have current account surpluses before the war (whereas comparators that are not at war tend, on average, to have small deficits).

Investment falls during wars and remains subdued after civil wars

Investment declines as a share of GDP during wars, falling by around 1 to 2.5 percentage points on average relative to its pre-war level, reflecting general economic disruption and increased uncertainty (see Chart 1.11). Capital flight can also reduce the savings that are available to fund investment.[18] Investment remains lower for longer after civil wars, probably reflecting higher levels of uncertainty, as these conflicts are more likely to remain unresolved or be followed by another war.[19]

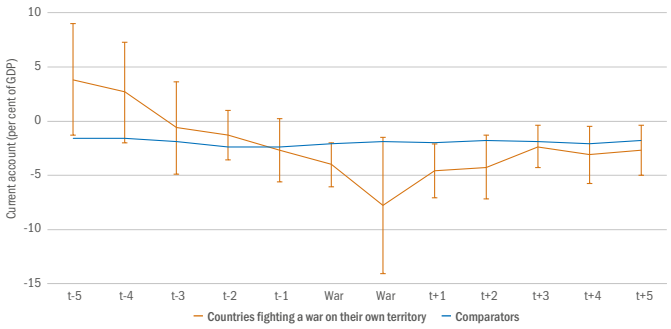
Foreign direct investment (FDI) also drops during wars and remains below the levels observed in comparator economies thereafter (see Chart 1.12). For instance, while net FDI was equivalent to 4.7 per cent of GDP in Ukraine over the period 2003-13, that figure fell to 0.6 per cent in 2014 (the year of the annexation of Crimea), with a net outflow being recorded in 2015. The associated uncertainty also weighed on future investment projects. For example, Chevron and Shell suspended their plans to develop the Olesska shale field in western Ukraine and the Yuzivska gas field in eastern Ukraine, respectively.[20] Wars may also scar firms and even lead young companies to cease trading prematurely (see Box 1.1).

EXTERNAL DEFICITS INCREASE BY AN AVERAGE OF

5

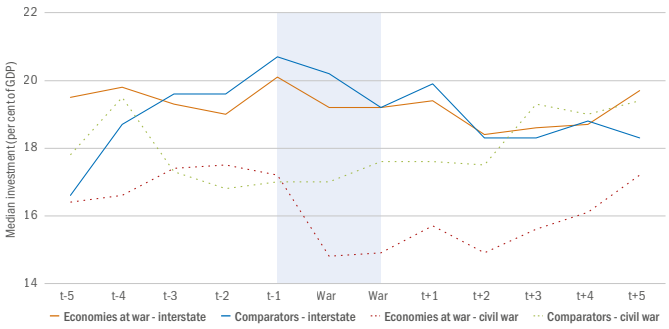
PERCENTAGE POINTS OF GDP

CHART 1.10. External deficits increase by an average of 5 percentage points of GDP during wars



SOURCE: Correlates of War, IMF and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Given the shorter time series available, comparators are a simple average of economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

CHART 1.11. Investment falls during wars and remains subdued after civil wars



SOURCE: Correlates of War, Penn World Tables and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Comparators are synthetic controls based on economies that were not at war in the five years before or after the war in question.

[17] See also Chatagnier and Kavaklı (2017) and Copeland (2015) on the expected benefits of future trade, economic interdependence and wars.
[18] See Collier (1999).
[19] See also Collier (1999) and Hoeffler and Reynal-Querol (2003).
[20] See Gent and Crescenzi (2021).

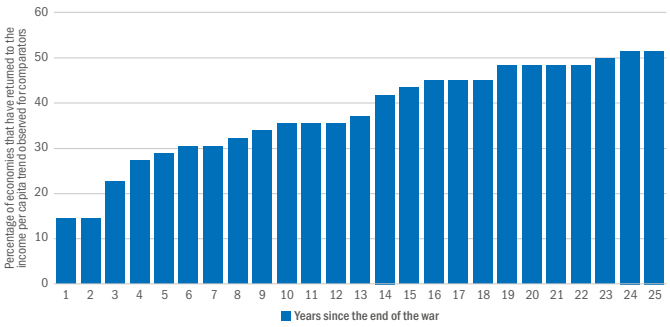
Post-war recovery and reconstruction: lessons from the past

This section looks at post-war recoveries, summarising key lessons from past reconstruction episodes.

Reconstruction episodes vary widely

Not only is there significant variation in patterns of economic activity during wars, recoveries also vary tremendously, even accounting for variation in economic damage. Sometimes (as in the case of Italy after the Second World War) growth accelerates significantly compared with the pre-war trend. In other instances (such as Egypt in the 1970s), the economy returns to its synthetic counterfactual growth path within a few years of the war ending. In many other cases, recoveries take decades. For instance, Japan's reconstruction after the Second World War, which is often held up as an example of successful rebuilding, saw the country take 15 years to return to the GDP per capita trend observed in comparator economies. In some cases, GDP per capita never returns to the trend levels observed in comparators (as seen, for example, in Iran after the Iran-Iraq War of the 1980s). Recoveries are particularly slow where they are interrupted by further wars (as in the case of Greece's recovery after the First World War, which was interrupted by the Second World War and a civil war).

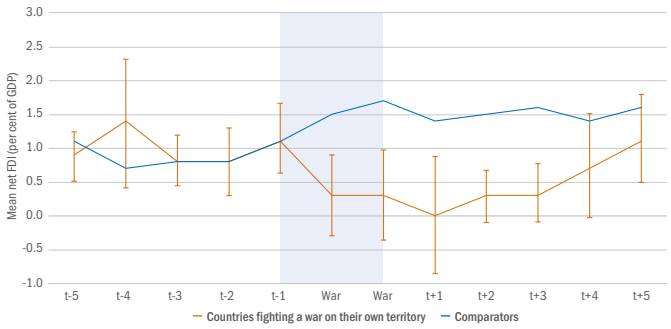
CHART 1.13. In almost half of all cases, GDP per capita remains below its counterfactual growth path 25 years later



SOURCE: Correlates of War, IMF, Maddison Project Database and authors' calculations.
NOTE: This chart indicates the cumulative percentage of economies that took t years or less to reach the level of GDP per capita that would be expected on the basis of the economic growth of their comparators (which are economies that were not at war in the five years before or after the war in question). Wars that are followed by less than 25 years of data are excluded.

This diversity can be seen in Chart 1.13, which is based on a large sample of wars with drops of at least 5 per cent in income per capita during the war or in the year after the war ended. (Again, wars that are preceded by another war in the previous five years are excluded.) In 29 per cent of those cases, GDP per capita returns to the trend levels observed for comparator economies within five years; however, in almost half of all cases income per capita remains below those trend levels 25 years later.

CHART 1.12. FDI falls during wars and is slow to recover



SOURCE: Correlates of War, World Bank and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Given the shorter time series available, comparators are a simple average of economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

IN
29%
OF CASES, GDP PER CAPITA RETURNS TO TREND LEVELS OBSERVED FOR COMPARATOR ECONOMIES WITHIN 5 YEARS OF A WAR

BUT IN ALMOST **HALF** OF ALL INSTANCES, IT REMAINS BELOW THOSE LEVELS 25 YEARS LATER

Recoveries are slower after civil wars and in economies with weaker pre-war growth

The following analysis looks at how the length of the post-war recovery is correlated with conditions before the war (the strength of economic growth and the quality of democratic institutions), the severity, length and nature of the war, and the reoccurrence of hostilities after the initial conflict ends.[21] The quality of democratic institutions is captured by indices taken from the Varieties of Democracy (V-Dem) database, which provides multi-dimensional measures of democracy for 202 economies (going as far back as 1789 in some cases).

A simple analysis comparing economies whose income per capita returned to the trend levels observed for comparators within 10 years (as seen in around one-third of all cases) with economies whose income per capita did not recover within 10 years suggests that such full recoveries are more likely to happen: (i) in economies with stronger GDP per capita growth and higher-quality democratic institutions before the war, (ii) after shorter wars, (iii) where wartime drops in GDP per capita are smaller and (iv) where there is no return to hostilities after the end of the war. Full recoveries are also observed less frequently after civil wars (see Chart 1.14).

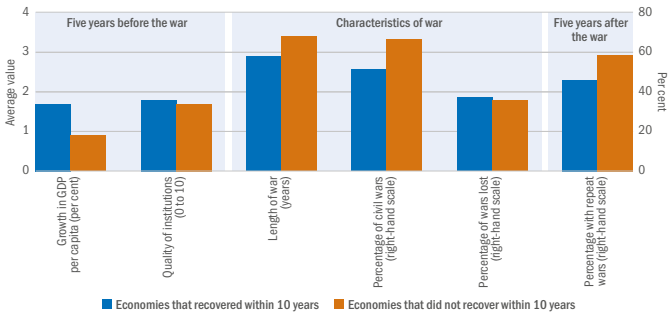
Hazard regressions confirm these findings. The effect of pre-war growth is both statistically significant at the 10 per cent level and economically large: a 1 percentage point increase in pre-war growth increases the likelihood of a recovery by 6 per cent. These findings are in line with those of previous studies of civil wars, which have also found that recoveries are faster after lost civil wars and in lower inflation environments.[22]

Reconstruction is more difficult if peace is fragile

Reconstruction is more difficult after protracted, unresolved conflicts and fragile settlements, as the threat of a return to conflict and continued security issues increase the cost of reconstruction (as seen, for instance, in Afghanistan and Iraq).[23]

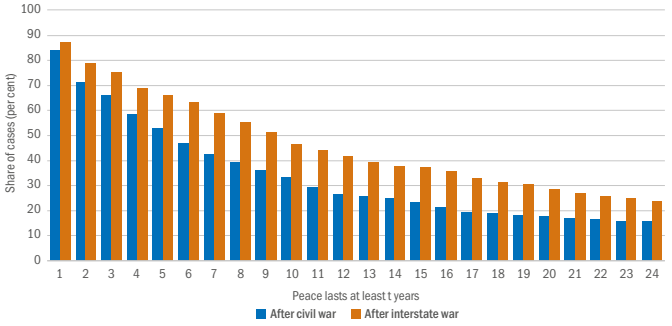
Wars frequently reoccur. Only around 20 per cent of wars are followed by at least 25 years of peace. Strikingly, 53 per cent of civil wars are followed by another war in the next six years (as also reflected in the higher probability of wars reoccurring after conflicts that take place on countries' own territory; see Chart 1.15). Repeat wars are also more likely in countries that have won a war (with 44 per cent of won wars being followed by another war in the next six years, compared with 35 per cent for lost wars; and just 17 per cent of won wars being followed by at least 25 years of peace, compared with 27 per cent for lost wars), probably reflecting the strength of those countries' economies.

CHART 1.14. Full recoveries are less likely in weaker economies and after civil wars



SOURCE: Correlates of War, IMF, V-Dem database and authors' calculations.
NOTE: This chart shows simple averages for (i) economies where GDP per capita returned within 10 years to the trend levels that could be expected on the basis of the experiences of comparator economies and (ii) economies where GDP per capita did not return to those levels within 10 years. A "repeat war" is another war taking place within five years of the end of the original conflict.

CHART 1.15. Only around 20 per cent of wars are followed by at least 25 years of peace



SOURCE: Correlates of War and authors' calculations.
NOTE: Wars that are followed by less than 25 years of data are excluded.

[21] See also Poast (2006).
[22] See Kang and Meernik (2005).
[23] See Special Inspector General for Afghanistan Reconstruction (2021), or Matsunaga (2019) on Iraq.

External aid can support reconstruction, provided there is sufficient administrative capacity

Damage to infrastructure and other assets can be extensive, equivalent to two or three times pre-conflict GDP, and external aid can play an important role in supporting reconstruction. The US government spent 2 per cent of the country's GDP on the Marshall Plan (equivalent to US$ 450 billion today) after the Second World War, which was widely credited with supporting post-war recovery and technological development in European economies (see Box 1.2). After the 1990-91 war in Kuwait, petroleum production and refinery capacity exceeded pre-war levels by 1994 thanks to extensive use of foreign contractors.[24]

However, differences in the amount of external aid received (if any) explain only 10 per cent of all variation in the number of years taken to recover (for economies that recovered fully within 25 years). Examples of countries that experienced both large amounts of investment and poor economic performance include Afghanistan (where the United States of America alone spent US$ 145 billion on reconstruction) and Iraq (where the international coalition spent US$ 220 billion).[25] In part, the breadth of outcomes reflects the fact that, alongside lasting peace, effective use of external aid requires sufficient local administrative capacity.

External aid may be more effective if it is front-loaded to provide support in the critical early years of the post-war period, when a recipient country's own resources may be limited.[26] The use of grants, rather than loans, can limit further increases in government debt.[27] Grants accounted for 90 per cent of Marshall Plan disbursements.

Aid can also be more effective with domestic ownership and when administered by a dedicated agency, in order to reduce bureaucracy and ensure coordination across different sources. The United States of America established an independent agency to administer the Marshall Plan, and recipient countries retained ownership of the reconstruction programme (see Box 1.2). Clear sunset provisions, such as a predetermined multi-year lifespan, can allow for efficient budgeting, clustering of complementary programmes and longer-term funding of infrastructure investment, while making the programme more politically palatable to donors and minimising "reconstruction fatigue".[28]

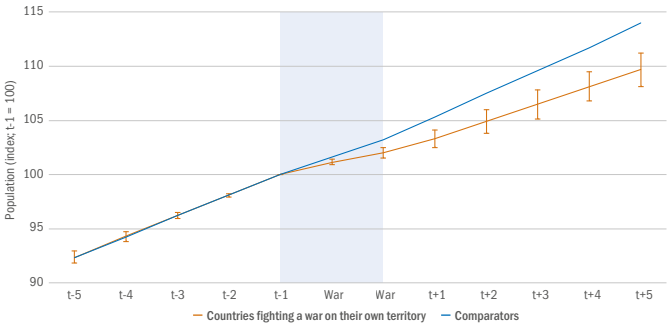
The "new normal"

This last part of the chapter uses a production-function approach to look at whether wars cause long lasting changes to the structure of economies. In contrast with previous sections, the focus here is not on flows (such as the value added that is produced each year) but on damage to the stocks of resources that are available to the economy in the long term, such as human and physical capital. This section also looks at whether wars result in meaningful improvements to economic and political institutions, as well as the administrative and fiscal capacity of the state.

The labour force tends to shrink after a war

Wars have long-lasting effects on countries' populations, reflecting casualties, outflows of refugees (see Chapter 2) and declining birth rates. Population growth typically drops by around 1.5 percentage points during wars (relative to comparator economies that are not at war) and remains 0.5 percentage point lower five years after the end of the war. Thus, populations remain permanently smaller (see Chart 1.16), with the impact of a war being visible as much as 25 years after the end of the conflict. For instance, 10 years after the end of the First World War, the populations of France, Germany and the United Kingdom were all still smaller than they had been in 1913, while the populations of neutral Denmark, The Netherlands and Spain were between 13 and 24 per cent higher than their pre-war levels.

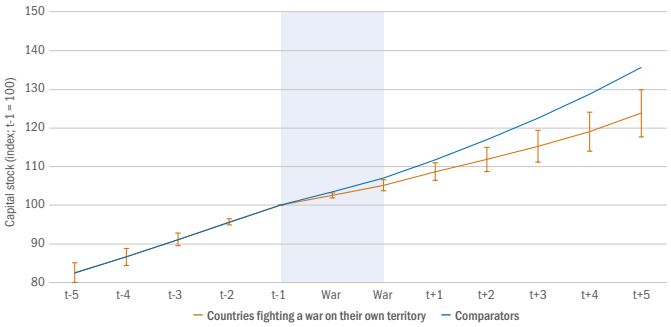
CHART 1.16. Populations remain permanently smaller than those of comparators after wars fought on a country's own territory



SOURCE: Correlates of War, Penn World Tables and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Comparators are synthetic controls based on economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

[24] See Barakat and Skelton (2014) and Shehabi (2020).
[25] See Becker et al. (2022b).
[26] See Becker et al. (2022b).
[27] See also Becker et al. (2022a).
[28] See Becker et al. (2022b).

CHART 1.17. Wars often result in lasting damage to capital stocks



SOURCE: Correlates of War, Penn World Tables and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Comparators are synthetic controls based on economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

War-related population declines have been even more pronounced in the EBRD regions. For instance, 10 years after the end of the Yugoslav Wars, Bosnia and Herzegovina's population was still 10 per cent below its pre-war level, while the populations of Montenegro and North Macedonia grew by 5 per cent over the same period.

An important additional component of the long-term cost of a war is the impact on the quality of human capital. Wars increase long-term health problems and disrupt schooling.[29] Years of schooling stagnate or decline during wars, while they continue to accumulate in comparator economies that are not at war.[30] For instance, a study of Austrian and German individuals who were 10 years old during the Second World War finds that they received less education than comparable individuals in countries that were not at war (such as Switzerland and Sweden). As a result, those individuals were still experiencing sizeable earnings losses some 40 years after the war, highlighting the long-lasting effects of such conflicts.[31]

The impact that wars have on employment rates varies (see also Box 1.3 on women's labour force participation), but hours worked often increase. For instance, in the United States of America hours per worker increased by 34 per cent during the Second World War, partly in order to make up for labour lost on account of conscription. In South Korea, the Vietnam War saw hours increase by 12 per cent relative to their pre-war level, peaking at almost 1.5 times the global average.[32]

Wars result in lasting damage to capital stocks

Wars also reduce capital stocks (including all capital involved in production, such as factories, equipment and agricultural land), as existing capital is destroyed during wars or taken out of the country, while investment in new capital may remain subdued, as discussed earlier (see also Box 1.4). For instance, Mozambique's railway network lost more than 90 per cent of its rolling stock during the country's 1977 civil war.[33] Capital stocks in the United States of America did not recover until 20 years after the 1861 civil war, with agricultural investment in affected areas remaining suppressed for almost 60 years.[34] At the end of the Second World War, the capital stocks of France, Germany and Italy were between 20 and 40 per cent lower than they had been in 1939, and they did not return to their pre-war trend levels for another 20 to 25 years.[35]

On average, a country that fights a war on its own territory will see a 12 per cent decline in its capital stocks five years after the end of that conflict relative to similar economies that do not experience a war (see Chart 1.17). Broadly speaking, historical experience suggests that it will take around 20 years for the capital stocks of advanced economies to return to levels consistent with the trends observed in comparator economies, while the capital stocks of lower-income economies tend to be permanently damaged by war.

Here, too, the effects are more pronounced in the EBRD regions and are not entirely explained by transition recessions: in those regions, the capital stocks of economies affected by war are, on average, 24 per cent smaller five years after the end of the war than those of economies which have not experienced a war. For instance, while the Kyrgyz Republic's capital stock fell by just 7 per cent between 1991 and 2000, neighbouring Tajikistan's fell by almost 20 per cent after its civil war.

Increases in productivity may offset some of the loss of labour and capital

Total factor productivity – a measure of how effectively capital and labour are combined to produce output – drops during wars fought on a country's own territory, compounding the loss of labour and damage to capital stocks (see Chart 1.18). The initial drop in productivity largely reflects widespread disruption to established production processes.

[29] See Justino (2011).
[30] Based on the Lee-Lee (2016), Barro-Lee (2013) and UNDP (2018) databases.
[31] See Ichino and Winter-Ebmer (2004).
[32] See McGrattan and Ohanian (1999).
[33] See Brück (2001), p. 64.
[34] See Feigenbaum et al. (2019).
[35] See Alvarez-Cuadrado (2008).

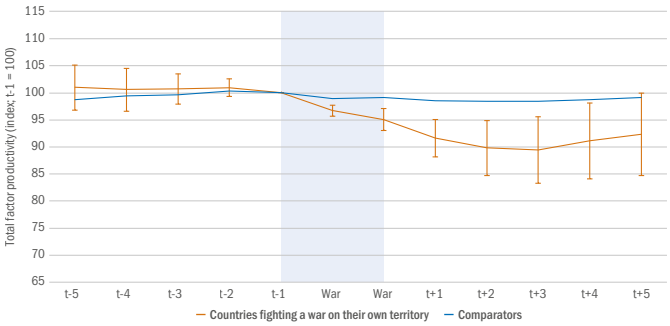
The subsequent pick-up in the rate of TFP growth partly reflects the successful conversion of military technology for civilian purposes (with prominent examples including the internet, nuclear power and aircraft manufacturing),[36] crowding-in of private investment through public investment in military research and development (R&D),[37] or "learning by necessity", where firms improve production methods to make up for declines in the availability of labour and capital. (For example, between 1941 and 1944 the number of man-hours required to produce a Liberty cargo ship in the United States of America fell by 55 per cent.)[38] In general, TFP increases tend to be more pronounced in advanced economies and countries that are fighting wars outside of their own territory (which do not form part of the sample underpinning Chart 1.18).[39]

However, it should be noted that spillovers from investment in military technology to the rest of the economy are far from automatic. For instance, spillovers from the US defence industry to civilian uses have become more limited over time, as military technology has become less applicable and too expensive (as in the case, for instance, of supersonic fighter planes or military satellites that focus on covert operations rather than signal strength), with the military starting, instead, to rely on technology developed by the private sector.[40] While such spillovers may boost productivity growth in specific sectors related to transport and defence, productivity growth may slow down in other industries that see resources diverted away from them.[41]

Can wars make states?

A number of studies have examined the question of whether "wars make states", as conflicts may accelerate the expansion of fiscal and administrative capacity. Max Weber famously defined a state as "a human community that (successfully) claims the monopoly of the legitimate use of physical force within a given territory". Indeed, archaeological evidence suggests that the essential functions of the state first emerged when an armed elite, often foreign, sought to collect taxes on output.[42] Conquest required administration. The creation of an armed force generated durable state structures, such as treasuries and mechanisms for conscription. Early attempts to broaden the tax base meant that economies started developing censuses and land registries to determine who was taxable, as well as keeping statistical accounts (with GDP becoming the primary economic indicator during the Second World War in order to monitor wartime production).[43] Wars in the 20th century were typically associated with sharp increases in the size of the state, in terms of both spending and employment, which were only partly reversed after the end of the conflict.[44]

CHART 1.18. TFP falls during wars, but rebounds afterwards



SOURCE: Correlates of War, Penn World Tables and authors' calculations.
NOTE: Includes only wars fought on a country's own territory that were not preceded by another war in the previous five years. Comparators are synthetic controls based on economies that were not at war in the five years before or after the war in question. 90 per cent confidence intervals are shown.

Wars may also act as "critical junctures" and promote institutional change. In normal times, institutions are often self-reinforcing via virtuous or vicious circles. In the event of a war, a confluence of factors, such as significant upheaval coupled with a broad coalition of parties pushing for reform, may help to dislodge the existing equilibrium and bring about change – for instance, a transition from extractive institutions to inclusive ones.[45]

Fiscal and administrative capacity can expand as a result of wars

Improvements in administrative and fiscal capacity are often needed to fund wars. For instance, during the US Civil War revenue from tariffs and customs duties dropped sharply as foreign trade collapsed. This prompted the introduction of the country's first income tax. Consequently, the percentage of war costs that were financed by taxation tripled during that war. Similarly, the United Kingdom introduced its first general income tax in 1799 to finance its war with France, and Prussia's tax agency was originally established as The General War Commissariat.[46] While Japan was able, in part, to finance the Russo-Japanese War of 1904-05 through taxation, reflecting reforms to its tax system and bureaucratic capacity before the war, low administrative capacity limited Russia's ability to rely on taxes, necessitating large-scale domestic – and later foreign – borrowing, at a rising cost.[47] When Chile went to war in 1865 with access to external finance, its debt-to-GDP ratio grew by 300 percentage points, while its tax ratio remained virtually unchanged. In contrast, when it waged war in 1879 *without* access to external credit, its tax ratio grew by 75 per cent, reflecting a new income tax and a sharp increase in the tax rate on nitrate exports.[48]

[36] See Ruttan (2006) and Gross and Sampat (2020).
[37] See Moretti et al. (2019) and Antolin-Diaz and Surico (2022); more generally, see also Deleidi and Mazzucato (2021).
[38] See Ilzetski (2020) and Rapping (1965).
[39] See, for instance, Ruttan (2006) and Gross and Sampat (2020).
[40] See Cowan and Foray (1995), Manyika et al. (2019) and Stowsky (2004).
[41] See Field (2008).
[42] See Tilly (1985).
[43] See Tilly (1990).
[44] See EBRD (2020).
[45] See Acemoğlu and Robinson (2012).
[46] See Tilly (1990).
[47] See Cappella Zielinski (2016) and the CCWP database.
[48] See Queralt (2018).

Early central banks were established as a result of wars

Prior to the use of taxation, borrowing was important for the financing of wars, and that helped to foster the creation of debt markets. For instance, Francis I started borrowing from Parisian businessmen in the 1520s to finance campaigns against the Habsburgs, offering the city's future revenues as security.[49] Similarly, in the first half of the 16th century, the States General of the Habsburg Netherlands took steps towards issuing state-backed annuities secured by specific new taxes, which significantly improved the terms of financing.[50]

The need for wartime borrowing also encouraged the development of early central banks. The first central banks were not established as lenders of last resort for the private sector, but as a way of helping their governments to issue debt in wartime. In fact, all central banks that were in existence before 1850 were established in the context of war. Some, such as Sweden's Riksbank, the Bank of England, the Banque de France, the Bank of Finland, De Nederlandsche Bank and the Banco de Portugal, were established in the middle of a war to facilitate borrowing in a situation where the government was seen as a poor credit risk. Others, such as the First and Second Banks of the United States and the central banks of Austria, Norway and Denmark, were set up in the immediate aftermath of a conflict, usually in the context of very high inflation as a result of the government printing money to meet wartime spending needs. Early central banks were required to invest their capital in government bonds, and governments came to rely on them to finance deficits generated by war or civil strife.[51]

Large institutional improvements are the exception, not the rule

However, quantitative evidence from almost two centuries of wars suggests that, overall, improvements in institutional quality have been rare occurrences. The following analysis examines institutional changes by comparing the quality of democratic institutions (as captured by V-Dem indices) in the five years before a war with the situation seen in the five years after that war. The results of this analysis suggest that large changes in the quality of political institutions (exceeding 1 standard deviation) were observed in less than 10 per cent of cases (with just over half of these being improvements).[52]

Meaningful changes to political institutions were more likely to occur after interstate wars than civil wars. Institutional changes – particularly improvements – were also more likely to occur after lost interstate wars, rather than victories. Large institutional improvements could be seen, for example, in Austria, Italy, Japan and West Germany after the Second World War, in Romania after 1989, in Indonesia after the war of 2004, and in South Africa after the end of apartheid in 1994. These appear to be the exception, rather than the rule, and may, in part, be driven by a confluence of other factors.[53]

Conclusion

Wars scar economies deeply and post-war recovery paths vary widely. While wars can present opportunities to improve technology or develop better institutions, instances of strong recoveries accompanied by institutional change are the exception rather than the rule. Securing lasting peace is crucial for successful rebuilding – in terms of both physical infrastructure and institutions. Recoveries also tend to be quicker where pre-war growth was stronger and wars are shorter. Past experience suggests that external aid may be more effective where local administrative capacity is strong, where it is front-loaded to provide support in the critical early years of the post-war period, and where grants are combined with lending to limit further increases in government debt. It may also be more effective with domestic ownership and when administered by a dedicated institution, in order to reduce bureaucracy and ensure coordination across different sources. Multi-year planning can allow for the clustering of complementary programmes and longer-term funding of infrastructure investment, while clear sunset provisions can make programmes more politically palatable for donors and minimise "reconstruction fatigue".

[49] See Hamilton (1950).
[50] See Parker (1972).
[51] See Timberlake (1993), Goodhart et al. (1994), Pohl (1994), Broz (1998) and Poast (2015).
[52] See also Fortna and Huang (2012).
[53] See Grimm (2008) and Hoeffler and Reynal-Querol (2003).

BOX 1.1.

The impact of armed conflict on firms' performance

Armed conflicts typically destroy physical infrastructure and human capital, with a devastating impact on individuals and firms.[54] Even if firms manage to escape damage to their premises, machinery and equipment, they may still be unable to reach their customers in line with their contractual obligations because of the destruction of infrastructure. They may also face reduced demand for their products as their customers lose income, or they may need to suspend their operations owing to disruption in the supply of intermediate inputs.[55] This may reduce expected returns on investment, as well as increasing uncertainty about future revenues, and may, in turn, affect aggregate productivity growth through the reallocation of resources across existing firms, as well as firm entry and exit.[56]

This box examines the short-term impact that the five-day armed conflict between Georgia and Russia in August 2008 had on the performance of Georgian firms. This armed conflict was unexpected from the point of view of those firms, and its impact was compounded by the global financial crisis. This analysis draws on the 2008 and 2009 rounds of the firm-level Business Environment and Enterprise Performance Survey (BEEPS) in Georgia. BEEPS covers a representative sample of the firms in Georgia's private sector, with the exception of agriculture and finance, with a focus on the manufacturing and service sectors. All respondents are registered firms with at least five employees, and the sample is stratified by geographical location. The survey provides information on firms in Georgia just before the conflict and about nine months after the conflict, capturing financial information for 2007 and 2008.

The analysis in this box exploits differences in the intensity of fighting across municipalities in order to identify the impact that the armed conflict had on firms' sales, employment and labour productivity. Firms in municipalities that were directly affected by the conflict are compared with other firms located in neighbouring municipalities that were affected only indirectly. The analysis takes into account firms' financial characteristics, which affect their exposure to the impact of the global financial crisis.

The results suggest that the events of 2008 had a negative impact on employment. However, in terms of labour productivity, firms in municipalities that were directly exposed to the conflict fared better, on average, than firms in neighbouring municipalities. This somewhat paradoxical finding may, in part, reflect a cleansing effect: as less productive firms exited their respective markets, labour shifted to more productive uses.

The conflict had a scarring effect on the labour productivity of young firms – those that were less than five years old at the time of the first survey. While the events of 2008 affected young and old firms in similar ways, young firms in directly exposed municipalities performed worse than their peers in neighbouring municipalities, with differences of more than 4 percentage points in sales growth and labour productivity growth.

Estimates from the following survey round, conducted in 2013 (in which some of the firms from the 2008 survey participated again), indicate that by 2011 firms in Georgia had mostly recovered from the events of 2008. While firms in municipalities that had been directly exposed to the conflict fared somewhat worse than firms in neighbouring municipalities, none of those differences in performance were statistically significant. However, firms that had been less than five years old in 2008 and were located in municipalities that had been directly impacted by the war were 9 percentage points more likely to have ceased trading by 2011 than their peers in neighbouring municipalities, pointing to a longer-term reallocation of resources in response to the armed conflict.

[54] This box draws on Schweiger (2022).
[55] See Klapper et al. (2015).
[56] See Camacho and Rodriguez (2013).

BOX 1.2.

Lessons from the Marshall Plan

The Marshall Plan is often held up as the gold standard for internationally funded post-conflict reconstruction programmes. While the amount of financial assistance was relatively limited, other features of the plan – such as its strong show of political support and its conditionality – played an important role in supporting reconstruction.

Officially known as the European Recovery Program, the Marshall Plan delivered more than US$ 13 billion worth of aid to western Europe between 1948 and 1951. This was equivalent to approximately 2 per cent of US GDP and roughly the same share of the collective GDP of the 18 recipient countries (with the United Kingdom, France and West Germany receiving the largest amounts of financing).[57]

The recipients mounted a strong recovery; however, that package provided only a small percentage of the total sum needed for reconstruction. The vast majority of the investment that was made during the Marshall Plan years was financed using Europe's own savings. Europe's reconstruction also benefited from favourable economic conditions and strong institutional capacity. By 1947, industrial production had returned to pre-war levels in most of Europe. One notable exception was Germany, where production was held back by occupation policies and production caps in order to limit the country's military potential.[58] These restrictions were lifted once trust had been restored through the establishment of instruments of European integration such as the European Coal and Steel Community, which was agreed in 1951 and gradually evolved into the European Union (EU).

The economic impact of the Marshall Plan stemmed mostly from the mitigation of short-term shortages, particularly shortages of foreign currencies needed to pay for imports. This eased bottlenecks in certain industries (such as the textile sector, which was reliant on imported cotton) and helped to prevent a – much-feared – scenario in which a lack of food and fuel caused further political upheaval in Europe.[59] It may also have helped smaller firms to invest in the adoption of technology and mechanisation, raising long-term productivity.[60]

The Marshall Plan represented a strong demonstration of political support. The establishment of the North Atlantic Treaty Organization (NATO) in April 1949 then gave further security guarantees to the members of that new organisation, which in turn supported investment. The plan also helped to liberalise markets and promote economic integration in Europe.

Much of the Marshall Plan's success is attributed to its governance and operational details, with particular emphasis on the following:

- the creation of a dedicated agency to administer the funds, in order to make the process less bureaucratic and prevent it from being overly politicised
- reliance on input from recipient countries, which retained agency over the reconstruction programme by putting forward projects for funding
- decentralisation of the administration and disbursement of funds
- tailored conditionality, with a focus on the balancing of budgets, the stabilisation of exchange rates and the liberalisation of prices where these remained under government control
- a clear sunset clause, as the plan was set up as a four-year programme implemented by a temporary government agency (which helped to speed up disbursement and reduce the risk of aid dependence in the long term).[61]

[57] See Eichengreen (2011).
[58] See Eichengreen (2011).
[59] See Eichengreen (2011).
[60] See Bianchi and Giorcelli (2021).
[61] See Becker et al. (2022b).

BOX 1.3.

Women, war and work: The creation of a "new normal"?

There are few images of war which are as evocative and influential as that of Rosie the Riveter. That familiar figure – a proud, blue-collared female labourer – now adorns everything from mugs to socks, a cultural icon representing all the women who worked in US factories and shipyards during the Second World War. More than 6.5 million women joined the US labour force during the Second World War, increasing female labour force participation by more than 50 per cent.[62] American women who filled vacancies created by the exodus of conscripted men were credited with transforming the structure of the country's labour market.

A recent study exploiting variation in the conscription rates of men across US states did indeed find that a 10 percentage point increase in the conscription rate for a given region was associated with women working an extra 1.1 weeks in 1950.[63] However, women who were working in 1950 were more likely to have entered the labour force *after* the war, rather than during it.[64] Other forces, such as the rise of clerical work and sales and service jobs, also played a role in increasing economic opportunities for women in the aftermath of the Second World War.[65]

A labour market shock that is caused by a war may influence an individual's decision to seek employment in two ways. The "added worker effect" may encourage individuals to enter the labour force in order to make up for the loss of another household member's job or income (on account of conscription, for example). At the same time, however, negative shocks to aggregate demand can reduce incentives for an individual to look for work, which is referred to as the "discouraged worker effect".

Most recent research on female labour force participation during conflicts suggests that the added worker effect is dominant. In Nepal, for example, it was found that women were more likely to be in employment if they lived in a region that was affected by conflict.[66] Similarly, a study looking at six sub-Saharan countries suggested that women were more likely to be employed in regions affected by conflict than in unaffected regions and that this trend could persist for long periods after the end of those conflicts. Five of those six countries saw a reduction in the labour force gender gap in the decade after the end of the conflict in question, with the gap closing by as much as 16 percentage points in Rwanda.[67] In Kosovo, meanwhile, it was found that female household heads living in former conflict zones were 9 percentage points more likely to be in employment than those living in areas not affected by war.[68] In Tajikistan, women living in former conflict zones were 7 percentage points more likely to have jobs than those in areas not affected by conflict, reflecting an increase of around 10 percentage points in women's labour force participation rate.[69]

Changing social norms in terms of the types of work that are considered acceptable for women may help to explain why shifts in employment that start in wartime have the potential to persist in the longer term, strengthening the economic independence of women.[70] Rosie the Riveter's enduring cultural legacy stems not from the fact that she is in employment, but from the *nature* of her work: a shift in gender norms has allowed her to enter a skilled manufacturing sector that has traditionally been the preserve of men.

At the same time, such changes are not always frictionless and can result in men becoming increasingly resentful of women's enhanced opportunities.[71] For example, various policies appear to have limited shifts towards a "new normal" in women's labour force participation. In the United States of America, for instance, "veterans' preference" policies after the Second World War favoured the rehiring of men, and wartime changes that facilitated women's employment, such as childcare facilities and takeaway food services, were scaled back.[72]

[62] See Rose (2018).
[63] See Acemoğlu et al. (2004).
[64] See Goldin (1991) and Rose (2018).
[65] See Goldin (1991) and Rose (2018).
[66] See Menon and Van der Meulen Rodgers (2015).
[67] See Klugman and Mukhtarova (2020).
[68] See Justino et al. (2012).
[69] See Justino et al. (2012).
[70] See Petesch (2012).
[71] See Petesch (2012).
[72] See Schweitzer (1980) and Rose (2018).

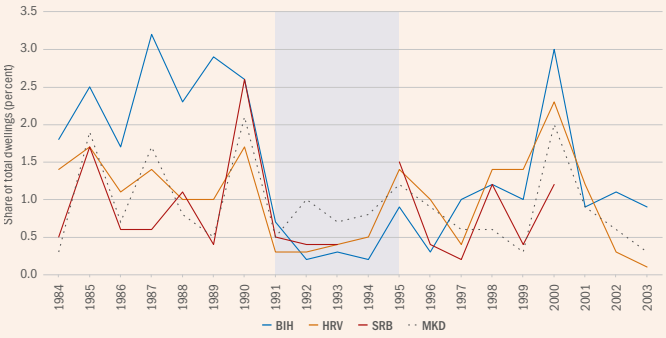
BOX 1.4.

Wars and cities

As this chapter has shown, wars inflict lasting damage on capital stocks, despite investment rates gradually recovering post-conflict. This box complements that analysis with evidence of sharp declines in the construction of residential housing during wars and only sluggish recoveries thereafter, with some lasting effects on city structures.

The construction of residential housing drops sharply during wars and recovers only slowly thereafter. In 2017, the Euro Survey – a regular representative survey of private individuals in 10 economies in central and south-eastern Europe conducted by the Austrian National Bank – included a series of questions about respondents' dwellings, including their year of construction. The evidence from that survey points to a sharp decline in the construction of residential housing during the Yugoslav Wars of the 1990s, with only a sluggish recovery thereafter. The number of dwellings constructed in Croatia, Bosnia and Herzegovina and Serbia fell sharply between 1991 and 1995, both relative to the pre-war period and relative to trends in North Macedonia, which was less affected by the war (see Chart 1.4.1). This pattern is even more striking when looking specifically at cities in those countries (such as Sarajevo), which experienced heavy fighting and thus substantial damage to infrastructure.

CHART 1.4.1. Construction of residential housing drops sharply during wars and remains sluggish thereafter



SOURCE: 2017 Euro Survey and authors' calculations.

The distribution of economic activity across space – across countries, across regions within a country, and across cities – is, in part, driven by increasing returns to agglomeration. In other words, firms and households benefit from being close to each other as a result of knowledge spillovers and the pooling of suppliers and labour. At the same time, economic activity is also driven by the characteristics of individual locations – such as the benefits that arise from being located close to natural resources, rivers or coastal areas. New research in the field of economic geography has sought to examine the relative importance of these two mechanisms, looking at whether war damage has a lasting effect on patterns of economic activity. Wars can have a lasting impact on agglomeration patterns, with agglomeration centres potentially being destroyed, whereas the geographical advantages of particular locations can be expected to reassert themselves fairly quickly.

Empirical evidence on whether war damage leaves a lasting mark on cities is mixed. For example, Allied bombing of Japanese cities during the Second World War resulted in major changes to the relative sizes of those cities in the short term. However, it does not appear to have had a lasting impact, with most cities returning to their previous position in the list of the largest urban centres by size within 15 years.[73] Research has also found that Japanese cities regained their pre-war shares of aggregate manufacturing output, as well as re-establishing specific industries.[74]

In contrast, evidence from West Germany suggests that the Second World War had a major and lasting impact on the distribution of the population across cities. Cities that were hit relatively hard by Allied bombing and the subsequent invasion (which tended to be larger cities) did not generally return to their previous ranking, leading to a more even distribution of the population across cities.[75] This was despite significant reconstruction efforts (with post-war construction rates standing at three times the levels seen before the war in response to the destruction of some 2.3 million dwellings, with heavy reliance on pre-fabricated housing units).[76] The effects were even longer-lasting in East Germany, where post-war recovery in the housing stock was considerably slower.[77]

[73] See Davis and Weinstein (2002).
[74] See Davis and Weinstein (2008).
[75] See Bosker et al. (2008) and Bosker et al. (2007).
[76] See Analytics Economics (2022); see also Di Giovanni and Chelleri (2017) and Saeed et al. (2021).
[77] See Brakman et al. (2004).

References

D. Acemoğlu, D.H. Autor and D. Lyle (2004)
"Women, war, and wages: The effect of female labor supply on the wage structure at midcentury", *Journal of Political Economy,* Vol. 112, No. 3, pp. 497-551.

D. Acemoğlu and J.A. Robinson (2012)
Why nations fail: The origins of power, prosperity and poverty, London: Profile Books Limited.

F. Alvarez-Cuadrado (2008)
"Growth Outside the Stable Path: Lessons from the European Reconstruction", European Economic Review, Vol. 52, No. 3, pp. 568-588.

Analytics Economics (2022)
"Housing in Ukraine after the war", Vox Ukraine, 29 April.

J. Antolin-Diaz and P. Surico (2022)
"The Long-Run Effects of Government Spending", CEPR Discussion Paper No. 17433.

S. Barakat and J. Skelton (2014)
"The reconstruction of post-war Kuwait: A missed opportunity?", Kuwait Programme on Development, Governance and Globalisation in the Gulf States, No. 37.

R. Barro and J.-W. Lee (2013)
"A New Data Set of Educational Attainment in the World, 1950-2010", *Journal of Development Economics,* Vol. 104, pp. 184-198.

T. Becker, B. Eichengreen, Y. Gorodnichenko, S. Guriev, S. Johnson, T. Mylovanov, M. Obstfeld, K. Rogoff and B. Weder di Mauro (2022a)
"Macroeconomic Policies for Wartime Ukraine", Rapid Response Economics 2, CEPR.

T. Becker, B. Eichengreen, Y. Gorodnichenko, S. Guriev, S. Johnson, T. Mylovanov, K. Rogoff and B. Weder di Mauro (2022b)
"A Blueprint for the Reconstruction of Ukraine", CEPR.

N. Bianchi and M. Giorcelli (2021)
"Reconstruction Aid, Public Infrastructure, and Economic Development: The Case of the Marshall Plan in Italy", NBER Working Paper No. 29537.

C. Blattman and E. Miguel (2010)
"Civil war", *Journal of Economic Literature,* Vol. 48, No. 1, pp. 3-57.

M. Bosker, S. Brakman, H. Garretsen and M. Schramm (2007)
"Looking for Multiple Equilibria When Geography Matters: German City Growth and the WWII Shock", *Journal of Urban Economics,* Vol. 61, No. 1, pp. 152-169.

M. Bosker, S. Brakman, H. Garretsen and M. Schramm (2008)
"A Century of Shocks: The Evolution of the German City Size Distribution, 1925-1999", *Regional Science and Urban Economics,* Vol. 38, No. 4, pp. 330-347.

S. Brakman, H. Garretsen and M. Schramm (2004)
"The Strategic Bombing of German Cities during World War II and Its Impact on City Growth", *Journal of Economic Geography,* Vol. 4, No. 2, pp. 201-218.

J.L. Broz (1998)
"The origins of central banking: Solutions to the free-rider problem", *International Organization,* Vol. 52, No. 2, pp. 231-268.

T. Brück (2001)
"Mozambique: The Economic Effects of the War", in F. Stewart and V. Fitzgerald (eds.), *War and Underdevelopment. Volume 2: Country Experiences,* New York: Oxford University Press.

A. Camacho and C. Rodriguez (2013)
"Firm exit and armed conflict in Colombia", *Journal of Conflict Resolution,* Vol. 57, No. 1, pp. 89-116.

R. Cappella Zielinski (2016)
How States Pay for Wars, Ithaca and London: Cornell University Press.

V. Cerra and S.C. Saxena (2008)
"Growth Dynamics: The Myth of Economic Recovery", *The American Economic Review,* Vol. 98, No. 1, pp. 439-457.

J.T. Chatagnier and K.C. Kavaklı (2017)
"From Economic Competition to Military Combat: Export Similarity and International Conflict", *Journal of Conflict Resolution,* Vol. 61, No. 7, pp. 1510-1536.

F. Christia (2012)
Alliance Formation in Civil Wars, Cambridge: Cambridge University Press.

M. Chupilkin and Zs. Koczan (2022)
"The economic consequences of war: Estimates using synthetic controls", EBRD working paper, forthcoming.

P. Collier (1999)
"On the Economic Consequences of Civil War", *Oxford Economic Papers,* Vol. 51, No. 1, pp. 168-183.

D.C. Copeland (2015)
Economic Interdependence and War, Princeton and Oxford: Princeton University Press.

R. Cowan and D. Foray (1995)
"Quandaries in the Economics of Dual Technologies and Spillovers from Military to Civilian Research and Development", Western University Department of Economics Research Report No. 9509.

D. Davis and D. Weinstein (2002)
"Bones, Bombs, and Break Points: The Geography of Economic Activity", *The American Economic Review,* Vol. 92, No. 5, pp. 1269-1289.

D. Davis and D. Weinstein (2008)
"A Search for Multiple Equilibria in Urban Industrial Structure", *Journal of Regional Science,* Vol. 48, No. 1, pp. 29-65.

M. Deleidi and M. Mazzucato (2021)
"Directed innovation policies and the supermultiplier: An empirical assessment of mission-oriented policies in the US economy", *Research Policy,* Vol. 50, No. 2.

G. Di Giovanni and L. Chelleri (2017)
"Sustainable disaster resilience? Tensions between socio-economic recovery and built environment post-disaster reconstruction in Abruzzo (Italy)", in S. Deppisch (ed.), *Urban Regions Now & Tomorrow: Between vulnerability, resilience and transformation,* Wiesbaden: Springer.

EBRD (2020)
Transition Report 2020-21 – The State Strikes Back, London.

B. Eichengreen (2011)
"Lessons from the Marshall Plan", background paper for the World Bank's *World Development Report 2011.*

J. Feigenbaum, J. Lee and F. Mezzanotti (2019)
"Capital Destruction and Economic Growth: the Effects of Sherman's March, 1850-1920", NBER Working Paper No. 25392.

A. Field (2008)
"The Impact of the Second World War on US Productivity Growth", *The Economic History Review,* Vol. 61, No. 3, pp. 672-694.

V.P. Fortna and R. Huang (2012)
"Democratization after Civil War: A Brush-Clearing Exercise", *International Studies Quarterly,* Vol. 56, No. 4, pp. 801-808.

S.E. Gent and M.J.C. Crescenzi (2021)
Market power politics: War, institutions, and strategic delay in world politics, Oxford: Oxford University Press.

C.D. Goldin (1991)
"The role of World War II in the rise of women's employment", *The American Economic Review,* Vol. 81, No. 4, pp. 741-756.

C. Goodhart, F. Capie and N. Schnadt (1994)
"The Development of Central Banking", in F. Capie, C. Goodhart, S. Fischer and N. Schnadt (eds.), *The Future of Central Banking,* Cambridge: Cambridge University Press.

S. Grimm (2008)
"External Democratization after War: Success and Failure", *Democratization,* Vol. 15, No. 3, pp. 525 549.

D.P. Gross and B.N. Sampat (2020)
"The World War II Crisis Innovation Model: What Was It, and Where Does It Apply?", NBER Working Paper No. 27909.

E.J. Hamilton (1950)
"Origin and Growth of the National Debt in France and England", in *Studi in onore di Gino Luzzatto,* Vol. 2, Milan: Giuffre.

C. Hendrix (2017)
"Charismatic megafauna in conflict studies, or why WWII is the giant panda of the conflict/security field", *Political Violence at a Glance – Denver Dialogues,* 21 November.

A. Hoeffler and M. Reynal-Querol (2003)
"Measuring the costs of conflict", mimeo.

A. Ichino and R. Winter-Ebmer (2004)
"The Long-Run Educational Cost of World War II", *Journal of Labor Economics,* Vol. 22, No. 1, pp. 57-87.

E. Ilzetski (2020)
"Government Purchases and Plant-Level Productivity: Evidence from World War II", working paper.

P. Justino (2011)
"Violent Conflict and Human Capital Accumulation", IDS Working Paper No. 379, Institute of Development Studies.

P. Justino, I. Cardona, R. Mitchell and C. Müller (2012)
"Quantifying the impact of women's participation in post-conflict economic recovery", HiCN Working Paper No. 131, Institute of Development Studies.

S. Kang and J. Meernik (2005)
"Civil war destruction and the prospects for economic growth", *The Journal of Politics,* Vol. 67, No. 1, pp. 88-109.

L. Klapper, C. Richmond and T. Tran (2015)
"Civil conflict and firm performance: Evidence from Côte d'Ivoire", mimeo, January. Available at: http://cega.berkeley.edu/assets/miscellaneous_files/63-ABCA_-_Civil_Conflict_and_Firm_Performance.pdf (last accessed on 2 August 2022).

J. Klugman and T. Mukhtarova (2020)
"How did conflict affect women's economic opportunities in sub-Saharan Africa?", Georgetown Institute for Women, Peace and Security.

J.-W. Lee and H. Lee (2016)
"Human Capital in the Long Run", *Journal of Development Economics,* Vol. 122, pp. 147-169.

J. Manyika, W.H. McRaven and A. Segal (2019)
"Innovation and national security: Keeping our edge", Independent Task Force Report No. 77.

H. Matsunaga (2019)
"The Reconstruction of Iraq after 2003: Learning from its Successes and Failures", MENA Development Report, World Bank.

E. McGrattan and L. Ohanian (1999)
"The Macroeconomic Effects of Big Fiscal Shocks: the Case of World War II", Federal Reserve Bank of Minneapolis Working Paper No. 599.

N. Menon and Y. Van der Meulen Rodgers (2015)
"War and women's work: Evidence from the conflict in Nepal", *Journal of Conflict Resolution,* Vol. 59, No. 1, pp. 51-73.

E. Moretti, C. Steinwender and J. Van Reenen (2019)
"The Intellectual Spoils of War? Defense R&D, Productivity and International Spillovers", NBER Working Paper No. 26483.

D.C. North and B.R. Weingast (1989)
"Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England", *The Journal of Economic History,* Vol. 49, No. 4, pp. 803-832.

G. Parker (1972)
The Army of Flanders and the Spanish Road, 1567-1659, Cambridge: Cambridge University Press.

P. Petesch (2012)
"The clash of violent conflict, good jobs, and gender norms in four economies", background paper for the World Bank's *World Development Report 2013.*

J. Plender (2003)
"The Sinews of War", *Financial Times*, 20 March.

P. Poast (2006)
The Economics of War, New York: McGraw-Hill/Irwin.

P. Poast (2015)
"Central Banks at War", *International Organisation*, Vol. 69, No. 1, pp. 63-95.

M. Pohl (1994)
Handbook on the History of European Banks, Aldershot: Edward Elgar.

D. Queralt (2018)
"The legacy of war on fiscal capacity", mimeo.

L. Rapping (1965)
"Learning and World War II Production Functions", *The Review of Economics and Statistics,* Vol. 47, No. 1, pp. 81-86.

C.M. Reinhart and K.S. Rogoff (2009)
This Time Is Different, Princeton and Oxford: Princeton University Press.

D. Rodrik (1999)
"Where Did All the Growth Go? External Shocks, Social Conflict, and Growth Collapses", *Journal of Economic Growth,* Vol. 4, No. 4, pp. 385-412.

E.K. Rose (2018)
"The rise and fall of female labor force participation during World War II in the United States", *The Journal of Economic History,* Vol. 78, No. 3, pp. 673-711.

V. Ruttan (2006)
Is War Necessary for Economic Growth? Military Procurement and Technology Development, New York: Oxford University Press.

Z.O. Saeed, A. Almukhtar and K. Salih (2021)
"Construction beyond war: Assessing time and cost of prefabrication in rebuilding post-disaster cities", *IOP Conference Series: Materials Science and Engineering,* Vol. 1090.

M.R. Sarkees (2007)
"The COW Typology of War: Defining and Categorizing Wars (Version 4 of the Data)".

H. Schweiger (2022)
"Armed conflict and firm performance: Evidence from the 2008 Georgia-Russia conflict", mimeo.

M.M. Schweitzer (1980)
"World War II and female labor force participation rates", *The Journal of Economic History,* Vol. 40, No. 1, pp. 89-95.

P.E. Shea and P. Poast (2018)
"War and default", *Journal of Conflict Resolution,* Vol. 62, No. 9, pp. 1876-1904.

M. Shehabi (2020)
"An extraordinary recovery: Kuwait following the Gulf War", University of Western Australia Discussion Paper No. 15.20.

Special Inspector General for Afghanistan Reconstruction (2021)
"What we need to learn: Lessons from twenty years of Afghanistan reconstruction", Arlington, Virginia.

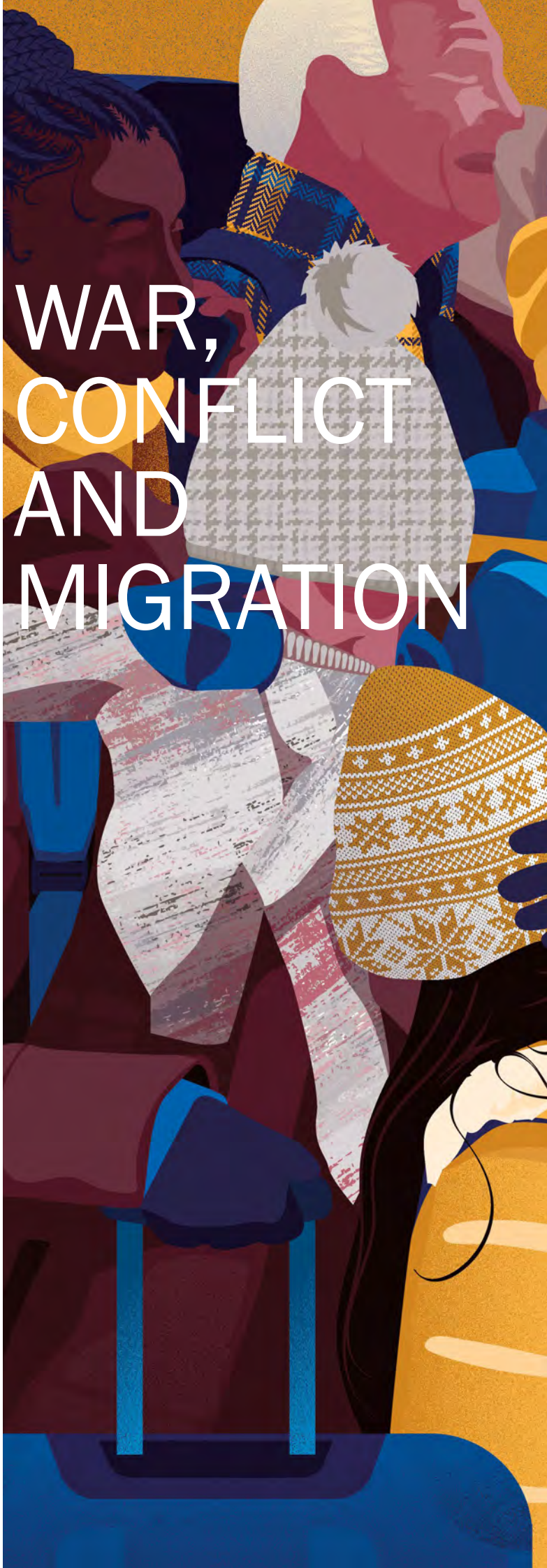
J. Stowsky (2004)
"Secrets to shield or share? New dilemmas for military R&D policy in the digital age", *Research Policy,* Vol. 33, No. 2, pp. 257-269.

C. Tilly (1985)
"War Making and State Making as Organized Crime", in P.B. Evans, D. Rueschemeyer and T. Skocpol (eds.), *Bringing the State Back In,* Cambridge: Cambridge University Press.

C. Tilly (1990)
Coercion, Capital and European States, AD 990-1992, Oxford: Blackwell Publishing.

R.H. Timberlake Jr (1993)
Monetary Policy in the United States: An Intellectual and Institutional History, Chicago: University of Chicago Press.

UNDP (2018)
"Human Development Report, 2018 Statistical Update", New York.



WAR, CONFLICT AND MIGRATION

The number of people being forcibly displaced – either internally or across international borders – has grown considerably in recent years. Low and middle-income countries host the vast majority of the world's refugees, with the three countries that host the most in relative terms all located in the EBRD regions. Attitudes towards refugees have improved since 2021. Ukrainian refugees in Europe have been granted access to labour markets, and survey results suggest that they tend to be satisfied with the help and support they have received from locals, as well as their living conditions, access to education and housing conditions. Ukrainian refugees are more likely to head for places with higher tax revenue per capita and areas that already had large Ukrainian communities before the war.

Introduction

The total number of forced migrants worldwide – people who have been forcibly displaced from their homes as a result of persecution, conflict, violence in general, human rights violations or natural disasters – has grown rapidly in recent years. According to the Office of the United Nations High Commissioner for Refugees (UNHCR), that figure reached 87.5 million at the end of 2021, up from just 19.9 million in 1990. That increase in forced migration has outpaced population growth: at the end of 2021, 1.1 per cent of the world's population had been forcibly displaced, compared with 0.4 per cent in 1990. Developing countries host 75 per cent of the world's refugees and asylum seekers.[1]

The 1951 Convention Relating to the Status of Refugees defines a refugee as someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion. To be granted refugee status, an asylum seeker must, therefore, have a genuine

[1] See UNHCR (2022c) and UNDESA (2022).

fear of being persecuted on one or more of those grounds. In the interests of brevity, the term "refugee" is also used in this chapter to refer to asylum seekers (individuals who have sought international protection, but whose applications for refugee status have not yet been assessed), as well as other internationally displaced people.

Almost two-thirds of the world's refugees come from Syria, Ukraine, the West Bank and Gaza, Venezuela or Afghanistan. What is more, nearly half of all refugees are children, whereas children account for only a third of the world's population. Low and middle-income countries host the vast majority of the world's refugees. Many economies in the EBRD regions have become major destinations for refugees owing to their proximity to areas affected by conflict. Indeed, countries in the EBRD regions host 33 per cent of the world's internationally displaced persons. Refugees tend to be younger and better educated than the average person in their country of origin, and well-designed integration policies can help them to make meaningful contributions to the economies of their host countries. On average, the integration policies of EBRD economies in the EU were marginally to moderately supportive in 2021.

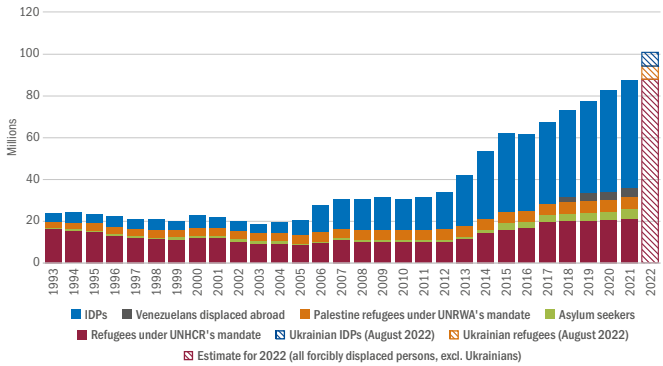
At the time of writing (August 2022), at least 12.9 million people have fled their homes on account of Russia's invasion of Ukraine.[2] More than 6.3 million have left for other countries (albeit several hundred thousand have now returned to Ukraine after originally leaving the country), while there are an estimated 6.6 million internally displaced people (IDPs) inside Ukraine. In contrast with the large wave of refugees seen in 2015-16, the EU is allowing Ukrainians to live and work in its 27 member states for up to three years. Ukrainian refugees are also able to access social welfare payments, social housing, healthcare and schools.

A survey of Ukrainian refugees in Europe indicates that nearly 30 per cent are employed in their current country of residence, while 20 per cent are continuing to work remotely in Ukraine. Overall, their living conditions and the help provided by locals are both considered to be very good on average. At the same time, some respondents report having had trouble accessing financial assistance, healthcare and legal advice. Feelings of homesickness and helplessness are also common.

Ukrainian refugees are more likely to come to places with higher tax revenue per capita and areas that already had large Ukrainian communities before the war. Attitudes towards refugees have improved, with the prevalence of positive attitudes increasing by 19 percentage points in Poland relative to 2021. Almost half of all school-aged Ukrainian refugees are enrolled at local schools, while many others are continuing their education in Ukraine on a remote basis. As with other Ukrainian migrants before the war, female refugees generally work in manufacturing, support services and the accommodation sector.

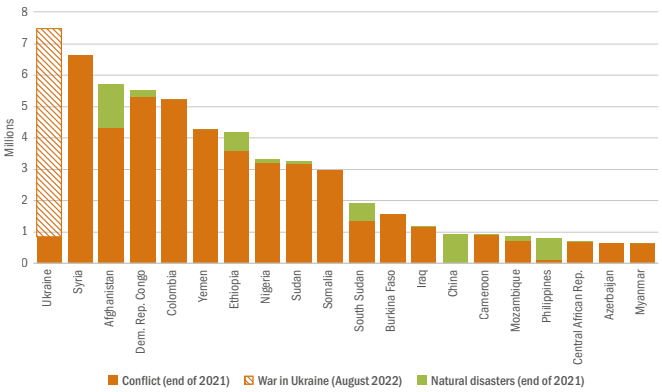
This chapter starts with a global snapshot of forced migration. It then examines the profile of Ukrainian refugees in Europe, looking at their intended destination countries, their intentions to return and the challenges that they face. The last section looks specifically at Ukrainian refugees in Poland, examining their socio-demographic characteristics and their socio-economic integration to date.

CHART 2.1. The number of forcibly displaced people has grown rapidly in recent years



SOURCE: UNHCR, UNRWA, United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and authors' calculations.
NOTE: Figures for IDPs, non-Palestine refugees under the UNHCR's mandate, Venezuelans displaced abroad and asylum seekers are based on UNHCR data; figures for Palestine refugees are taken from UNRWA data (via the UNHCR). The estimate for 2022 is based on data as at 9 June 2022 and excludes Ukraine. Displaced Ukrainians are estimated at 12.9 million, consisting of 6.3 million refugees and 6.6 million IDPs (as at 3 August 2022). There are no data on IDPs before 1993 or Venezuelans displaced abroad before 2018.

CHART 2.2. Ukraine has the largest number of IDPs of any country in the world



SOURCE: IDMC (2022), UNOCHA and authors' calculations.
NOTE: IDP data relating to the war in Ukraine are derived from a UNOCHA estimate as at 3 August 2022.

[2] See UNOCHA (2022).
[3] See UNOCHA (2022) and UNHCR (2022b, 2022c). "Venezuelans displaced abroad" refers to persons of Venezuelan origin who are likely to be in need of international protection under the criteria contained in the Cartagena Declaration, but have not applied for asylum in the country where they are living. The UN General Assembly established the UNRWA to provide humanitarian relief to the more than 700,000 refugees and displaced persons who had been forced to flee their homes in Palestine as a result of the 1948 Arab-Israeli War. The term "Palestine refugees" refers to these refugees and their descendants. UNHCR figures on IDPs only cover persons displaced by conflict; for data on persons displaced by conflict and natural disasters, see Chart 2.2.

Forced migration: a global perspective

Record numbers of forcibly displaced people worldwide

The number of forcibly displaced people has grown considerably in recent years (see Chart 2.1). At the end of 2021, a record 87.5 million people had been forcibly displaced worldwide, with that figure estimated to rise to 101 million by the end of 2022. These figures are aggregates of UNHCR estimates for all people in refugee-like situations and IDP-like situations (including asylum seekers, Venezuelans displaced abroad, refugees recognised under the mandate of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and people displaced by the war in Ukraine).[3]

At the end of 2021, forcibly displaced people accounted for 1.1 per cent of the global population, roughly equivalent to the population of Türkiye. In the meantime, the invasion of Ukraine is estimated to have displaced almost 13 million people (6.6 million IDPs, plus another 6.3 million who have crossed international borders), making it the largest increase in forcible displacement since the Second World War.

Internally displaced persons

In absolute terms, Ukraine currently has the largest number of IDPs of any country in the world, followed by Syria, Afghanistan and the Democratic Republic of Congo (see Chart 2.2). All around the world, conflict, violence and natural disasters have driven millions of people from their homes, bringing the total number of IDPs to 59 million as of 2022. Most have been uprooted by conflict and violence (53 million), but storms, floods and other natural disasters have also forced millions of people in 104 economies to flee their homes.[4] More than 50 per cent of internally displaced households have children, 57 per cent include elderly family members (defined as people aged 60 and above) and 30 per cent include people with chronic illnesses.

AT THE END OF 2021,
1.1%
OF THE WORLD'S POPULATION HAD BEEN FORCIBLY DISPLACED, UP FROM
0.4%
IN 1990

A SURVEY OF UKRAINIAN REFUGEES IN EUROPE INDICATES THAT
20%
ARE CONTINUING TO WORK REMOTELY IN UKRAINE

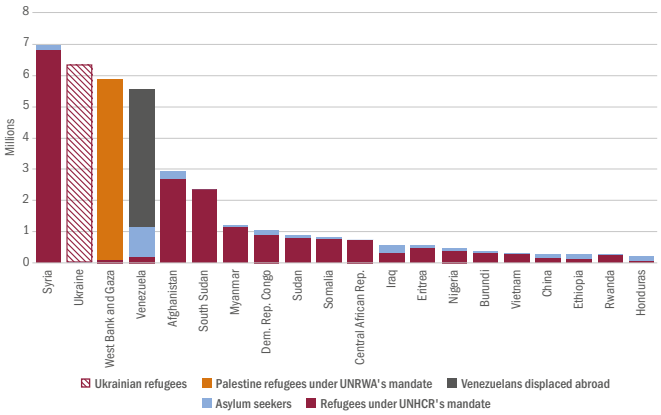
[4] In China and the Philippines, for example, most IDPs at the end of 2021 had been displaced by the 2021 Henan floods and Typhoon Rai (referred to locally as Super Typhoon Odette), respectively.

Internationally displaced persons

The total number of internationally displaced people worldwide stood at 36 million at the end of 2021, with current estimates as at August 2022 (which include data for Ukraine) standing at 42 million.[5] Four economies of origin (Syria, Ukraine, the West Bank and Gaza, and Venezuela) account for 58 per cent of those internationally displaced people (see Chart 2.3), with other important source economies including Afghanistan and South Sudan. On the whole, people fleeing war and conflict only travel as far as is necessary to get themselves to safety: almost three out of four internationally displaced people are hosted in neighbouring countries.

It is worth noting that, relative to the size of the local population, the three countries that host the most internationally displaced persons are all in the EBRD regions: Jordan, Lebanon and Türkiye (see Chart 2.4). Indeed, countries in the EBRD regions host a third of the world's internationally displaced persons (13.8 million when Ukrainian refugees are included). More generally, low-income countries host 15 per cent of the world's internationally displaced persons, with middle-income countries hosting another 60 per cent, while high-income countries host the remaining 25 per cent. Box 2.1 discusses the ways in which those refugees may benefit their host countries' economies.

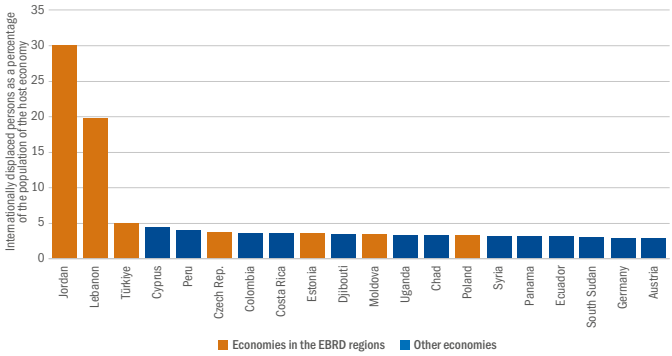
CHART 2.3. The largest numbers of internationally displaced people come from Syria, Ukraine, the West Bank and Gaza, and Venezuela



SOURCE: UNHCR, UNOCHA, UNRWA and authors' calculations.
NOTE: This chart shows the top 20 economies of origin for internationally displaced persons. The figure for Ukrainian refugees is as at 3 August 2022; all other figures are as at the end of 2021.

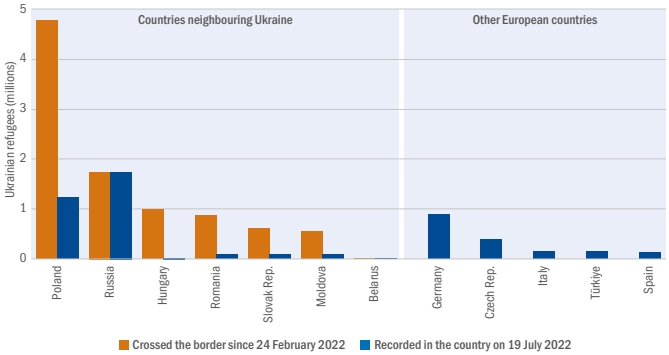
LOW AND MIDDLE-INCOME ECONOMIES HOST **THREE-QUARTERS** OF THE WORLD'S REFUGEES AND ASYLUM SEEKERS

CHART 2.4. Together, low and middle-income countries host 75 per cent of the world's internationally displaced persons



SOURCE: UNHCR, World Bank and authors' calculations.
NOTE: This chart shows selected economies with large numbers of internationally displaced people relative to the size of the local population. Figures comprise asylum seekers, Venezuelans displaced abroad, Palestine refugees under the UNRWA's mandate and refugees under the UNHCR's mandate as at the end of 2021, plus Ukrainian refugees across Europe as at 19 July 2022.

CHART 2.5. Several European economies are hosting large numbers of Ukrainian refugees



SOURCE: UNHCR and authors' calculations.
NOTE: Figures are as at 19 July 2022. Data on border crossings are only available for countries bordering Ukraine and represent gross inflows; border crossings back into Ukraine (outflows) are not shown. Approximately 17,000 Ukrainian refugees have entered Belarus since 24 February 2022, and 10,000 were in Belarus on 19 July 2022. For countries that do not share a border with Ukraine, data are only shown if the number of refugees exceeds 100,000.

[5] See UNHCR (2022c).

Ukrainian refugees in Europe

At the time of writing (August 2022), the invasion of Ukraine has caused 6.3 million people to flee the country.[6] With the exception of its borders with Russia and Belarus, all of Ukraine's borders have remained open.[7] Most refugees used one of the 31 border checkpoints in western Ukraine to enter Hungary, Moldova, Poland, Romania or the Slovak Republic. While those neighbouring countries initially bore the brunt of the flow of refugees, many refugees have since moved on to other countries (see Chart 2.5).

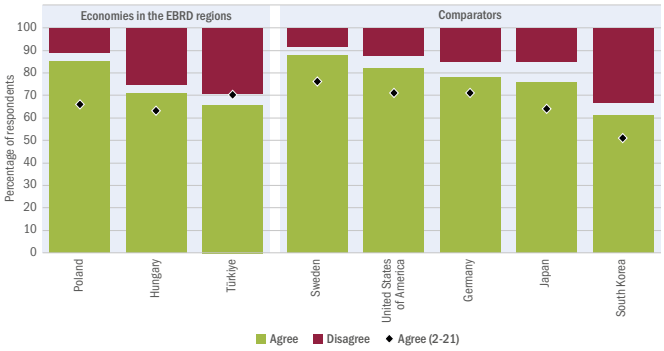
Of the 9.6 million people who have crossed the border into neighbouring countries since 24 February 2022, a total of 3.3 million have stayed in those neighbouring countries (with 1.2 million currently living in Poland). In addition, 2.7 million Ukrainians are currently living in other European countries – mainly Germany, the Czech Republic, Italy, Türkiye and Spain. A substantial number have also moved back to Ukraine. In order to account for both short- and medium-term pressures on host countries' social security systems and their societies as a whole, the analysis in this chapter uses both the number of border crossings since 24 February 2022 (which is only available for countries that share a border with Ukraine) and the number of refugees present in each country on 19 July 2022.

Attitudes towards refugees

As a result of the global surge in migration and the sometimes sudden and sharp increases in refugee populations across the EBRD regions, the treatment of refugees is a highly divisive policy issue. In order to understand people's current views on refugees in the EBRD regions, this chapter draws on the results of a representative online survey that was conducted by Ipsos, a public opinion research firm, in April and May 2022. The survey covered more than 20,000 people in 28 economies, with participants being asked the following question: "Thinking about your country, do you agree or disagree with the following [statement]? People should be able to take refuge in other countries, including in [your country], to escape from war or persecution." The possible responses were "agree", "don't know" and "disagree". That same question had already been asked in a previous survey conducted in May and June 2021.

The results reveal that people have become much more tolerant of refugees in their countries since 2021, with the majority of respondents supporting people's right to seek refuge in another country (see Chart 2.6). In Poland, for instance, 85 per cent of respondents agreed with that statement in 2022, up from 66 per cent in 2021, while Hungary saw an increase from 63 to 71 per cent over the same period. In Türkiye, on the other hand, the proportion of respondents with a favourable opinion of refugees declined from 70 to 66 per cent. On the whole, the war in Ukraine appears to have increased people's openness to refugees fleeing war or oppression.

CHART 2.6. Attitudes towards refugees have improved since 2021



SOURCE: Ipsos (2022) and authors' calculations.
NOTE: Online survey covering 20,505 respondents between the ages of 16 and 74 in 28 countries, conducted between 22 April and 6 May 2022. Respondents were asked if they agreed with the following statement: "People should be able to take refuge in other countries, including in [your country], to escape from war or persecution." Data for 2021 relate to an identical question in an earlier survey conducted in May and June 2021.

Determinants of refugees' migration

With a growing percentage of the global population being forced to leave their countries of origin, it is becoming increasingly important to understand the factors that shape numbers of refugees. Previous research has highlighted the roles played by (i) income differentials between countries of origin and destination, (ii) shared borders and (iii) geographical, linguistic and cultural proximity.[8] Linguistic proximity measures the degree of similarity between the languages spoken in different countries,[9] while cultural proximity (which is based on data on 60,000 topics of interest cited by 2 billion Facebook users) measures cultural distances between populations.[10]

This section analyses the relative importance of those factors using data on 155 countries of origin and 138 destination countries over the period 1962-2014. In particular, the analysis relates the number of refugees from a given country of origin in a given destination country in a given year to various country-level characteristics (such as population size and income per capita), as well as measures of the linguistic, cultural and geographical proximity of the relevant pair of economies.

Refugees tend to come from poorer countries, and they tend to settle in poorer countries as well (see Chart 2.7). Distance also matters: a 1 standard deviation increase in the distance between a country of origin and a potential destination country leads to a 0.5 per cent decrease in the number of refugees in

[6] The annexation of Crimea in 2014 and the concomitant war in the Donbas had already caused external displacement, with 47,000 refugees and asylum seekers from Ukraine being reported at the end of 2021. See UNOCHA (2022) and UNHCR (2022c).
[7] The UNHCR reports that an additional 105,000 people moved to Russia from the Donetsk and Luhansk regions between 18 and 23 February 2022.
[8] See Ferwerda and Gest (2021) and Aksoy and Poutvaara (2021).
[9] See Gurevich et al. (2021).
[10] See Obradovich et al. (2022).

that destination country; thus, refugees are more likely to settle in a neighbouring country (that is to say, one that shares a border with the country they have just fled). Refugees are also more likely to head for countries that are similar to their own in terms of culture and the language(s) spoken. Partly as a reflection of these patterns, refugees are also more likely to end up in economies with weaker democratic institutions (as measured by their Polity score). These patterns are broadly comparable to those observed for economic migrants, with income differentials, migrant networks and demographic factors all found to be robust predictors of migrant flows.[11] See also Box 2.2 for a discussion of refugees' trust in the political institutions of their host countries.

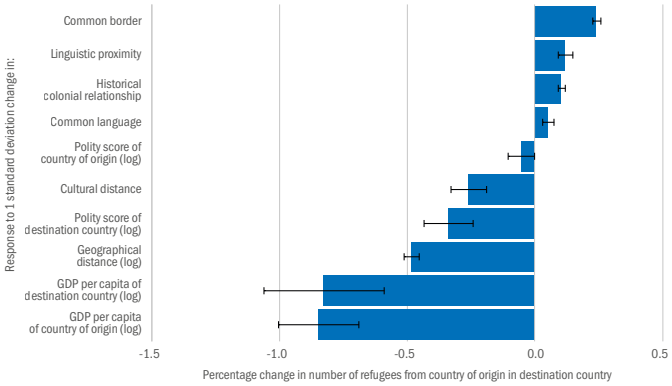
Ukrainian refugees in Europe: choosing a destination

This section looks at Ukrainian refugees' choice of destination in response to the invasion of their country. The current refugee crisis stands out in terms of the speed with which it has unfolded. While about 2.5 million people, mostly from Syria, sought asylum in Europe in 2015 and 2016, it took just three weeks for 3 million people to leave Ukraine. European countries have not witnessed such a large displacement of people in such a short period in recent history.

The analysis in this section is based on an online survey of Ukrainian refugees that was conducted by Kantar, a survey company, between 14 June and 8 July 2022. That survey, which covered more than 2,600 individuals across 27 economies in Europe, included questions about their background, their reasons for leaving Ukraine, their current labour market status, their intended destination country and the hardships they had faced in their current country of residence. Respondents were reached via "social media sampling" – that is to say, via adverts on social media platforms. In line with the overall profile of Ukrainian refugees, respondents were overwhelmingly female (82 per cent) and more than half (53 per cent) were married. The largest percentage (35 per cent) were located in Poland, followed by Germany, Spain, the Czech Republic, France and Italy. Around half of all respondents had been in employment before leaving the country, with 65 per cent educated to tertiary level.

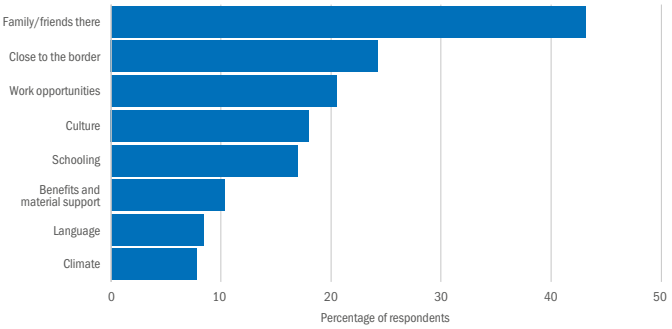
Available evidence on Ukrainian refugees' level of education shows not only that they are more likely to be educated to tertiary level than other refugee groups, but also that they are more highly educated than the general Ukrainian population. Indeed, 2020 data for Ukraine's working-age population showed that 56 per cent of women and 43 per cent of men were educated to tertiary level. This has been backed up by separate studies in individual countries: a survey of Ukrainian refugees carried out in Germany by the Federal Ministry of the Interior and Community found that 73 per cent of all adult respondents had a tertiary qualification, while an equivalent survey in Spain reported a figure of 61 per cent.[12]

CHART 2.7. Refugees are more likely to move to countries that are close in terms of distance and culture



SOURCE: UNHCR, Fouquin and Hugot (2016), Gurevich et al. (2021), Marshall et al. (2016), Obradovich et al. (2022) and authors' calculations.
NOTE: This chart reports standardised coefficients derived from a linear regression of numbers of refugees from a given country of origin in a given destination country on various country-level characteristics. The 95 per cent confidence intervals shown are based on robust standard errors.

CHART 2.8. Ukrainian refugees are more likely to go to countries where relatives or friends are already living



SOURCE: Kantar (2022) and authors' calculations.
NOTE: This chart indicates the percentage of survey respondents who reported that a given factor had influenced their decision to head for a particular location. Other factors include easy access to housing (7 per cent), medical needs (4 per cent), office relocation (1 per cent) and ownership of a second home (1 per cent). Survey data were collected between 14 June and 8 July 2022, with 2,674 respondents in total.

[11] See Simpson (2017).
[12] See OECD (2022).

According to survey data, by far the biggest reason for choosing one country over another was the presence of a pre-existing social network – that is to say, family members or friends – in the relevant destination country (see Chart 2.8). This is supported by 2020 data showing that over a million Ukrainian citizens were resident in EU countries before the war, mostly in Italy (236,000), the Czech Republic (163,000), Poland (145,000), Germany (135,000) and Spain (105,000).[13] Prior to the war, Ukrainian citizens accounted for large percentages of total immigration in four EBRD economies: Poland (45 per cent), Lithuania (34 per cent), the Czech Republic (26 per cent) and Hungary (14 per cent).

Geographical proximity to Ukraine and the likely availability of work also played an important role in refugees' decision-making, as did cultural proximity and schooling options for children. These findings are broadly consistent with the evidence discussed earlier in the chapter in relation to a larger sample of countries.

Most respondents intended to stay in their current country of residence for the time being, with only 3 per cent planning to move on to another country (outside Ukraine) in the near future (see Chart 2.9). Among those who reported a desire to move on, the top five preferred destinations were Canada, Germany, Poland, Belgium and the United Kingdom. In the majority of cases, these survey responses may only indicate short-term plans, with 64 per cent of respondents reporting that they intended to go back to Ukraine soon or when it felt safe to return.

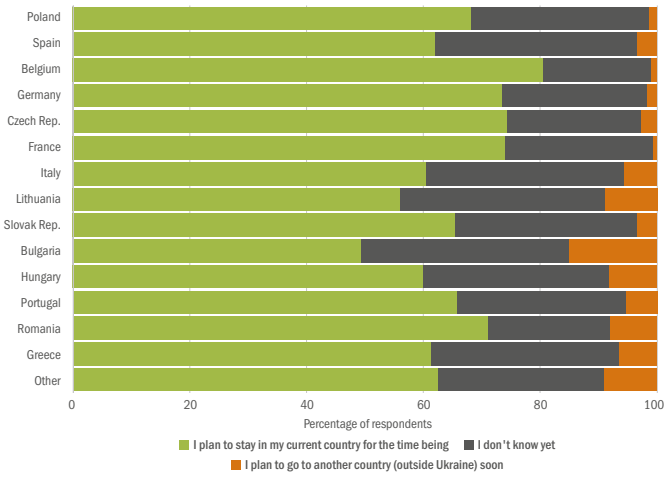
Homesickness

Understandably, Ukrainian refugees are experiencing a wide range of challenges, both in relation to the life they have left behind and to their current host country. According to those refugees, the biggest challenges are homesickness and being separated from family members (see Chart 2.10).

In part, this reflects the extensive support that host countries have given refugees in other areas (such as employment and benefits), with nearly 30 per cent of all respondents already working in their host country at the time of the survey, despite the language barriers. In addition, one in five people reported working remotely in Ukraine while living in their host country. Respondents reported that living expenses were being financed by a combination of financial support from host countries, family savings and income from work.

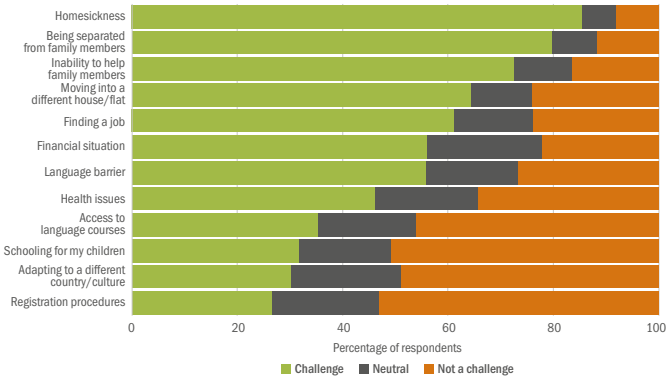
In terms of the conditions and public services in their host countries, refugees are mostly of the view that the help and support provided by locals, their general living conditions, their access to education and their housing conditions are all very good (see Chart 2.11). The most problematic aspects are access to legal advice, medical care and financial assistance, with less than one-third of respondents reporting a lack of satisfaction in those areas.

CHART 2.9. Most Ukrainian refugees plan to stay in their current country of residence for the time being



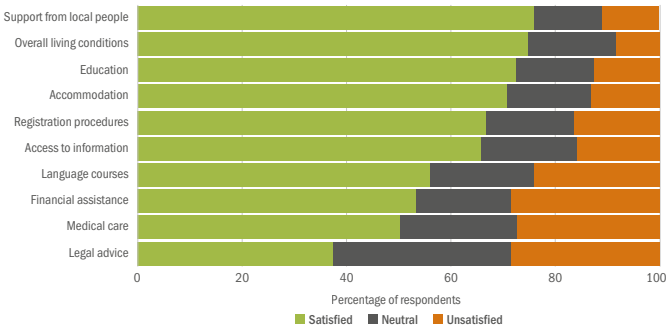
SOURCE: Kantar (2022) and authors' calculations.
NOTE: Survey data were collected between 14 June and 8 July 2022, with 2,674 respondents in total.

CHART 2.10. Homesickness and being separated from family members are the biggest challenges faced by refugees



SOURCE: Kantar (2022) and authors' calculations.
NOTE: Survey data were collected between 14 June and 8 July 2022, with 2,674 respondents in total.

CHART 2.11. Refugees are generally satisfied with the conditions and public services in their host countries



SOURCE: Kantar (2022) and authors' calculations.
NOTE: Survey data were collected between 14 June and 8 July 2022, with 2,674 respondents in total.

[13] See Eurostat (2020). Note that figures for Poland are significantly higher when including seasonal workers (see OECD (2021) for further information).

Overall, these findings highlight Ukrainian refugees' appreciation for the significant and timely support that European citizens and governments have given them. In contrast with the large wave of arrivals seen in 2015-16, the EU is allowing Ukrainians to live and work in its 27 member states for up to three years. Ukrainian refugees are also able to access social welfare payments, social housing, healthcare and schools.

Integration policies for refugees in general

Such support for refugees has not always been forthcoming, despite the fact that refugees often have to flee their home country without much time to prepare and typically seek shelter in the nearest country that can ensure their safety. Compared with economic migrants, whose cross-border journey is often voluntary and better planned, refugees tend to arrive in their host country with worse language skills and less locally applicable human capital. Because of this, and because refugees are often prevented from working by law, they are less likely to be employed than economic migrants (see Box 2.3 for a discussion of claim-processing times and acceptance rates). When they *are* employed, they tend to earn lower wages than economic migrants in the same host country.[14]

Thus, refugees are often the most vulnerable group of immigrants and face steep barriers to economic and social integration.[15] This makes it even more important that host countries have effective integration policies to enable refugees to participate fully in the local economy.

In order to gain greater insight into variation in integration policies for refugees across countries, the analysis in this next section looks at refugee integration scores compiled by the National Integration Evaluation Mechanism (NIEM) for 14 EU member states on the basis of policies in place in 2021.[16] Scores range from 0 (denoting the least advantageous policies) to 100 (indicating the best policies), evaluating integration in five key areas: housing, employment, healthcare, education and adult language courses.

On average, the integration policies of EBRD economies in the EU are marginally to moderately supportive (that is to say, they have integration scores of between 25 and 75; see Chart 2.12). Those scores range from 33 in Hungary to 63 in Lithuania – below the levels observed in Sweden (73) and France (68). To some extent, this gap between the EBRD regions and developed economies reflects the fact that high-income European countries have been receiving large numbers of refugees for many years, resulting in more established asylum policies and integration frameworks. Over the last 10 years, however, the asylum and integration frameworks of those EBRD economies have become more comprehensive, reflecting the harmonisation of laws and regulations following their accession to the EU.[17]

At the same time, there is considerable variation both across and within countries when it comes to the different policy areas. The widest gap can be observed for language learning, with 93 points separating the countries with the highest and lowest scores. Language skills and knowledge about the host country's institutions and social norms are key to refugees' ability to integrate. While NIEM reports good provisions in some EBRD economies, there are few – if any – publicly funded language and social orientation courses in Greece, Bulgaria and Hungary. Such courses need to be made available for an extended period of time and tailored to the requirements of specific groups (such as unaccompanied minors), as well as individuals with differing levels of proficiency. Countries such as the Czech Republic, Latvia and Romania score highly by providing courses without additional costs or compulsory attendance. In addition, needs-based translation and interpreting assistance is also beneficial to refugees.

Housing is another key area where certain countries – particularly EBRD economies – fail to establish sufficiently supportive policies. In all countries except Greece and Slovenia, refugees have a legal guarantee promising them access to housing on the same terms as locals. However, a lack of government support, high rental costs in the free housing market relative to refugees' disposable income, the language barrier and discrimination often make it difficult for refugees to find suitable accommodation. Sweden and France have the best housing conditions, with their supportive housing policies including government schemes to identify suitable housing, coordination between public and private actors, and the provision of housing benefits and targeted information for refugees. EBRD economies could improve by reducing administrative barriers (such as the requirement to leave shelters shortly after being granted protection and the need for specific documents) and providing financial and organisational support when refugees come to find accommodation of their own.

When it comes to healthcare, most countries have legislation ensuring that refugees have access to appropriate facilities. Most countries also have fairly favourable legal conditions facilitating refugees' access to the labour market.

The legal provisions of most host countries are favourable towards Ukrainian refugees in terms of access to housing, healthcare, education and so on, given the EU's activation of the Temporary Protection Directive. A major challenge for EBRD economies will be following through with supportive measures that ensure not only protection but also adequate living conditions and opportunities for integration.

[14] See Aksoy et al. (2020), Brell et al. (2020) and Cortes (2004).
[15] See Martén et al. (2019).
[16] NIEM is an international project co-financed by the European Union through the Asylum, Migration and Integration Fund and the International Visegrad Fund. It has established a mechanism for a comprehensive biennial evaluation of the integration of beneficiaries of international protection in order to provide evidence of gaps in integration standards, identify promising practices and evaluate the effects of legislative and policy changes.
[17] See Wolffhardt et al. (2022).

Firms view refugees' labour market participation positively

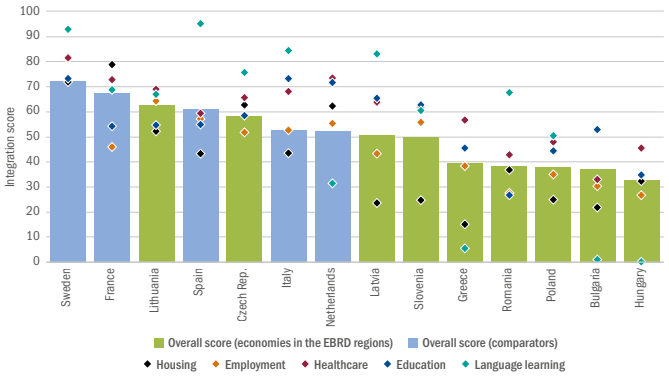
Refugees can make important contributions to their host economies as workers, innovators, entrepreneurs and investors (see Box 2.1), helping to increase the supply of labour. The precise implications for the labour market prospects of the local population will depend on the skill mix of workers, the extent to which local workers and refugees can be substituted for one another, and the willingness of local workers to migrate.

More than 80 per cent of all studies focusing on these effects find that refugees have a positive or neutral impact on the labour market outcomes of local workers, while fewer than 20 per cent report negative and statistically significant impacts. This is mainly because refugees and local workers typically have different sets of skills and compete for different types of job.

Using data from a follow-up to the Enterprise Survey conducted by the EBRD, the European Investment Bank (EIB) and the World Bank in 2018-20, Chart 2.13 examines firms' views regarding the contributions that refugees make to the labour market. That follow-up survey covered a total of 815 firms across 15 economies in the EBRD regions (see Box 3.3). In particular, it asked firms about the hiring of refugees and the impact that refugees could have on their access to labour, as well as customer outreach.

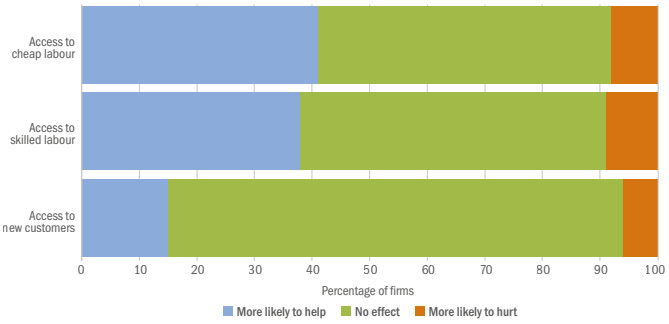
On average, firms tended to view refugees' labour market participation positively (see Chart 2.13). Around 40 per cent of all respondents reported that refugees were likely to have a positive effect on their firm's ability to access skilled labour, compared with 10 per cent of firms expecting a negative effect (with half of all firms having a neutral view). Similar figures were observed when firms were asked about access to cheap labour. Firms that would consider hiring refugees were more likely to believe that an influx of refugees would have a positive impact on their access to cheap and skilled labour.

CHART 2.12. In 2021, the integration policies of EBRD economies in the EU were less supportive than those of EU member states with higher incomes



SOURCE: Wolffhardt et al. (2022) and authors' calculations.
NOTE: Based on the provisions that were in place for refugees on 31 March 2021. Scores range from 0 (denoting the least advantageous policies) to 100 (indicating the best policies). "Language learning" refers to language courses for adults.

CHART 2.13. On the whole, firms tend to believe that an influx of refugees will have a positive impact on their access to cheap and skilled labour



SOURCE: BEEPS Global Supply Chain follow-up survey and authors' calculations.

Ukrainian refugees in Poland

Poland has taken in more Ukrainian refugees than any other country (see Chart 2.5). Although border crossings into Poland have fallen in number of late, refugees from Ukraine continue to arrive, as displacement and insecurity remains rife across much of Ukraine's territory. While some people have since left for other European countries, some 1.2 million Ukrainians have opted to seek temporary protection in Poland by registering for a Polish national identification number (PESEL), which facilitates access to healthcare and education, as well as social welfare payments. This section uses PESEL data and other administrative data to provide a snapshot of Ukrainian refugees in Poland.

Overall, 71 per cent of the Ukrainian refugees in Poland are female, and the median age of all refugees is just 22 (see Chart 2.14). This is consistent with the fact that most Ukrainian men between the ages of 18 and 60 are prohibited from leaving the country. Nearly 47 per cent of those refugees are children below the age of 18, and integrating those Ukrainian children into the national school system and providing them with language lessons will be a major challenge.

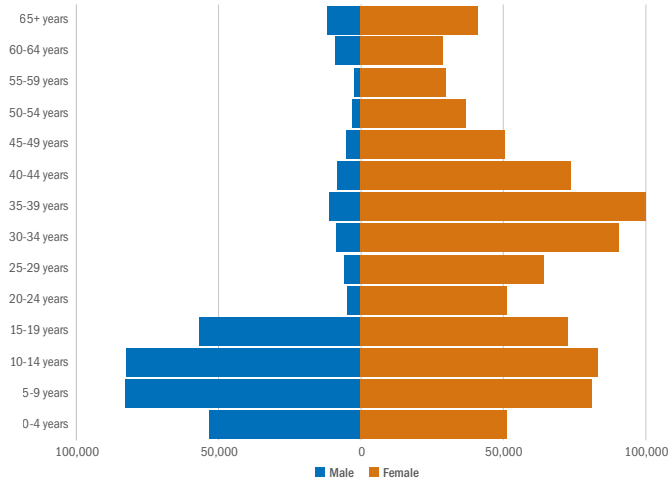
NEARLY
47%
OF THE UKRAINIAN REFUGEES IN POLAND ARE CHILDREN BELOW THE AGE OF 18

Integrating Ukrainian refugees into Poland's labour market

Many Ukrainian refugees of working age are keen to work while living in Poland. While refugees face numerous specific challenges, some characteristics of Ukrainian refugees may facilitate their integration into the local labour market, giving them an advantage relative to other groups of refugees. For example, they tend to be highly educated: a survey conducted by the Polish central bank in April and May 2022 indicated that 50 per cent of adult Ukrainian refugees in Poland were educated to tertiary level.[18] Moreover, they often have pre-existing social networks that they can rely on (as Poland was already a major destination for Ukrainian migrants seeking temporary work before the war). Nevertheless, more than 50 per cent of refugees have neither prior experience of migration to Poland, nor family members or friends who work in Poland.[19]

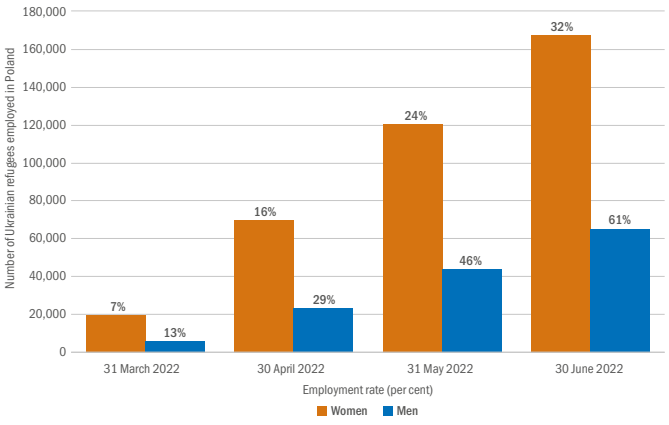
Similar to other EU member states, Poland has, in line with the EU's Temporary Protection Directive, given Ukrainian refugees access to social services and allowed them to live, work and study in the country for up to three years without having to apply for asylum. Refugees who struggle to find a job are entitled to register with district employment agencies to receive assistance and professional guidance.

CHART 2.14. Ukrainian refugees in Poland are predominantly children and women of working age



SOURCE: Chancellery of the Prime Minister of Poland and authors' calculations.
NOTE: Based on registered refugees as at 30 June 2022.

CHART 2.15. The number of Ukrainian refugees employed in Poland has been growing steadily



SOURCE: Chancellery of the Prime Minister of Poland, Polish Ministry of Family and Social Policy, and authors' calculations.
NOTE: The percentages indicate the number of work permits issued relative to the number of refugees of working age (15 to 64 years of age). Work permits are either issued to refugees seeking employment or at an employer's request after a refugee has been employed.

[18] See Chmielewska-Kalińska et al. (2022).
[19] See Chmielewska-Kalińska et al. (2022).

Having the right to start working as soon as they arrive in Poland improves refugees' long-term employment prospects.[20] Research shows that refugees who face an employment ban on arrival in the host country (pending a review of their case) are 15 per cent less likely to be employed in subsequent years, even after the necessary authorisation has been granted (as those refugees tend to opt out of the labour force).[21]

By 30 June 2022, around 32 per cent of all female Ukrainian refugees were in employment locally (see Chart 2.15). The employment rate for Ukrainian men was higher (at 61 per cent), but those working men were a much smaller group (around 65,000) in absolute terms. What is more, 6 out of 10 women had travelled to Poland with children, thus limiting their ability to take on employment. Employment rates for both men and women have risen steadily over this relatively short period, attesting to the good progress that has been made in terms of refugees' integration into the labour market. Consequently, remittance flows from Ukrainians in Poland are expected to increase sharply as refugees seek to support friends and family at home.[22]

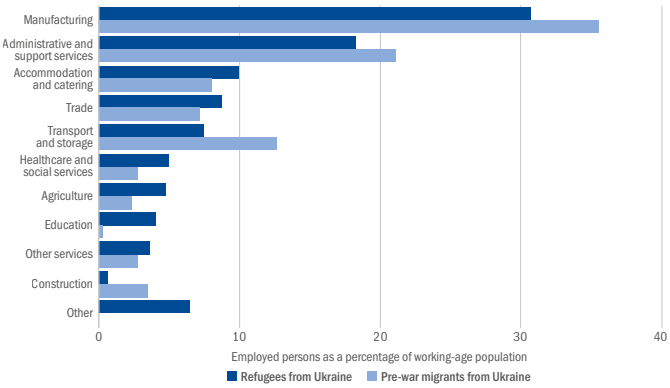
Most female Ukrainian refugees are working in manufacturing, support services or the accommodation sector (see Chart 2.16). This pattern is very similar to that observed for female Ukrainian migrants who came to Poland before the war, which partly reflects the existing labour market shortages in Poland. The similarity between those two employment profiles also highlights the role of information-sharing among migrants through pre-existing social networks.[23]

Determinants of Ukrainian refugees' choice of destination and integration in Poland

This next section revisits the determinants of refugees' choice of destination, this time focusing specifically on the choice of where to reside within Poland. It also examines factors that contribute to the successful integration of refugees in specific geographical locations in terms of employment and education. The findings are based on regression analysis at county level which links the number of Ukrainian refugees as a percentage of the local population with various county-level characteristics (such as personal income tax revenue per capita or the rate of urbanisation; see Box 2.4 for details). The analysis then goes on to look at determinants of the ratio of employed refugees to total refugees by county and the ratio of refugee children enrolled at primary school to total refugees of primary school age.

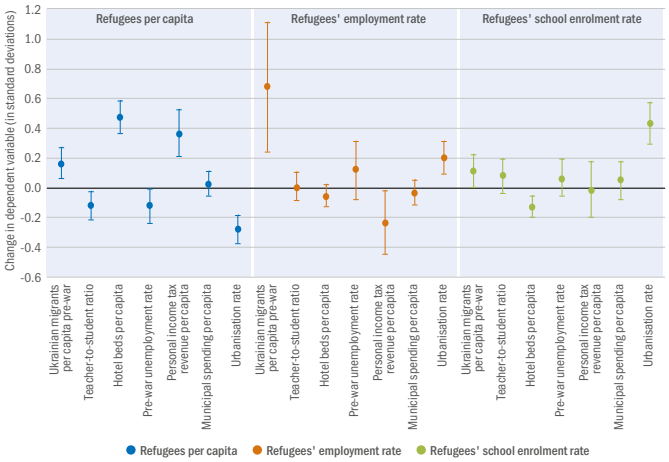
Chart 2.17 reveals a number of patterns. Refugees tend to settle in counties with higher income per capita (captured here by personal income tax revenue per capita). This may reflect better employment prospects in richer counties, as well as a superior capacity to provide assistance to refugees (in terms of social care, housing and education, for example). Indeed, administrative capacity and income per capita tend to be strongly correlated both across and within economies.

CHART 2.16. Most female Ukrainian refugees are working in manufacturing, support services or the accommodation sector



SOURCE: Chancellery of the Prime Minister of Poland, Polish Ministry of Family and Social Policy, Statistics Poland and authors' calculations.
NOTE: For refugees, employment shares are based on the number of work permits active on 30 June 2022 relative to the number of refugees of working age (15 to 64 years of age); for pre-war migrants, they are based on the number of work permits active on 23 February 2022. All figures relate to Ukrainian women only.

CHART 2.17. Ukrainian refugees are more likely to reside – and be employed – in counties with larger numbers of pre-war migrants from Ukraine



SOURCE: Chancellery of the Prime Minister of Poland, Polish Ministry of Family and Social Policy, Statistics Poland and authors' calculations.
NOTE: This chart shows the coefficients that are derived from regressing numbers of refugees per capita, refugees' employment rates and refugees' school enrolment rates for Polish counties (as at 30 June 2022) on various county-level characteristics. All regressions include dummy variables for regions (each of which is made up of multiple counties). The 95 per cent confidence intervals shown are based on standard errors clustered at county level.

[20] See Hainmueller et al. (2016), Marbach et al. (2018) and Aksoy et al. (2020).
[21] See Fasani et al. (2021).
[22] See World Bank (2022a).
[23] See Martén et al. (2019).

THE TOTAL NUMBER OF FORCIBLY DISPLACED PEOPLE WORLDWIDE IS FORECAST TO EXCEED

100

MILLION

BY THE END OF 2022

Ukrainian refugees are also more likely to settle in counties with larger numbers of pre-war migrants from Ukraine, which highlights the role of social networks. The relative importance of such networks is even larger when it comes to successful integration into the labour market: a 1 standard deviation increase in the number of pre-war Ukrainian migrants as a percentage of the population is associated with a 0.7 standard deviation increase in refugees' employment rate, taking into account other factors such as average local income per capita.

While refugees are more likely to reside in counties with lower urbanisation rates (perhaps because accommodation is more readily available), employment rates are higher for refugees residing in more urbanised locations, perhaps reflecting tighter labour markets in metropolitan areas.

Only the urbanisation rate is strongly correlated with the school enrolment rate for refugee children (with enrolment rates being higher in urban areas). This may, in part, reflect the fact that many children have been able to continue their Ukrainian schooling online, at least for the remainder of the 2021-22 academic year.

Conclusion

Numbers of displaced people are on the rise, both globally and in the EBRD regions: at the end of 2021, almost 90 million people around the world had been forcibly displaced by persecution, conflict, violence and human rights violations, and that figure is forecast to exceed 100 million by the end of 2022. Low and middle-income countries host 75 per cent of the world's refugees, with 33 per cent being hosted by economies in the EBRD regions. Internationally displaced persons tend to be younger and better educated than the average person in their country of origin.

The current influx of Ukrainian refugees has the potential to increase the EU's labour force by an estimated 0.5 per cent by the end of 2022, which would be about twice the size of the increase that followed the influx of refugees via the EU's southern borders in the period 2015-16.[24] These developments have the potential to partially alleviate labour shortages in Europe's rapidly ageing economies, provided that mismatches between available jobs and skills can be minimised.

A number of policies can help to ensure that refugees make a meaningful contribution to the economies of their host countries. For example, as documented in previous research, granting immediate access to the labour market is likely to increase refugees' employment in the future, thereby maximising their contribution to the host country.[25] In addition, host countries can facilitate young refugees' transition from school to work by remedying their lack of knowledge about the country's labour market through targeted employment services and by promoting participation in and completion of vocational training programmes (Box 2.5 discusses related initiatives in Jordan).[26]

Leveraging the private sector will be key to improving the resilience of refugees from Ukraine and other countries. To this end, initiatives aimed at supporting refugee-related firms could include training programmes with a view to solving material challenges, improving efficiency and assisting with the development of new products, as well as mentoring support to help firms' owners to improve their performance. At the same time, host countries' authorities can work with commercial banks and microfinance institutions to facilitate access to funding in support of refugee-related firms.[27]

[24] See OECD (2022).
[25] See Fasani et al. (2021).
[26] See OECD (2022).
[27] See World Bank (2022b).

BOX 2.1.

Refugees can benefit host economies

With millions of Ukrainians fleeing their homeland and seeking safety in neighbouring countries, welcoming refugees is primarily a humanitarian duty. However, it can also prove to be an investment. In their search for safety, refugees bring with them ideas, skills and grit. Some of them, for example, will go on to start new businesses, leverage their cross-border connections and foster innovation in their adopted homelands.

A recent study focusing on the United States of America found that refugees were, on average, more entrepreneurial than both the native population and people who had migrated to the country for economic reasons.[28] Indeed, refugees have been responsible for some major innovations over the years, with examples including Sergey Brin, the co-founder of Google, Jewish German scientists (such as Albert Einstein) who revolutionised science in the United States of America and, a few centuries back, the Huguenot refugees from France who brought textile manufacturing technology to Germany and London.[29] Such entrepreneurial behaviour may reflect the considerable tolerance of risk that is shown by refugees when they embark on long, perilous journeys fleeing conflict.

Refugees can facilitate international trade

Refugees' close ties with family and friends in their countries of origin and members of the diaspora in other countries can also help firms to expand across borders.[30] For instance, the millions of refugees from Vietnam who were resettled in the United States of America after the fall of Saigon in 1975 played an important role in establishing trade and investment links between Vietnam and the United States of America in the 1990s.[31] Entrepreneurial refugees established the first long-distance telephone services to Vietnam, as well as the first travel agencies arranging trips to Vietnam. Some 20 years on from the end of the Vietnam War, US locations that had hosted more Vietnamese refugees saw more investment in companies in Vietnam and more bilateral exports. Some immigrants established well-known firms, while others were employed by US multinationals. Than Phuc, for example, was the chief executive officer (CEO) of Intel Vietnam, which invested US$ 1 billion in a chip-testing facility in Ho Chi Minh City in the 2000s, creating thousands of jobs.

When refugees return home, they take new skills with them

When they return home, refugees can also assist with the development of their countries of origin by taking new skills and connections with them. For instance, when refugees from the former Yugoslavia returned home after years of working in Germany's manufacturing sector, they used the experience gained in Germany to increase productivity and exports in their home countries,[32] while Vietnamese returnees were an important driving force behind the establishment of Ho Chi Minh City's tech hub.[33]

Investing in human capital

On average, refugees also work more hours, earn higher wages and speak better English than economic migrants.[34] To some extent, this is because they tend to be better educated than their compatriots who stay at home.[35] Experience of forced migration can also incentivise individuals to prioritise investment in human capital, as they have seen their physical assets be destroyed in conflict. For instance, Poles who were forced to move from eastern to western Poland during the Second World War started investing more in education than compatriots living elsewhere in the country, and their offspring did likewise.[36]

Refugees' contributions to their new host countries do not always come automatically. The right policies need to be in place to allow refugees to make meaningful contributions to the economic dynamism of their local areas. Evidence from 40 years of refugee policies in Denmark highlights the importance of employment support and language training.[37] Access to the labour market (and the structure and future prospects that it provides) also reduces problems relating to violence among asylum seekers.[38]

In many instances, however, refugees are not granted the right to work, either out of concern that they will compete with domestic workers for jobs or because they are not expected to stay for long. In Türkiye, for example, a lack of work permits drove millions of Syrians into the informal sector; in Colombia, millions of Venezuelan refugees were given visas that were valid for just two years, which made it very difficult for many of them to find jobs; and, in Bangladesh, over a million Rohingya refugees have been confined to camps without the right to work.[39]

[28] See New American Economy (2017).
[29] See Moser et al. (2014) and Hornung (2014).
[30] See Bahar et al. (2022).
[31] See Mayda et al. (2022).
[32] See Bahar et al. (2022).
[33] See Klingler-Vidra et al. (2021).
[34] See Cortes (2004).
[35] See Aksoy and Poutvaara (2021).
[36] See Becker et al. (2020).
[37] See Arendt et al. (2022).
[38] See Couttenier et al. (2019).
[39] See Hossain et al. (2019).

BOX 2.2.

Refugees' trust in political institutions

The trust that people place in political institutions plays an important role in shaping societies and economic developments.[40] When individuals have little trust in political institutions, they may dismiss government policies as illegitimate and refuse to follow rules. They may even forgo regular political processes and resort to violence in an attempt to force change. For example, trust in political institutions has been shown to have played a major role in determining the effectiveness of the public response to the Covid-19 pandemic.[41]

Refugees' prior exposure to political institutions will differ from that of the local population in their host country. For instance, refugees who have escaped a country with a high level of corruption may potentially expect such corruption to be pervasive, leading them to place less trust in the political institutions of their host country.[42] To investigate that relationship, this box uses data from eight waves of the European Social Survey (which were conducted at two-year intervals over the period 2004-18 in 38 European countries), together with country-level measures of corruption (executive bribery and embezzlement, judicial corruption, legislative corruption, and public-sector bribery and embezzlement) as captured by the Varieties of Democracy (V-Dem) dataset.

This analysis compares refugees who have come from the same country of origin and are resident in the same host country, but have been exposed to differing levels of corruption in their home country as a result of leaving the country at different points in time. Specifications also take account of the year in which the survey was conducted, the refugee's year of birth, demographic and labour market characteristics, and country-year fixed effects for both the country of origin and the host country. This allows us to net out any impact of time-invariant unobservable characteristics of current and former countries of residence. The results are presented in Table 2.2.1.

In fact, exposure to higher levels of corruption in the country of origin has a positive impact – rather than a negative one – on trust in the political institutions of the host country, with exposure to corruption during an individual's most impressionable years (between the ages of 18 and 25) appearing to matter most in this regard. An individual with a high level of exposure – 7.67 on a scale ranging from 0 (no corruption) to 10 (large-scale corruption) – is estimated, on average, to be 5.4 percentage points more likely to trust the institutions of his/her host country than an individual with typical exposure to corruption. Given that the average level of trust is 60 per cent, this effect is sizeable.

These findings are in line with the results of a study by Kahneman and Tversky (1979), who argued that when current institutions compare favourably with the institutions that attitudes and expectations have been based on, they are viewed more positively.

These findings go some way towards alleviating the often-stated concerns about refugees' lack of adequate regard for host countries' institutions, values and cultures, or refugees' corrosive influence on political trust across society as a whole in host countries.

TABLE 2.2.1. The impact that exposure to corruption between the ages of 18 and 25 has on refugees' trust in political institutions

	(1)	(2)	(3)	(4)	(5)
Outcome: political trust index					
Exposure to corruption $_{18\text{-}25}$	0.056** (0.025)	0.066*** (0.024)	0.079*** (0.029)	0.071** (0.029)	0.094*** (0.034)
Observations	8,813	8,803	8,461	8,663	8,282
Host country fixed effects	Yes	Yes	Yes	Yes	Yes
Country of origin fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	No	Yes	Yes	Yes	Yes
Demographic and labour market controls	No	Yes	Yes	Yes	Yes
Host country × year	No	No	Yes	Yes	Yes
Host country × immigration year	No	No	No	Yes	Yes
Country of origin × year	No	No	No	No	Yes

SOURCE: European Social Survey, V-Dem, Cross-National Time Series Database and authors' calculations.
NOTE: Estimated using linear probability models. Standard errors in parentheses are clustered at the level of pairs of countries of origin and host countries. ***, ** and * denote statistical significance at the 1, 5 and 10 per cent levels, respectively. Political trust is an average of trust in parliament, parties and politicians and ranges from 0 (no trust) to 10 (complete trust). Exposure to corruption$_{18\text{-}25}$ corresponds to the average V-Dem Corruption Index in the country of origin during the period when the individual in question was aged between 18 and 25. Specifications control for age, gender, marital status, educational attainment, religion, employment status, living in an urban area and presence of children under the age of 15 in the household.

[40] See Gamson (1968).
[41] See Kleinfeld (2020).
[42] See Almond and Verba (1963), Inglehart (1990) and Bear and Knobe (2017).

BOX 2.3.

Claim-processing times and acceptance rates

Before being granted refugee status or some other form of international protection, forced migrants must apply for asylum. After submitting a claim for asylum in the destination country, asylum seekers may spend several years waiting for a decision. This box discusses the implications that the administration of asylum claims may have for forced migrants' selection of destination countries and their integration into society in their chosen host countries.

Asylum policies help to shape flows of refugees

When push factors (such as political persecution, war and natural disasters) force people to flee their homeland, their choice of destination country may be influenced by geographical proximity, economic conditions and a number of other factors (see Chart 2.7). Two of those other factors are the nature of a country's asylum policies and the manner in which they are implemented. More restrictive asylum policies (for instance, those with narrower definitions of grounds for protection or no provision for the reunification of families) tend to significantly reduce the number of requests for asylum that are lodged in a country.[43] Similarly, refugees are more likely to head for countries with shorter claim processing times and higher acceptance rates.[44]

Acceptance rates and claim-processing times vary widely across countries

Average acceptance rates vary both by country of origin and by destination country. For instance, asylum claims made by applicants from Afghanistan are more successful than those submitted by Turkish citizens (with success rates of 77 and 47 per cent, respectively, in 2021; see Table 2.3.1).[45] Asylum claims made by individuals from the EBRD regions are less likely to be accepted than those submitted by applicants from the rest of the world (with acceptance rates of 27 and 52 per cent, respectively, in 2021), while average acceptance rates for claims received by economies in the EBRD regions are broadly similar to those observed in other economies around the world (at 50 and 48 per cent, respectively, in 2021).

Comprehensive statistics on claim-processing times are not available. Data for Sweden and Germany point to substantial heterogeneity across countries of origin, similar to the patterns observed for acceptance rates. In 2021, for instance, it took Germany an average of 1.6 months to process asylum claims made by citizens of Bosnia and Herzegovina, compared with 14 months for Somali citizens.[46] This pattern may reflect differences in the difficulty of verifying grounds for asylum, as well as varying volumes of asylum applications. It may also be affected by public attitudes towards migrants and differences between applicable policy frameworks.[47]

The duration and quality of the asylum process can affect refugees' subsequent ability to integrate into their host economies

The process of seeking asylum can compound the trauma of experiencing conflict and having to flee.[48] In the Netherlands, for instance, longer stays in special accommodation for asylum seekers have been found to be associated with lower subsequent levels of employment, increased incidence of mental health problems and greater dependence on social welfare,[49] with a similar study in Switzerland showing that longer claim-processing times reduce the probability of refugees going on to secure employment.[50]

However, favourable asylum policies (such as allowing asylum seekers to work and arrange their own accommodation, and making language training available) may mitigate the detrimental impact of longer waiting times and support refugees' accumulation of human capital. In Sweden, which has such policies, a recent study found that longer waiting times had no effect on refugees' mental health and a *positive* impact on their entry into the labour market.[51]

TABLE 2.3.1. Claim acceptance rates in 2021

			Countries of origin											
			EBRD countries					Comparators					Country average	Group average
			Türkiye	Ukraine	Georgia	Albania	Egypt	Afghanistan	Central African Rep.	Iraq	Syria	Venezuela		
Destination countries	EBRD countries	Greece	72%		0%	1%	4%	78%		54%	98%		48%	50%
		Türkiye	x					61%		47%			53%	
		Egypt								35%			36%	
		Poland		1%				94%		0%			42%	
		Tajikistan						98%					98%	
	Comparators	France	20%	5%	6%	13%	21%	74%	49%	43%	78%	33%	27%	48%
		Germany	37%	7%	3%	2%	27%	79%		38%	90%	61%	52%	
		Spain	48%	25%	1%	4%		100%			71%	82%	29%	
		United States of America	87%	34%	42%	36%	74%	82%		41%	64%	34%	32%	
		Canada	95%	81%	65%	61%	74%	81%		73%	87%	84%	60%	
	Country average		47%	36%	6%	15%	30%	77%	90%	99%	43%	74%	49%	
	Group average		27%					52%						

SOURCE: UNHCR (2022c).

NOTE: This table shows acceptance rates for asylum applications for the top five countries of origin and destination, in terms of the number of applications, in the EBRD regions and the rest of the world. Country averages are simple means indicating either (i) the average acceptance rate for claims submitted by citizens from a particular country of origin across all destination countries or (ii) the average acceptance rate for all claims submitted in a particular destination country. Group averages represent simple means for all EBRD and non-EBRD countries, respectively. The figures presented are total protection rates, indicating all decisions granting protection (not only refugee status under the 1951 Convention, but also complementary protection and other types of protection) as a percentage of total decisions taken in 2021 (see UNHCR, 2022a). Only origin-destination pairs with more than 100 asylum decisions are shown.

[43] See Hatton (2016, 2017).
[44] See Bertoli et al. (2022).
[45] These are total figures covering all types of protection. The figures for refugee status granted under the 1951 Convention are lower (see UNHCR, 2022a).
[46] See Deutscher Bundestag (2022).
[47] See Hatton (2021).
[48] See Blair et al. (2022) and Aksoy and Ginn (2022).
[49] See Bakker et al. (2014).
[50] See Hainmueller et al. (2016).
[51] See Aslund et al. (2022).

BOX 2.4.

Estimating correlates of refugees' settlement and integration in Poland

This box provides details of the data and estimation methodology that are used to analyse refugees' settlement and integration in Poland in Chart 2.17.

Under a special legislative provision enacted on 12 March 2022, Ukrainian refugees can register for a Polish national identification number, which entitles them to access public healthcare and education, as well as social welfare payments (including child allowances). Data on the number of registered refugees, as well as their age and gender, are based on the PESEL registry and are available at county level (equivalent to NUTS 4 – level 4 of Eurostat's Nomenclature of Territorial Units for Statistics). Ukrainian refugees are allowed to work without registering for a PESEL number, but their employers are legally obliged to notify the local labour office of such employment. Data on refugees' work permits have been obtained from the Polish Ministry of Family and Social Policy. Figures relate to the end of the month and are available for the period from March to June 2022. Additional data cover the number of refugee children enrolled at Polish schools, broken down by county.

These data are complemented by county-level information on Ukrainian citizens who have been working in Poland since 2019, which includes details of their type of residence permit and contract, their gender, the industry they are employed in and their occupation (at the two-digit level of the International Standard Classification of Occupations). County-level characteristics such as municipal spending are taken from Statistics Poland. All data have been aggregated at the level of the 340 counties defined by the Ministry of Family and Social Policy.

Estimation methodology

The analysis of refugees' choice of location and integration outcomes uses ordinary least squares regressions for county-level observations with fixed effects at the level of subnational regions (equivalent to NUTS 2). For ease of interpretation, all variables are standardised; standard errors are clustered at county level.

The outcome variables are: (i) the popularity of a destination among refugees, calculated as the number of refugees in a county relative to the population of that county; (ii) the employment rate for refugees, calculated as the number of active work permits relative to the number of refugees between the ages of 15 and 64 who are registered in a county; and (iii) the school enrolment rate for refugees, calculated as the number of refugee children who are enrolled at primary school relative to the number of refugees between the ages of 7 and 13.

A key variable of interest is the number of Ukrainian migrants who were working in Poland before the war (as at 23 February 2022) relative to the population of the county in question, which captures the role that social networks play in migration decisions. Other variables include the urbanisation rate, as well as the ratio of teachers to students and municipal spending per capita (as measures of the quality of public goods). Local economic conditions are captured by the pre-war unemployment rate (as at January 2022), personal income tax revenue per capita (as a proxy for income per capita in the local area) and the number of hotel beds per capita.

IN POLAND, THE PREVALENCE OF POSITIVE ATTITUDES TOWARDS REFUGEES HAS INCREASED BY

19

PERCENTAGE POINTS

SINCE 2021

BOX 2.5.

Forced migration: the case of Jordan

Jordan has experienced a massive influx of Syrian refugees since 2011, with more than 675,000 registered refugees in the country at the time of writing. Indeed, refugees currently account for 7 per cent of Jordan's total population. While an influx of this magnitude has placed significant pressure on the country's stretched resources, the majority of those refugees have been accommodated in towns and villages, rather than camps. Syrian refugees have been given subsidised access to health centres, paying up to 80 per cent of the standard rate for non-nationals. And since July 2016, the Jordanian government has issued more than 230,000 work permits to Syrian refugees, allowing them to access the labour market.

Jordan's response to this influx of refugees has leveraged international support, focusing on adequate provision of municipal infrastructure, as well as programmes fostering skills and integration into the labour market. Jordan's Ministry of Planning and International Cooperation has adopted a centralised and transparent approach to managing support for Syrian refugees, taking account of the concerns of host communities and the need for investment in local infrastructure. The country's refugee response plan (which has been implemented in cooperation with the EBRD) has focused on investment in the management of solid waste, transport links, renewable energy and water supply. This has helped to preserve social cohesion, despite significant increases in the populations of certain municipalities.

When it comes to the development of skills, coordination appears to have been weaker, with organisations running similar programmes in competition with each other and insufficient attention being paid to leveraging synergies between programmes and tailoring them to the needs of the labour market.

Flexible work permits have enabled refugees to move between jobs within a given sector, while short-term work permits targeting seasonal occupations have also supported job creation. However, with Jordan's unemployment rate reaching 23 per cent in 2022, many refugees with work permits are struggling to find jobs. The Covid-19 pandemic has driven many refugees into poverty, with food insecurity on the rise, exacerbated by high food and energy prices.

Balancing the interests of nationals and the needs of refugees remains a challenge. In response to rising unemployment on account of the pandemic, the Jordanian authorities have restricted non-nationals' access to jobs in some sectors. This has hampered the competitiveness of certain employers and made it harder for some refugees to find employment that matches their skill-sets. Broader involvement of employers in policy consultations can help to refine the assessment of skill gaps and limit negative consequences for sectors with limited availability of skilled nationals. At the same time, stricter enforcement of minimum wage and labour protection laws for all workers could help to alleviate nationals' concerns about unfair competition and improve working conditions for refugees.

Financial and non-financial support for self-employed workers has remained limited. This has been a particular challenge for women, who shoulder a disproportionate share of the burden when it comes to childcare and looking after elderly relatives. In order to assist female workers, the Microfund for Women (MFW) has begun offering loans to Syrian women who are reliant on Jordanian family ties or guarantors for security. Building on the resulting credit history and market experience, the MFW has gradually rolled out group loans and individual "Tatweer" (development) loans to Syrian refugees, as well as providing non financial assistance aimed at improving their business management and digital skills.

Registered Syrian refugees of school age have free access to Jordanian state schools, with additional costs being covered by the international community. As a result, around 136,000 Syrian children are currently enrolled in formal basic education in Jordan. More than 200 schools in host communities are continuing to operate a two-shift system, with afternoon shifts earmarked for Syrian children. Meanwhile, the private Luminus Education initiative has secured over US$ 19 million in grants from the Jordanian government and international donors to help refugees to complete tertiary education and enter the labour market. Those multi-year grants have covered the tuition fees of more than 3,000 students. Luminus also works closely with potential employers to identify jobs that are available to refugees when their studies end.

References

C.G. Aksoy and T. Ginn (2022)
"Attitudes and Policies toward Refugees: Evidence from Low- and Middle-Income Countries", World Bank Policy Research Working Paper No. 9985.

C.G. Aksoy and P. Poutvaara (2021)
"Refugees' and Irregular Migrants' Self-Selection into Europe", *Journal of Development Economics*, Vol. 152, Article 102681.

C.G. Aksoy, P. Poutvaara and F. Schikora (2020)
"First Time Around: Local Conditions and Multi-Dimensional Integration of Refugees", EBRD Working Paper No. 250.

G. Almond and S. Verba (1963)
The Civic Culture: Political Attitudes and Democracy in Five Nations, Princeton: Princeton University Press.

J. Arendt, C. Dustmann and H. Ku (2022)
"Refugee migration and the labour market: Lessons from 40 years of post-arrival policies in Denmark", VoxEU.org.

O. Aslund, M. Engdahl and O. Rosenqvist (2022)
"Limbo or Leverage? Asylum Waiting and Refugee Integration", IZA Discussion Paper No. 15063.

D. Bahar, C. Parsons and P.-L. Vézina (2022)
"Refugees, Trade and FDI", *Oxford Review of Economic Policy*, forthcoming.

D. Bahar, C. Özgüzel, A. Hauptmann, and H. Rapoport (2019)
"Migration and knowledge diffusion: The effect of returning refugees on export performance in the former Yugoslavia", *The Review of Economics and Statistics* (2019), pp.1-50.

L. Bakker, J. Dagevos and G. Engbersen (2014)
"The importance of resources and security in the socio-economic integration of refugees. A study on the impact of length of stay in asylum accommodation and residence status on socio-economic integration for the four largest refugee groups in the Netherlands", *Journal of International Migration and Integration*, Vol. 15, No. 3, pp. 431-448.

A. Bear and J. Knobe (2017)
"Normality: Part descriptive, part prescriptive", *Cognition*, Vol. 167, pp. 25-37.

S.O. Becker, I. Grosfeld, P. Grosjean, N. Voigtländer and E. Zhuravskaya (2020)
"Forced migration and human capital: Evidence from post-WWII population transfers", *The American Economic Review*, Vol. 110, No. 5, pp. 1430-1463.

S. Bertoli, H. Brücker and J. Fernández-Huertas Moraga (2022)
"Do applications respond to changes in asylum policies in European countries?", *Regional Science and Urban Economics*, Vol. 93, Article 103771.

C.W. Blair, G. Grossman and J.M. Weinstein (2022)
"Forced Displacement and Asylum Policy in the Developing World", *International Organization*, Vol. 76, No. 2, pp. 337-378.

C. Brell, C. Dustmann and I. Preston (2020)
"The Labor Market Integration of Refugee Migrants in High-Income Countries", *Journal of Economic Perspectives*, Vol. 34, No. 1, pp. 94-121.

I. Chmielewska-Kalińska, B. Dudek and P. Strzelecki (2022)
"The living and economic situation of Ukrainian refugees in Poland", Narodowy Bank Polski. Available at: https://www.nbp.pl/publikacje/migracyjne/ukrainian-refugees-2022.pdf (last accessed on 03 September 2022).

K.E. Cortes (2004)
"Are refugees different from economic immigrants? Some empirical evidence on the heterogeneity of immigrant groups in the United States", *The Review of Economics and Statistics*, Vol. 86, No. 2, pp. 465-480.

M. Couttenier, V. Petrencu, D. Rohner and M. Thoenig (2019)
"The violent legacy of conflict: Evidence on asylum seekers, crime, and public policy in Switzerland", *The American Economic Review*, Vol. 109, No. 12, pp. 4378-4425.

Deutscher Bundestag (2022)
"Ergänzende Informationen zur Asylstatistik für das Jahr 2021 – Schwerpunktfragen zu Widerrufsverfahren und zur Asylverfahrensdauer", Drucksache 20/940.

Eurostat (2020)
"Migration and migrant population statistics".

F. Fasani, T. Frattini and L. Minale (2021)
"Lift the Ban? Initial Employment Restrictions and Refugee Labour Market Outcomes", *Journal of the European Economic Association*, Vol. 19, No. 5, pp. 2803-2854.

J. Ferwerda and J. Gest (2021)
"Pull factors and migration preferences: Evidence from the Middle East and North Africa", *International Migration Review*, Vol. 55, No. 2, pp. 431-459.

M. Fouquin and J. Hugot (2016)
"Two Centuries of Bilateral Trade and Gravity Data: 1827-2014", CEPII Working Paper No. 2016-14.

W.A. Gamson (1968)
Power and Discontent, Homewood, IL: Dorsey Press.

T. Gurevich, P. Herman, F. Toubal and Y. Yotov (2021)
"One Nation, One Language? Domestic Language Diversity, Trade and Welfare", USITC Economics Working Paper No. 2021-01-B.

J. Hainmueller, D. Hangartner and D. Lawrence (2016)
"When lives are put on hold: Lengthy asylum processes decrease employment among refugees", *Science Advances*, Vol. 2, No. 8, Article e1600432.

T.J. Hatton (2016)
"Refugees, asylum seekers, and policy in OECD countries", *The American Economic Review: Papers & Proceedings*, Vol. 106, No. 5, pp. 441-445.

T.J. Hatton (2017)
"Refugees and asylum seekers, the crisis in Europe and the future of policy", *Economic Policy*, Vol. 32, No. 91, pp. 447-496.

T.J. Hatton (2021)
"Asylum Recognition Rates in Europe: Persecution, Policies and Performance", IZA Discussion Paper No. 14840.

E. Hornung (2014)
"Immigration and the diffusion of technology: The Huguenot diaspora in Prussia", *The American Economic Review*, Vol. 104, No. 1, pp. 84-122.

A. Hossain, S. Ahmed, M. Shahjalal and G.U. Ahsan (2019)
"Health risks of Rohingya children in Bangladesh: 2 years on", *The Lancet*, Vol. 394, No. 10207, pp. 1413-1414.

IDMC (2022)
"Global Internal Displacement Database". Available at: www.internal-displacement.org/database/displacement-data (last accessed on 13 July 2022).

R. Inglehart (1990)
Culture Shift in Advanced Industrial Society, Princeton: Princeton University Press.

Ipsos (2022)
"World Refugee Day 2022. Global attitudes towards refugees".

D. Kahneman and A. Tversky (1979)
"Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, Vol. 47, No. 2, pp. 263-292.

Kantar (2022)
"The Voice of Ukraine Survey".

R. Kleinfeld (2020)
"Do authoritarian or democratic countries handle pandemics better?", Carnegie Endowment for International Peace, 31 March.

R. Klingler-Vidra, B.L. Tran and A.W. Chalmers (2021)
"Transnational experience and high-performing entrepreneurs in emerging economies: Evidence from Vietnam", *Technology in Society*, Vol. 66, Article 101605.

M. Marbach, J. Hainmueller and D. Hangartner (2018)
"The long-term impact of employment bans on the economic integration of refugees", *Science Advances*, Vol. 4, No. 9, Article eaap9519.

M. Marshall, T. Gurr and K. Jaggers (2016)
"POLITY IV PROJECT: Political Regime Characteristics and Transitions, 1800-2016 – Dataset Users' Manual", first edition, Centre for Systemic Peace.

L. Martén, J. Hainmueller and D. Hangartner (2019)
"Ethnic Networks Can Foster the Economic Integration of Refugees", *Proceedings of the National Academy of Sciences*, Vol. 116, No. 33, pp. 16280-16285.

A.-M. Mayda, C. Parsons, H. Pham and P.-L. Vézina (2022)
"Refugees and foreign direct investment: Quasi-experimental evidence from US resettlements", *Journal of Development Economics*, Vol. 156, Article 102818.

P. Moser, A. Voena and F. Waldinger (2014)
"German Jewish émigrés and US invention", *The American Economic Review*, Vol. 104, No. 10, pp. 3222-3255.

New American Economy (2017)
"From struggle to resilience: The economic impact of refugees in America".

N. Obradovich, Ö. Özak, I. Martín, I. Ortuño-Ortín, E. Awad, M. Cebrián, R. Cuevas, K. Desmet, I. Rahwan and A. Cuevas (2022)
"Expanding the measurement of culture with a sample of two billion humans", *Journal of the Royal Society Interface*, Vol. 19, No. 190, Article 20220085.

OECD (2021)
International Migration Outlook 2021, Paris.

OECD (2022)
"The Potential Contribution of Ukrainian Refugees to the Labour Force in European Host Countries", Paris.

N.B. Simpson (2017)
"Demographic and economic determinants of migration", IZA World of Labor. Available at: https://wol.iza.org/articles/demographic-and-economic-determinants-of-migration/long (last accessed on 13 July 2022).

UNDESA (2022)
"World Population Prospects 2022", New York.

UNHCR (2022a)
"Global trends: Forced displacement in 2021", Geneva.

UNHCR (2022b)
"Operational Data Portal – Ukraine Refugee Situation", Geneva. Available at: https://data.unhcr.org/en/situations/ukraine (last accessed on 21 July 2022).

UNHCR (2022c)
"Refugee Population Statistics Database", Geneva. Available at: www.unhcr.org/refugee-statistics/download/?url=2z1B08 (last accessed on 13 July 2022).

UNOCHA (2022)
"Ukraine Situation Report", New York. Available at: https://reports.unocha.org/en/country/ukraine (last accessed on 11 August 2022).

A. Wolffhardt, C. Conte and S. Yilmaz (2022)
"The European benchmark for refugee integration. Evaluation 2: Comprehensive report", Migration Policy Group and Institute of Public Affairs.

World Bank (2022a)
"A war in a pandemic. Implications of the Ukraine crisis and COVID-19 on global governance of migration and remittance flows", Migration and Development Brief 36, Washington, DC.

World Bank (2022b)
"Deploying the Private Sector in Europe Will Be Key to the Successful Economic Integration of Refugees from Ukraine", Washington, DC.

GLOBAL SUPPLY CHAINS IN TURBULENCE

3

International trade has grown significantly since the 1990s thanks to reforms and innovation in telecommunications and logistics. This has led to the deepening of global supply chains, which are characterised by geographically fragmented production and supply processes. The EBRD regions have benefited from these developments by increasing and diversifying their exports. Recently, however, disruptions in supply – particularly on account of Covid-19 and Russia's invasion of Ukraine – have exposed some inherent weaknesses in supply chains. Firms across the EBRD regions, especially those with direct suppliers in China, have adjusted to these disruptions, primarily by increasing stocks of inputs and sourcing from larger numbers of suppliers. The climate crisis is likely to bring more disruption in the future.

Introduction

International trade has changed significantly since the early 1990s: the liberalisation of cross-border transactions, advances in information and communication technology (ICT), reductions in transport costs and innovations in logistics have all given firms greater incentives to break up production and supply processes across countries. These days, many firms choose to specialise in a specific task, rather than producing an entire product themselves.[1] As a result, global supply chains are very common, fostering technology transfer and access to capital and inputs along value chains.[2] At a global level, growth in supply chain-related trade stalled in 2008, with only intermittent periods of modest growth since then, but global supply chains still accounted for around half of all global trade in 2020.[3]

As countries in the EBRD regions have transitioned from command economies to market economies, they have opened up to the outside world and increased their productivity levels. On average, they are more entwined in global supply chains than the typical

[1] See Nicita et al. (2013).
[2] See World Bank (2020).
[3] See World Bank (2020).

GLOBAL SUPPLY CHAINS ACCOUNTED FOR AROUND
HALF
OF ALL GLOBAL TRADE IN 2020

middle-income country. Their most important trading partners are advanced economies in the EU, but some have managed to successfully export large volumes of goods and services to other high-income economies, such as Israel, Switzerland and the United States of America. Economies in the EBRD regions differ in terms of their involvement in global supply chains: Central Asian economies still mostly produce commodities for further processing in other countries, while those that are members of the EU are tending to move towards advanced manufacturing and services and are more actively engaged in innovation. This chapter shows that, for EBRD countries in the EU (but not for other economies in the EBRD regions), greater participation in global supply chains and having trading partners with higher levels of income are both associated with more sophisticated exports (that is to say, trade in higher-productivity goods).

A system that is based on long supply chains needs all its parts to work like clockwork, making it inherently weak.[4] The last couple of years have seen a great number of disruptions to the usual ways of doing business and international trade flows. Such supply-side disruptions – which have ranged from cyber-threats and the Russian invasion of Ukraine to systemic issues such as the Covid-19 pandemic and the climate crisis – have increased in frequency and will continue to destabilise global supply chains.[5] At the same time, international political cooperation has begun to falter, and many people have become disenchanted with free trade. The combination of these trends has forced a rethinking of global supply chains and catapulted the resilience of supply chains to the top of countries' policy agendas (with some, for instance, considering friendshoring, whereby inputs are sourced from economies that share similar values). This chapter explores these developments in the context of the EBRD regions, both at an aggregate level and at firm level.

While specialisation on the basis of comparative advantages is optimal according to trade theory, policymakers are often concerned about the vulnerability that results from the concentration of exports and the volatility of export revenues. In 2021 (the most recent year for which data are available), all EBRD regions except Central Asia were, in terms of both export products and markets, more diversified than the average upper-middle and high-income economies.

The Covid-19 pandemic and the Russian invasion of Ukraine have disrupted deliveries of inputs to firms and international trade more broadly. Accordingly, the likelihood of supply chains being mentioned during firms' earnings calls has more than doubled, rising from 30 per cent in 2018 to 61 per cent in 2022.

A recent EBRD survey shows that more than three-quarters of all firms participating in global supply chains have implemented at least one measure aimed at strengthening the resilience of their supply chains (with the most common measure being an increase in stocks of inputs, followed by diversification of the supplier base). New suppliers tend predominantly to be from abroad, with only around a fifth of firms switching from an international supplier to a domestic equivalent. Despite pandemic-related disruption, relatively few firms have dropped Chinese suppliers, with the country remaining a key source of inputs for production in the EBRD regions.

One in ten firms report experiencing disruptions to supply on account of extreme weather events. In the future, firms may need to deal with such physical disruption more often and potentially on a larger scale, as well as responding to new policies and regulations that seek to mitigate the growing impact of climate change. For example, firms exporting certain key goods to the EU (including aluminium, fertilisers, iron and steel) will soon be subject to the Carbon Border Adjustment Mechanism (CBAM), a price correction applied at the border which seeks to level the playing field in terms of the effective carbon price that is faced by producers within and outside the EU. It has been estimated that the application of the CBAM may increase the price of goods imported into the EU by more than 50 per cent and will affect several countries in the EBRD regions. While firms' awareness of the CBAM and its consequences is limited in the EBRD regions, firms with better green management practices tend to be more aware of it and are more likely to have assessed the carbon intensity of their production as a result.

THE LIKELIHOOD OF SUPPLY CHAINS BEING MENTIONED DURING EARNINGS CALLS HAS **MORE THAN DOUBLED** BETWEEN 2018 AND 2022, RISING FROM
30%
TO
61%

[4] See Javorcik (2020).
[5] See World Economic Forum (2021).

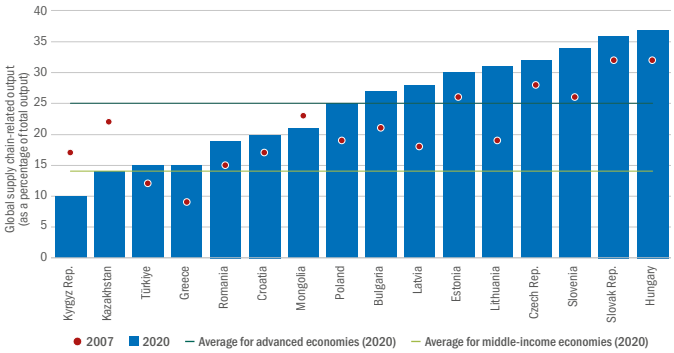
This chapter starts by providing an overview of participation in global supply chains in the EBRD regions, as well as other middle- and high-income economies. It then documents the changing patterns in international trade, starting with the recent changes in imports from China, before moving on to longer-term trends in export sophistication and diversification, as well as the impact that war has on trade outcomes. This chapter then analyses the supply chain challenges that have been faced by firms in the EBRD regions since the Covid-19 pandemic and the Russian invasion of Ukraine, before looking at the future of trade through the lens of the EU's Carbon Border Adjustment Mechanism. The chapter ends with a number of policy recommendations.

Participation in global supply chains

Global supply chains have existed for centuries, but they grew rapidly between the early 1990s and 2007 as technological advances and declining trade barriers incentivised manufacturers to extend production processes beyond national borders.[6] In the EBRD regions, firms' participation in global supply chains varied across countries in the early 1990s. In some economies, such as Georgia, output relating to global supply chains was close to zero, while in others, such as the Czech Republic and Slovenia, it accounted for more than a fifth of total output.

In most EBRD economies, global supply chain-related output has increased substantially since 2007 as a share of total output (see Chart 3.1). The average level of participation in global supply chains across the EBRD regions is above the average for middle-income economies and roughly the same as the average for advanced economies. In 2007, global supply chain-related output accounted for an average of 21 per cent

CHART 3.1. In most EBRD economies, participation in global supply chains increased between 2007 and 2020

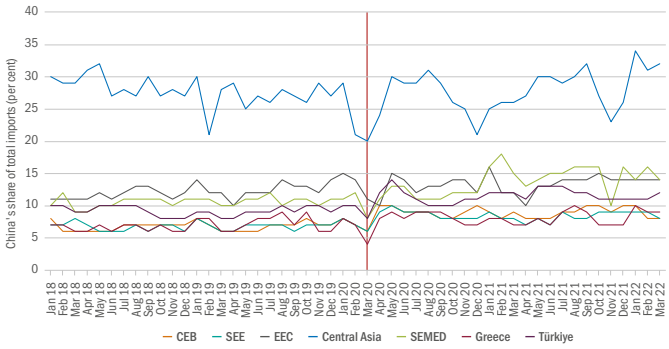


SOURCE: Asian Development Bank's Multi-Regional Input-Output (MRIO) database via the World Bank's World Integrated Trade Solution (WITS) website and authors' calculations.
NOTE: Data for other countries in the EBRD regions are not available from the same source.

[6] See World Bank (2020).

BY 2020, GLOBAL SUPPLY CHAIN-RELATED OUTPUT IN THE EBRD REGIONS AVERAGED
25%
OF AGGREGATE OUTPUT, ROUGHLY ON A PAR WITH ADVANCED ECONOMIES

CHART 3.2. China's share of total imports in the EBRD regions is back to pre-Covid levels



SOURCE: UN Comtrade monthly data and authors' calculations.

of total output in the EBRD regions, compared with 16 per cent in middle-income economies. By 2020, the average for the EBRD regions had increased to 25 per cent, roughly equivalent to the average for advanced economies, whereas the figure for middle-income economies had dropped slightly to stand at 14 per cent.

However, in some countries, participation in global supply chains declined significantly between 2007 and 2020, notably in Kazakhstan, the Kyrgyz Republic and Mongolia. In other countries, such as Armenia, Azerbaijan, Serbia, Tajikistan and Uzbekistan, available data on participation in global supply chains are of poor quality but suggest that firms' involvement remained lower than in other EBRD countries.

Firms in EU member states are heavily involved in global supply chains. Hungary has the highest level of integration in global supply chains in the EBRD regions, with global supply chain-related output accounting for 37 per cent of total output in 2020, followed by the Slovak Republic (36 per cent) and Slovenia (34 per cent). In most EBRD economies in the EU, global supply chain-related output increased substantially between 2007 and 2020 as a percentage of total output, with the largest increases in percentage point terms being seen in Lithuania (12 percentage points) and Latvia (10 percentage points).

Changing patterns in international trade

Supply chain disruption can affect, in various ways, the overall value of international trade, the sophistication of exports, and diversification in terms of export products and markets. This section looks at each of those elements in turn.

Stabilisation of imports from China after the initial Covid-related disruption in March 2020

Looking at trade between China and the rest of the world, an average of more than 5 per cent of other countries' gross production is reliant on inputs from China (although advanced economies in the EU are the EBRD regions' most important trading partners). Moreover, between 2005 and 2015, China's reliance on foreign inputs declined, while other countries' reliance on Chinese inputs increased further.[7] It is no surprise that when the pandemic first hit in March 2020, disruption to production resulted in a sudden dip in China's share of total imports across the EBRD regions (see Chart 3.2). However, imports from China recovered quickly and have remained remarkably stable since then, despite China's zero-Covid approach, which has continued to disrupt manufacturing and supply chains. Further dips have been observed subsequently in certain regions – in Central Asia in December 2020; and in both Central Asia and the southern and eastern Mediterranean (SEMED) in November 2021 – but none of these have been permanent.

Sophistication of exports

Most countries have firms that participate in global supply chains, but they do so in different ways. Most firms in western Europe participate in complex supply chains, producing advanced manufacturing and services, and engaging in innovative activities. In contrast, many firms in Central Asia export commodities for further processing in other countries, not adding much in terms of value. Firms in other EBRD regions typically fall somewhere between these two extremes.

Participation in global supply chains enhances efficiency through specialisation, with durable inter-firm relationships promoting the diffusion of technology and access to capital and inputs along the chain.[8] Moreover, by participating in global supply chains, firms tend to develop skills and expertise, which – over time – enable them to move up the value chain and produce innovation of their own.[9] In other words, participation in global supply chains has the potential to change what firms produce and export.

[7] See Baldwin and Freeman (2021).
[8] See World Bank (2020).
[9] See EBRD (2014).

Some traded goods are associated with higher levels of productivity than others, and countries where firms produce these higher-productivity goods tend to perform better. Export sophistication ranks traded goods in terms of their implied productivity and is a strong predictor of economic growth.[10] Products that are typically exported by rich countries are, by design, regarded as being more sophisticated than those exported by poor countries. However, among countries with the same GDP per capita, some have export baskets that are much more sophisticated than others. India and China, for example, have export baskets that are much more typical of rich countries than one might expect given their level of income.

Almost all EBRD countries in the EU saw increases in both global supply chain-related output (as a percentage of total output) and export sophistication between 2007 and 2020 (see Chart 3.3). Outside the EU, however, the picture is mixed. In the Kyrgyz Republic, the decline in global supply chain-related output was mirrored by a fall in the sophistication of exports, but Kazakhstan and Mongolia saw the two measures move in opposite directions. To some extent, this reflects variation in patterns of specialisation, with firms in some economies specialising mainly in commodities or lower-value-added manufacturing.[11]

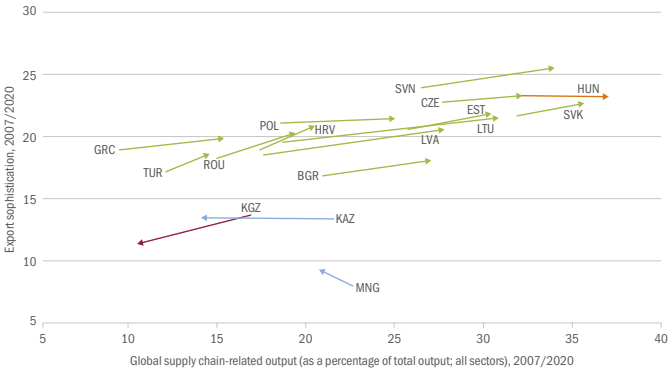
Over the same period, most EBRD economies in the EU observed increases in both the weighted average GDP per capita of export destinations and the sophistication of exports (see Chart 3.4) as firms moved up the value chain and reaped the benefits of innovation. Again, developments outside the EU were mixed.

Diversification of export products and markets

There is substantial variation across countries in terms of the average number of products that firms export and the average number of destinations that they export to. Firms in low-income economies typically export only a small range of products. While specialisation on the basis of comparative advantages is theoretically optimal, policymakers are often concerned about the vulnerability and income volatility that result from excessive concentration of exports.[12] As economies develop further, firms tend to start exporting a broader range of products to a wider set of countries. At income per capita levels of about US$ 25,000 at PPP in constant 2005 international US dollars, firms tend to specialise again in line with their respective comparative advantages.[13]

One way of measuring the diversification of export products and markets is to use a modified Herfindahl-Hirschman index. This is calculated by squaring each destination's share in the total exports of a country, adding the resulting numbers together, subtracting the result from one and multiplying by 100. A similar measure can be calculated for product groups at the four-digit level of the Harmonised System (which includes groups such as chalk and imitation jewellery). The resulting measure ranges from 0 (full concentration) to 100 (full diversification).

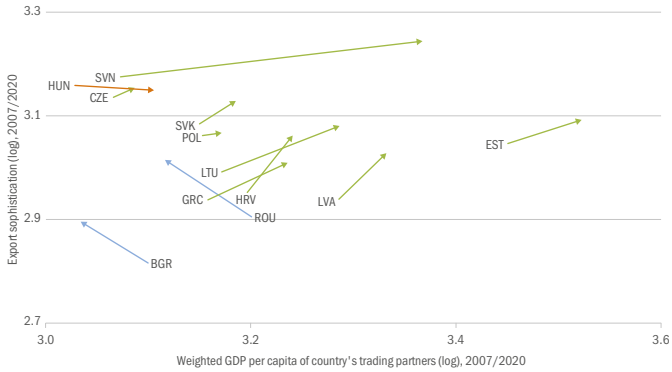
CHART 3.3. Greater participation in global supply chains is typically associated with more sophisticated exports



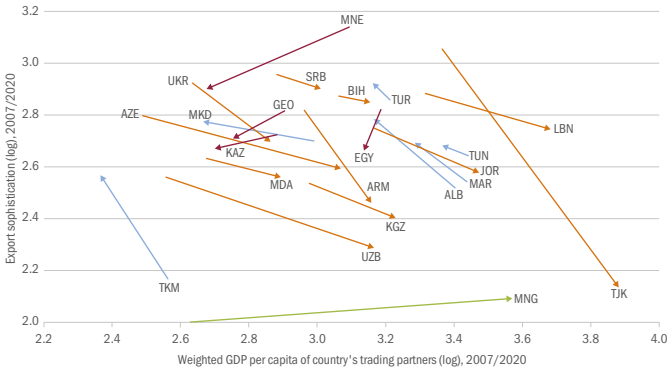
SOURCE: UN Comtrade annual data, the Asian Development Bank's MRIO database via the World Bank's WITS website, the World Bank's World Development Indicators and authors' calculations.
NOTE: Where data for 2020 are missing, 2019 figures have been used. The sophistication of exports excludes energy commodities. See also Box 3.1.

CHART 3.4. Export sophistication and weighted GDP per capita of trading partners

Panel A. EU member states



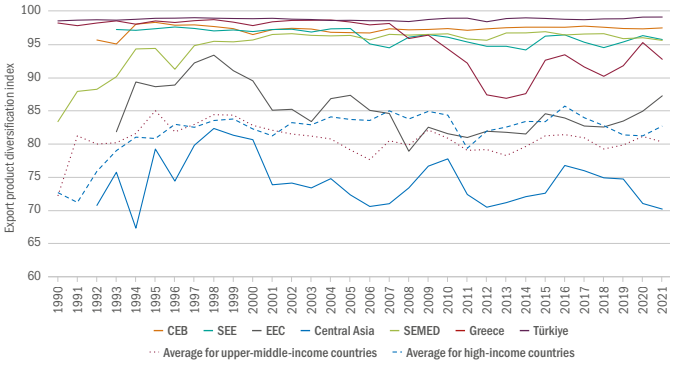
Panel B. Non-EU countries



SOURCE: UN Comtrade annual data, the World Bank's World Development Indicators and authors' calculations.
NOTE: Where data for 2020 are missing, 2019 figures have been used. The sophistication of exports excludes energy commodities. See also Box 3.1.

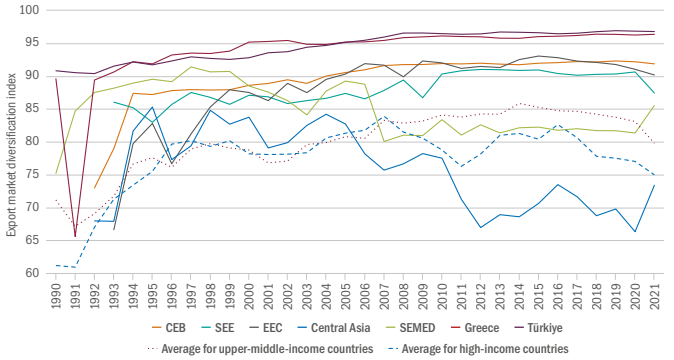
[10] See Hausmann et al. (2007).
[11] See World Bank (2020).
[12] See Haddad et al. (2011).
[13] See Cadot et al. (2011).

CHART 3.5. The EBRD regions vary considerably in terms of the diversification of export products



SOURCE: UN Comtrade annual data and authors' calculations.
NOTE: Based on the Harmonised System at the four-digit level. Serbia and Montenegro are included as a single entity between 1993 and 2005, and separately thereafter (forming part of the SEE average). Data for the West Bank and Gaza are included in the SEMED average from 2000 onwards.

CHART 3.6. They also vary substantially in terms of export market diversification



SOURCE: UN Comtrade annual data and authors' calculations.
NOTE: Serbia and Montenegro are included as a single entity between 1993 and 2005, and separately thereafter (forming part of the SEE average). Data for the West Bank and Gaza are included in the SEMED average from 2000 onwards.

The EBRD regions differ considerably in terms of the diversification of export products and markets. Türkiye, central Europe and the Baltic states (CEB), south-eastern Europe (SEE) and the SEMED region are the most diversified in terms of export products (see Chart 3.5). Eastern Europe and the Caucasus (EEC) and Central Asia are the least diversified – indeed, they have seen a reduction in product diversification since 1998. Türkiye, Greece and the CEB region are the most diversified in terms of export markets, alongside the EEC region (see Chart 3.6). Central Asia and the SEMED region have seen considerable declines in export market diversification since about 2005. In 2021 (the most recent year for which data are available), all EBRD regions except Central Asia were, in terms of both export products and markets, more diversified than the average upper-middle-income and high-income economies.

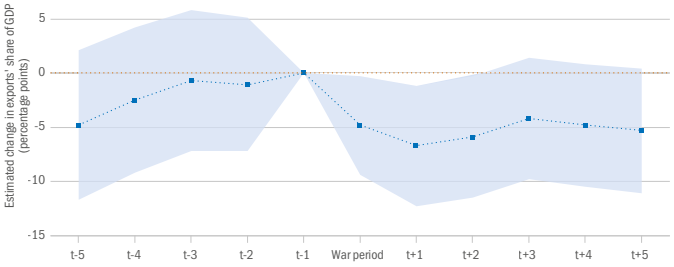
The impact that war has on international trade

This section looks at the impact of major disruptions to global supply chains and international trade, starting with wars. Chapter 1 explored the effect that wars have on GDP, inflation, external balances and investment using a database covering the period from 1816 to 2014. This section uses an event study to analyse the impact that wars have on international trade, focusing on the period from 1990 to 2020 and combining the Correlates of War database with UN Comtrade annual data. The event study looks at 43 economies (nine of which are in the EBRD regions) that experienced at least one war on their territory in the relevant period, considering various variables of interest. Where a country experienced multiple wars in that period, the years between those wars are excluded from the analysis.

The analysis focuses on differences between outcomes of interest in the years before and after the war. Regressions are used to link those outcomes to (i) dummy variables for each year before the start of the war (up to a maximum of five years), (ii) a dummy variable indicating the war period, and (iii) dummy variables for each year after the end of the war (again, up to a maximum of five years). To account for differences in countries' levels of development and global economic conditions at various points in time, all regressions include country and calendar year fixed effects.

EXPORT MARKET DIVERSIFICATION HAS **DECLINED** CONSIDERABLY IN CENTRAL ASIA AND THE SEMED REGION **SINCE ABOUT 2005**

CHART 3.7. International trade falls significantly during and after a war on a country's own territory



SOURCE: Correlates of War database, UN Comtrade annual data, WITS website, the World Bank's World Development Indicators and authors' calculations.
NOTE: This chart summarises the estimates derived from an event study regression covering the period between 1990 and 2020. The dots represent estimates for the years before, during and after the war, with data one year before the war acting as a baseline. The shaded area indicates the 95 per cent confidence interval. Regression includes country and calendar year fixed effects.

This analysis reveals that, on average, exports' share of GDP declines sharply during a war, falling by 4.8 percentage points, and remains below pre-war levels five years after the war has ended (see Chart 3.7). Trade is redirected towards allied nations, with the percentage of exports going to allies increasing by 1.8 percentage points during the war, before rising further after the war, although this effect is not statistically significant in such a small sample.

On average, a country's export product diversification index increases by 3 index points during a war and continues to rise thereafter, with the average level in the fourth year after the end of the war standing 8 index points above the pre-war level – a statistically significant difference. Thus, the basket of exported products becomes more diversified. A similar – albeit smaller – effect can be observed for export market diversification, although in that case the estimates are not statistically significant.

Overall, these results suggest that wars tend to suppress trade to a considerable extent, with some trade being redirected towards allies.

Firms adapt to supply chain disruption

The initial stages of the Covid-19 pandemic were a significant shock to firms' operations, both across the EBRD regions and beyond. Non-essential shops and service providers (including banks; see Chapter 4) were often forced to shut down for periods of time, while other firms faced reduced demand for their products and had to furlough workers. Firms that relied on inputs from other countries (especially China) often faced disruption to their deliveries, with international borders being partially or fully closed.

Growing risks relating to supply chains: evidence from earnings calls

Even before the pandemic, concerns about supply chains were on the rise. Indeed, when international trade wars intensified in 2018, many executives talked about reshuffling their supply chains. However, if earnings calls – conference calls where managers of a listed company, investors, analysts and journalists come together to discuss the relevant firm's performance in the last quarter – are any indication, the current squeeze on supply chains has executives more concerned about the sourcing of inputs than ever before.

Data on earnings calls become available before official statistics, and since most listed firms hold earnings calls, they can be used to supplement survey data, providing additional insights. The transcripts of earnings calls provide an opportunity to look at the ways in which business experts discuss supply chain issues and, by extension, see which firms are exposed to supply chain disruption.[14]

This section uses NL Analytics' platform and tools to analyse the transcripts of 194,000 earnings calls between 2013 and the second quarter of 2022.[15] Those transcripts cover a total of 11,445 firms headquartered in 85 countries. Only around 1.2 per cent of the transcripts come from firms headquartered in the EBRD regions, but in many other instances managers and investors discuss economic developments in the EBRD regions in the context of their firms' operations, investments and sales.

The analysis identifies sentences relating to supply chain topics by checking for relevant keywords,[16] which have been chosen with the help of NL Analytics' keyword tool. It then calculates the difference between the number of sentences involving positive sentiments (those containing words such as "good" or "opportunity") and the number containing negative words (such as "disruption" or "difficult").[17] This measure of supply chain sentiment tracks whether management and investors feel that supply chains are contributing positively or negatively to firms' business performance and outlook. Lastly, the analysis tracks whether the terms "risk", "risky", "uncertainty" or "uncertain" (or any of their synonyms) are used in combination with supply chain keywords.[18]

[14] Transcripts of earnings calls have been used, for example, to study firm-level exposure to shocks such as Brexit (see Hassan et al., 2020b), the Covid-19 pandemic (see Hassan et al., 2020a) and climate change (see Sautner et al., 2021).
[15] See Javorcik et al. (2022a).
[16] Those keywords are "global chain", "logistic chain", "logistical chain", "sub-supplier", "supplier", "supplier chain", "suppliers", "supply chain", "supply logistic", "supply network", "supply technologies" and "value chain".
[17] A list of more than 2,500 positive and negative words has been used. That list, which is specific to financial texts, has been taken from Loughran and McDonald (2011).
[18] For example, someone saying "we are balancing imports with local sourcing to de-risk the company from tariffs and supply chain risks" indicates that supply chains are contributing to uncertainty, whereas someone talking about "the disruption felt in India, where aggressive shutdown mandates were enacted, impacting market demand and supply chain infrastructure" indicates negative sentiment regarding supply chains.

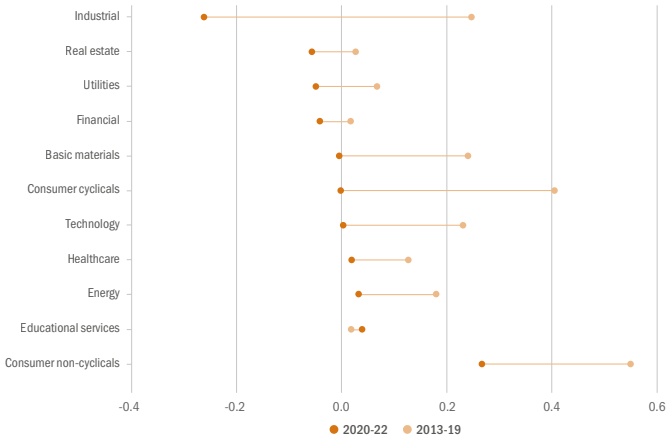
On the basis of this analysis, risks relating to supply chains were relatively stable from 2013 to 2019, but then increased sharply between 2020 and 2022. Similarly, the average sentiment around supply chains deteriorated significantly in 2020 and has not recovered since.[19] These metrics suggest that the intensity of the current disruption is unprecedented. The upward trend observed for supply chain risk and the downward trend witnessed for sentiment have continued into 2022, despite earlier predictions that the squeeze on supply chains would be a short-lived phenomenon.

Almost all sectors covered by the data saw increases in risk and a deterioration in sentiment between 2013-19 and 2020-22 (with educational services being the sole exception), underlining the systemic nature of recent supply chain disruption (see Chart 3.8). The most dramatic changes were observed for the industrial sector, consumer goods and technology. For example, the average number of risk-related sentences on supply chains in the automobile and auto parts industry in 2020-22 was four times the level seen in 2013-19; for technological equipment it increased six-fold; and for personal and household products it rose 12-fold.

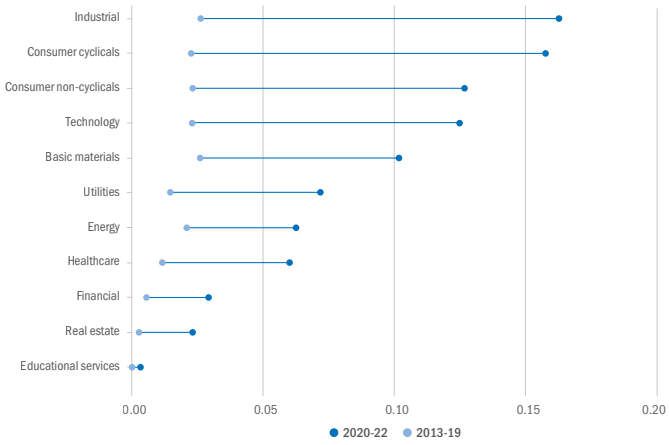
Supply chains are among the top causes of concern for global firms and investors (see Chart 3.9). For the purposes of comparison, similar measures of risk have been constructed for other major sources of concern, including Covid-19, climate change and the Russian invasion of Ukraine. At the peak of the pandemic in the second quarter of 2020, 12 per cent of all sentences containing a risk-related keyword concerned Covid-19. By the first half of 2022, there were almost as many risk-related sentences about supply chains (2.9 per cent) as there were about Covid-19 (3.7 per cent). On the basis of this metric, supply chains were a bigger concern for global firms and investors in the first half of 2022 than climate change and the war in Ukraine (which were cited in 1.7 per cent of risk-related sentences each). In a subsample relating only to firms headquartered in an EU member state or an EBRD economy, the Russian invasion of Ukraine played a larger role, featuring in 4.5 per cent of all risk-related sentences in the first half of 2022.

CHART 3.8. Across sectors, supply chain-related risks have increased and sentiment has deteriorated

Panel A. Average net number of positive sentences on supply chains



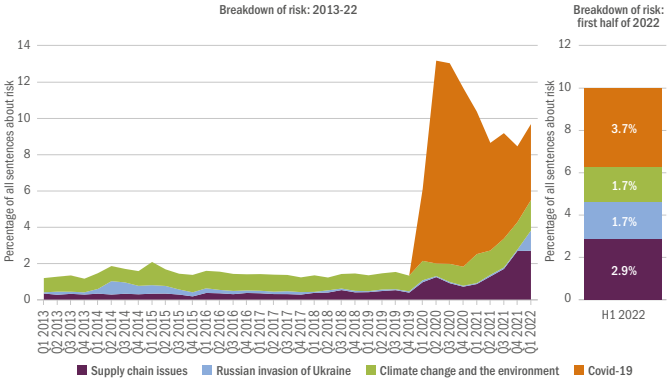
Panel B. Average number of sentences about supply chains and risks



SOURCE: NL Analytics and authors' calculations.
NOTE: Data are as at 13 July 2022. Panel A shows the average difference per earnings call between (i) the number of sentences containing a supply chain-related keyword and a positive word and (ii) the number of sentences containing a supply chain-related keyword and a negative word. Panel B shows the average number of sentences per earnings call that contain both (i) a supply chain-related keyword and (ii) a word conveying a sense of risk. "Industrial" comprises industrial and commercial services, industrial goods and transport; "consumer cyclicals" comprises automobiles and auto parts, retailers, cyclical consumer products and cyclical consumer services; "consumer non-cyclicals" comprises consumer goods conglomerates, food and beverages, and personal and household products and services.

[19] These developments in text-based metrics closely mirror movements in the Global Supply Chain Pressure Index compiled by the Federal Reserve Bank of New York, which brings together a number of different supply chain-related metrics (such as the cost of shipping raw materials and container shipping rates).

CHART 3.9. Supply chain risks are among the top causes of concern for global firms and investors



SOURCE: NL Analytics and authors' calculations.
NOTE: Data are as at 13 July 2022. This chart shows the percentages of risk-related sentences that contain keywords relating to specific topics. Covid-19 keywords ("corona virus", "coronavirus", "covid", "covid19", "ncov" and "sarscov") were taken from Hassan et al. (2020a); keywords relating to the invasion of Ukraine were taken from Hassan et al. (2021) and NL Analytics' keyword tool; and keywords relating to climate change and the environment were taken from Sautner et al. (2021) and NL Analytics' keyword tool.

ACROSS NEARLY ALL SECTORS, SUPPLY CHAIN RISKS HAVE BEEN **SIGNIFICANTLY HIGHER** IN **2020-22** THAN THEY WERE IN **2013-19**, UNDERLINING THE SYSTEMIC NATURE OF RECENT SUPPLY CHAIN DISRUPTION

Uncertainty relating to supply chains may weigh on the investment, profit margins and operating revenue of firms in the EU and the EBRD regions. In order to analyse the links between supply chain issues and firms' performance, the average sentiment and perceived risk for each year and industry (at the three-digit level of the Standard Industrial Classification (SIC)) was combined with data on more than 48,000 large manufacturing firms in the EU and the EBRD regions for the period 2013-21, taken from Bureau van Dijk's Orbis database.

Regression analysis (see Table 3.1) links various measures of firm-level performance (such as profit margins or employment) to various measures of risk and sentiment, both related and unrelated to supply chain disruption. That analysis takes account of any firm-specific changes in risk and sentiment in sentences not related to supply chains. In addition, firm and country-year fixed effects capture any factors that affect business outcomes across firms at a given point in time or influence the performance of a given firm throughout the period.

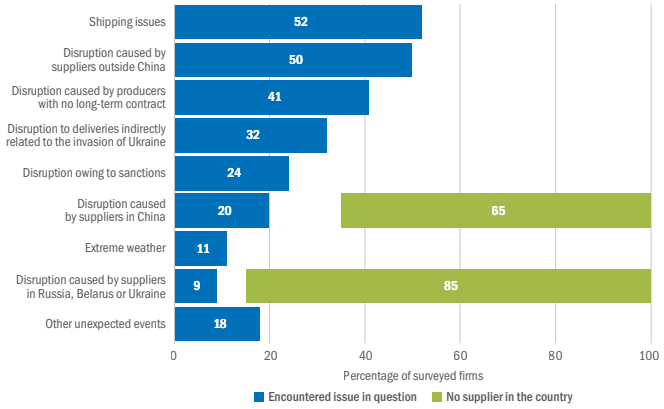
On average, a 1 standard deviation increase in supply chain risk, as reflected in the transcripts of earnings calls, is associated with a 0.4 per cent drop in investment (annual change in the log of fixed assets) and profit margins that are 0.14 percentage point lower six months later. In the EBRD regions, exposed firms have profit margins that are 0.2 percentage point smaller and operating revenues that are 0.9 per cent lower. These results suggest that insuring against supply chain risks (for example, through an increase in stocks or diversification of suppliers) may be worthwhile in terms of firms' bottom lines, despite the cost of implementing such measures.

TABLE 3.1. Supply chain risk is negatively correlated with firm-level performance in the EU and the EBRD regions

	Investment$_t$		Profit margin$_t$		Operating revenue (log)$_t$		Employees (log)$_t$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Supply chain risk$_{t-6\ months}$	-0.004***	-0.004***	-0.137*	-0.135*	-0.004	-0.004	-0.004	-0.003
	(0.009)	(0.009)	(0.067)	(0.072)	(0.236)	(0.253)	(0.151)	(0.156)
Supply chain sentiment$_{t-6\ months}$	0.002	0.001	0.059	0.043	0.003	0.001	0.001	0.001
	(0.270)	(0.648)	(0.179)	(0.340)	(0.303)	(0.795)	(0.654)	(0.761)
Non-supply chain risk$_{t-6\ months}$		-0.001		-0.027		-0.001		-0.001
		(0.574)		(0.657)		(0.725)		(0.736)
Non-supply chain sentiment$_{t-6\ months}$		0.008***		0.113*		0.015***		0.002
		(0.000)		(0.053)		(0.000)		(0.459)
R^2	0.269	0.269	0.621	0.621	0.954	0.954	0.847	0.847
Firms	48,083	48,083	48,083	48,083	48,083	48,083	48,083	48,083
Observations	290,080	290,080	290,080	290,080	290,080	290,080	290,080	290,080

SOURCE: NL Analytics, Bureau van Dijk's Orbis database and authors' calculations.
NOTE: Data are as at 13 July 2022. All regressions use ordinary least squares estimation and include firm and country-year fixed effects. The sample spans the period from 2013 to 2021 and consists of all manufacturing firms in the EU and the EBRD regions with more than 100 employees for which data on all four outcomes are available. Risk and sentiment variables represent industry-year averages calculated on the basis of earnings call transcripts for industries at the three-digit level of the Standard Industrial Classification (SIC). Industry-sector measures are standardised for a 1 standard deviation increase in risk and sentiment measures. Dependent variables are winsorised at the 1st and 99th percentiles. Investment is defined as the annual change in the log of fixed assets. Profit margins are calculated as profit before tax as a percentage of operating revenue. Standard errors in parentheses are clustered at industry-year level, with *, ** and *** denoting statistical significance at the 10, 5 and 1 per cent levels, respectively.

CHART 3.10. More than half of all surveyed firms in the EBRD regions had encountered disruption to deliveries owing to shipping issues



SOURCE: EBRD survey and authors' calculations.
NOTE: Based on the responses of 815 firms that both export and import across 15 economies in the EBRD regions.

74%
OF SMES REPORTED SUPPLY CHAIN DISRUPTION

MORE THAN **HALF** OF ALL FIRMS HAD BEEN AFFECTED BY SHIPPING ISSUES

MORE THAN A 10TH OF FIRMS HAD EXPERIENCED DISRUPTION CAUSED BY EXTREME WEATHER

Disruption faced by firms in the EBRD regions since the start of the Covid-19 pandemic

Listed firms are not the only ones that face supply chain risks and disruption – most firms do. Firms that both export and import directly – "two-way traders" – are potentially the most affected by supply chain disruption. In order to better understand the challenges that firms have faced on account of the Covid-19 pandemic and Russia's invasion of Ukraine, the EBRD conducted a short telephone survey between May and July 2022, talking to businesses in 15 countries: Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Lithuania, Morocco, Poland, Romania, Serbia, the Slovak Republic, Slovenia, Tunisia and Türkiye (see Box 3.3 for more details). All of the participants had previously taken part in the most recent round of Enterprise Surveys, which was conducted by the EBRD, the World Bank and the EIB in 2018-20 and covered formal-sector firms with at least five employees in the manufacturing, construction and service sectors.

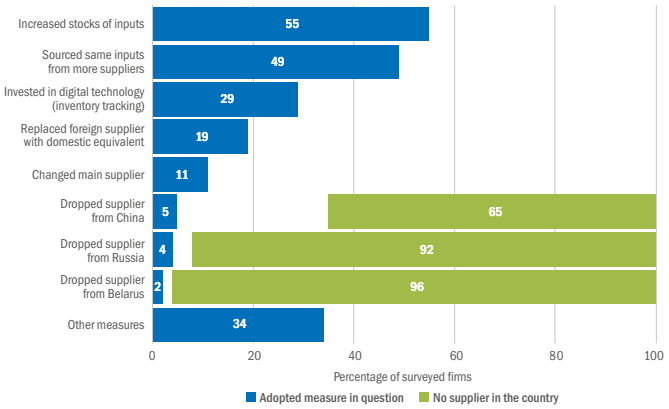
More than three-quarters of the firms surveyed had experienced at least one disruption to deliveries of inputs since the start of the pandemic. Disruption was not limited to large firms (defined as those with at least 100 employees, which are more likely to be deeply integrated into global supply chains), with 74 per cent of small and medium-sized enterprises (SMEs) reporting supply chain disruption. There was a broad geographical spread, with 80 per cent of surveyed firms in EU member states having been affected and 70 per cent of respondents outside the EU being affected.

Overall, 52 per cent of firms reported that they had encountered shipping issues, 50 per cent had experienced disruption to deliveries from suppliers outside China, and 41 per cent reported disruption to deliveries from wholesalers or producers with whom they did not have long-term contracts (see Chart 3.10). A fifth of firms had experienced disruption to deliveries from suppliers in China, while 18 per cent of firms reported disruption caused by other unexpected events, such as strikes, fire and cyber-attacks. Meanwhile, 11 per cent of firms had experienced disruption caused by extreme weather events.

Almost a quarter of firms reported disruption caused by Russia's invasion of Ukraine and the resulting international sanctions. While only 15 per cent of surveyed firms had direct suppliers in Belarus, Russia or Ukraine, two-thirds of those firms had experienced disruption to the delivery of inputs originating in those countries. Meanwhile, a significant proportion of the remaining firms had experienced disruption to deliveries that was indirectly related to the invasion of Ukraine.

55%
OF FIRMS HAVE INCREASED STOCKS OF INPUTS IN RESPONSE TO SUPPLY CHAIN DISRUPTION

CHART 3.11. More than three-quarters of surveyed firms in the EBRD regions took steps to increase the resilience of their supply chains



SOURCE: EBRD survey and authors' calculations.
NOTE: Based on the responses of 815 firms that both export and import across 15 economies in the EBRD regions.

Steps taken by firms to increase the resilience of their supply chains

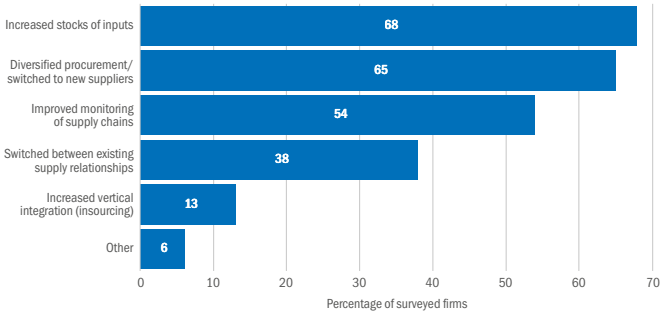
More than three out of four firms responded to disruption by adopting at least one measure in order to make their supply chains more resilient. Such action differed widely across firms, in line with variation in their circumstances. Similar variation in responses was observed in previous episodes. For example, firms affected by the 2011 Tōhoku earthquake and tsunami in Japan tended to diversify their suppliers, while the leading firm in Thailand's hard disk drive industry responded to the Chao Phraya floods by further concentrating production in the river basin, finding that diversification was not its best option when it came to managing supply chain risk.[20]

The survey results indicate that the two most popular measures were both relatively quick to implement and easy to reverse: increasing stocks of inputs (adopted by 55 per cent of respondent firms; see Chart 3.11) and sourcing the same inputs from more suppliers (49 per cent). New suppliers were predominantly from abroad, with only around a fifth of firms switching from an international supplier to a domestic equivalent.

Almost three in ten firms invested in digital technology (such as inventory tracking and optimisation, cargo tracking and automated warehousing), while 11 per cent of firms changed their main supplier of inputs.

Of the 34 per cent of firms with suppliers in China, only one in seven dropped such suppliers. While the percentage of firms with suppliers located in Belarus and Russia was low – less than 10 per cent – half of those dropped their suppliers in those countries.

CHART 3.12. Similar steps were taken by German manufacturing firms



SOURCE: ifo Business Survey (July 2022).
NOTE: Based on the responses of 3,000 manufacturing firms in Germany.

Similar trends were observed in Germany when equivalent questions were put to 3,000 manufacturers as part of the ifo Business Survey in July 2022. More than 87 per cent of those firms reported that they had taken steps to increase the resilience of their supply chains. Like firms in the EBRD regions, they mainly opted for measures that were quick to implement (see Chart 3.12): increasing stocks of inputs (adopted by 68 per cent of firms) and diversifying procurement (65 per cent). More than half improved their monitoring of supply chains, and over a third switched between existing supply relationships, while 13 per cent sought to produce inputs in house, having previously outsourced them to independent suppliers, thereby increasing the vertical integration of production through insourcing.

[20] See Inoue and Todo (2017), Matous and Todo (2017) and OECD (2020).

TABLE 3.2. Firms with direct suppliers in China were more likely to adopt most measures in order to increase the resilience of their supply chains

	Changed main supplier	Sourced same inputs from more suppliers	Increased stocks of inputs	Replaced foreign supplier with domestic equivalent	Invested in digital technology (inventory tracking)	Adopted other measures to increase resilience of supply chains
	(1)	(2)	(3)	(4)	(5)	(6)
Had direct supplier located in China in last three years (indicator)	0.011	0.051**	0.054**	0.051**	0.067***	0.016
	(0.016)	(0.025)	(0.025)	(0.020)	(0.023)	(0.024)
Firm led by a woman (indicator)	0.074*	0.039	0.081	0.011	-0.011	0.024
	(0.039)	(0.061)	(0.060)	(0.050)	(0.056)	(0.060)
Age of firm (log)	0.038	0.062	0.064*	0.054*	-0.020	0.087**
	(0.025)	(0.039)	(0.039)	(0.032)	(0.036)	(0.038)
SME (indicator)	0.012	-0.063	-0.025	-0.013	-0.085**	-0.055
	(0.028)	(0.044)	(0.043)	(0.036)	(0.040)	(0.043)
General management (z-score)	0.004	0.023	0.019	0.024	0.061***	0.047**
	(0.014)	(0.022)	(0.021)	(0.018)	(0.020)	(0.021)
Percentage of employees with university degree	0.001*	-0.001	0.001	-0.000	0.002*	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R^2	0.093	0.105	0.117	0.090	0.143	0.091
Observations	619	619	619	619	619	619

SOURCE: Enterprise Surveys, EBRD survey and authors' calculations.
NOTE: Estimated using ordinary least squares. All regressions include country and sector fixed effects, as well as an indicator for missing information on the percentage of employees with a university degree. SMEs are defined as firms with fewer than 100 employees. Standard errors are indicated in parentheses, with *, ** and *** denoting statistical significance at the 10, 5 and 1 per cent levels, respectively.

ALMOST **THREE IN TEN** FIRMS HAVE INVESTED IN DIGITAL TECHNOLOGY SUCH AS INVENTORY TRACKING AND AUTOMATED WAREHOUSING

What can explain why firms opted for particular resilience-boosting measures? Table 3.2 shows the results of regression analysis looking at the factors that made it more likely that firms would adopt each type of measure, taking account of the sectors and countries where firms operate. A key finding is that firms with direct suppliers in China were more likely to adopt most measures in order to increase the resilience of their supply chains. It is possible that suppliers in China are particularly important and not easily replaceable in the short term, so firms, despite disruption, invest in multiple other measures in order to strengthen existing supply chains. Interestingly, firms led by a woman were more likely to change their main supplier.

Investment in digital technology (such as inventory tracking and optimisation, cargo tracking or automated warehousing) may be more costly and require more expertise than most of the other resilience measures. Unsurprisingly, these measures were more likely to be undertaken by firms that were better managed (based on the management z-scores derived from the extended Enterprise Survey questionnaire that firms answered prior to the Covid-19 pandemic).[21] Those management z-scores reflect the quality of management practices in the areas of operations, monitoring, targets and incentives and are available for firms with at least 20 employees, with better-managed firms having higher scores. Additional analysis shows that, among firms which adopt at least one measure, better-managed firms are also more likely to adopt more supply chain resilience measures.

[21] See Schweiger and Stepanov (2022).

Firms may not fully internalise the social cost of supply chain disruption

The actions of individual firms may not fully internalise the costs, benefits and risks associated with global supply chains for a number of reasons.[22] First, society as a whole might have a lower tolerance for the risk of disruption than individual firms (when it comes to energy supplies used to heat homes, for example). Firms' greater tolerance of risk may also stem from them not internalising the risk that their actions pose to others. The welfare losses that are caused by a synchronised shock to the supply chains of a country's firms can greatly exceed the sum of individual losses – for example, through shortages of essential goods or rising unemployment. In certain sectors, such as food production, medical supplies and products relevant to national defence (such as semi-conductors), the tolerance of risk may be particularly low, even if that means a high cost of ensuring reliable supply.

Firms may also underestimate their exposure to global supply chain risks and the likelihood of systemic shocks. Direct suppliers visible to firms often make up only a small percentage of the full value chain. For example, a recent study found that General Motors had 856 direct suppliers, but a total of more than 18,000 second-tier suppliers (suppliers to direct suppliers) and third-tier suppliers (suppliers to second-tier suppliers). Similarly, Airbus has more than seven times as many second and third-tier suppliers as it does direct suppliers, while Apple has 12 times as many.[23]

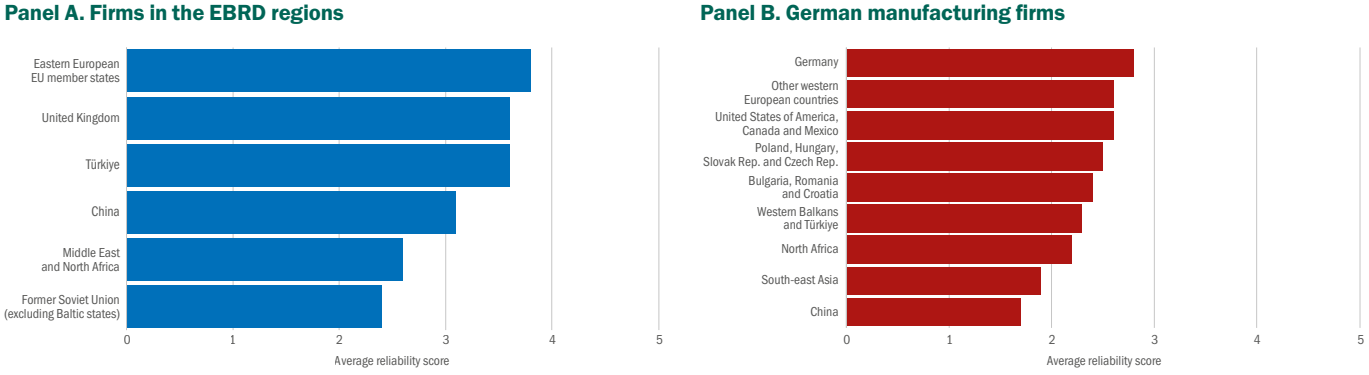
Sometimes – often in commodities – supply chain networks have a diamond shape, with a diverse set of suppliers across tiers but a single supplier at the beginning of the value chain. Such supply chains can be characterised by considerable vulnerability to shocks, despite a seemingly large number of suppliers being involved.[24]

Firms' perceptions of the reliability of suppliers in the EBRD regions and China

When it comes to addressing the high social costs of supply chain disruption, "friendshoring" and "nearshoring" are often regarded as alternatives to a free-market offshoring approach (whereby operations are moved to countries with cheaper labour). Nearshoring involves shortening supply chains by sourcing production inputs from neighbouring economies, while friendshoring refers to a preference for sourcing inputs from economies that share similar values (for instance, when it comes to democratic institutions or maintaining peace).

Friendshoring and nearshoring both involve certain constraints, so they are likely, in normal circumstances, to be less efficient than an approach to optimisation that is based purely on free trade. The resulting loss of GDP may be substantial in the medium term (see Box 3.2), but they could provide insurance against extreme disruption (for instance, as a result of a war) or increase the security of supply for vital inputs (such as energy). Policymakers face the task of assessing whether such insurance is socially optimal. Individual firms may not internalise the costs and benefits of such insurance, forming their own views about how to handle the risks implied by their participation in global supply chains. As part of the aforementioned surveys, firms in the EBRD regions and Germany were asked to assess the reliability of sourcing inputs from certain countries (on a scale of one to five) from the perspective of supply chain resilience. Firms in the EBRD regions regarded inputs from eastern European EU member states as being the most reliable, followed by inputs from suppliers in the United Kingdom and Türkiye. Suppliers located in the Middle East and North Africa, and the former Soviet Union (excluding the Baltic states) were regarded as being the least reliable, while Chinese firms were in the middle (see Panel A of Chart 3.13).

CHART 3.13. German manufacturing firms regard suppliers in central Europe as being more reliable than those in Asia



SOURCE: EBRD survey, ifo Business Survey (July 2022) and authors' calculations.
NOTE: Figures indicate the average perceived reliability of suppliers in particular locations on a scale of 1 (very unreliable) to 5 (very reliable).

[22] This section draws on Baldwin and Freeman (2021).
[23] See Lund et al. (2020).
[24] See Sheffi (2015).

German manufacturing firms felt that suppliers in the EBRD regions (particularly in central Europe) were relatively reliable – albeit less reliable than suppliers from Germany itself, other countries in western Europe or the United States of America (see Panel B of Chart 3.13). Suppliers in China and south-east Asia were regarded as being the least reliable, showing that there was some scope for firms in the EBRD regions to benefit from a move to nearshoring in Europe.

Green transition: a game-changer for trade?

With the climate crisis likely to increase the frequency of disruption to global supply chains, environmental issues are increasingly becoming an integral part of supply chain management. For instance, the percentage of job adverts for supply chain managers that mention environment-related skill requirements (such as ISO 14001 standards), carbon reduction or environmental policy has been growing (see Box 3.4). On the flip side, bottlenecks in global supply chains may affect the pace of the transition to clean energy.[25]

As policymakers respond to the climate emergency, producers will need to comply with new regulations aimed at levelling the playing field in terms of environmental standards. This section looks at one such measure, the EU's planned Carbon Border Adjustment Mechanism, examining its expected impact on the economies in the EBRD regions, as well as awareness of those plans among firms in EBRD economies.

The Carbon Border Adjustment Mechanism

The EU has set out plans to replace carbon subsidies in selected sectors with the CBAM as of 2027 as part of its European Green Deal. In July 2022, the Council of the EU and the European Parliament adopted positions on the draft CBAM regulations that the European Commission had proposed in July 2021. The regulations are expected to be finalised by the end of 2022.

Under the current European Parliament proposal,[26] affected firms importing into the EU in a number of key sectors (including aluminium, fertilisers, iron and steel) will need to register with an EU CBAM authority as of 2023 and will need to report emissions covered by the CBAM on the basis of carbon intensity data provided by exporters. Where exporters do not provide such data, importers will be required to apply the average carbon intensity of the least efficient 10 per cent of producers within the EU for that specific product, which is intended to correct for inaccuracies in carbon accounting and failures to achieve climate objectives as a result of firms not tracking their greenhouse gas (GHG) emissions.[27] In a set-up mirroring the European Trading System, importers will also be required to purchase carbon import permits in advance.

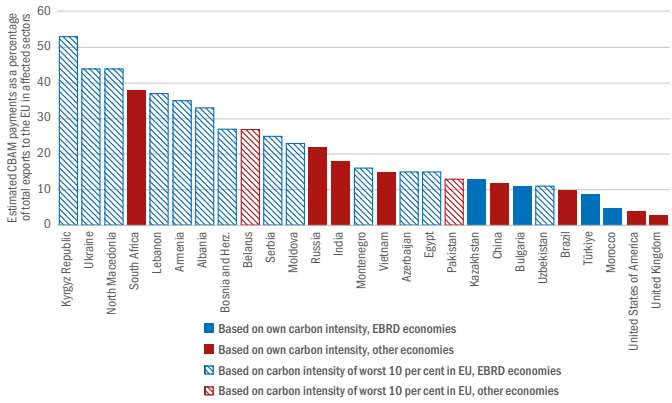
PAYMENTS UNDER THE CBAM MAY INCREASE THE COST OF AFFECTED GOODS IMPORTED BY THE EU BY MORE THAN **50%**

The impact of the CBAM will probably differ across producers and economies, as the carbon intensity of exports varies substantially within and across countries. Carbon intensity in economies exporting to the EU tends to be higher than it is in the EU itself. For instance, the carbon intensity of steel production in Kazakhstan is, on average, around twice the level seen in the EU. In Morocco, meanwhile, where natural gas plays a significant role in the energy mix and there is no significant use of coal, the carbon intensity of steel production is estimated to be below the EU average.

The payment that is due will be calculated as a product of the carbon content of imports and any difference between the price of carbon in the EU and the exporting country (which, in many cases, will be zero). Besides seeking to establish a level playing field for EU producers and exporters to the EU, the CBAM also aims to prevent "carbon leakage" arising from the relocation of pollution-intensive production to more lenient jurisdictions. If the EU's trading partners introduce carbon pricing at the domestic level, such carbon pricing income will go to domestic governments, rather than the EU, and the payments made under the CBAM will be lower. Thus, the CBAM should incentivise exporting countries to introduce domestic carbon-pricing instruments (such as carbon taxes or emissions trading systems).

[25] See Leruth et al. (2022).
[26] See European Parliament (2022).
[27] See European Commission (2021), Annex III, paragraph 4.1.

CHART 3.14. Estimated payments under the CBAM



SOURCE: OECD, ITC Trademap, IMF, E-PRTR, Bureau van Dijk's Orbis database and authors' calculations
NOTE: Economies in the EBRD regions are shown in blue; all others are shown in red. Where figures for an exporting economy are not available, calculations are based on (i) the average carbon intensity of the worst 10 per cent of emitters in the EU in 2015 for the relevant sector, (ii) the EU's current carbon price of €88 per tonne and (iii) the prevailing price in the exporting economy.

As Chart 3.14 shows, payments under the CBAM may increase the cost of affected goods imported by the EU by more than 50 per cent, with substantially higher prices being seen where penalty rates are applied. The estimates in that chart are based on the carbon price as at August 2022 (€88 per tonne), so the cost to producers will be higher if the price of emissions continues to rise.

That adjustment mechanism may have a major impact on the competitiveness of affected exporters. In the absence of any changes to their carbon intensity or the introduction of emissions trading, substantial carbon levies will be charged at the border. As a result, some exporting countries may become uncompetitive in the EU market, with their exports being replaced by domestic production within the EU or low-carbon exports from other economies. The United Nations Conference on Trade and Development (UNCTAD) estimates that output in the relevant sectors of the most affected economies will decline by between 5 and 15 per cent (on the basis of carbon prices of US$ 44-88 per tonne).[28] The EU is anticipating a 12 per cent contraction in imports in the affected sectors and a 14 per cent reduction in associated emissions.[29]

On balance, given the size of the CBAM-related costs and the EU's importance as a trading partner in the relevant sectors of EBRD economies, the countries that are likely to be most affected are the Kyrgyz Republic, Ukraine, North Macedonia and Lebanon.

Economies may adjust to the new regime by (i) finding alternative markets for their goods (where feasible), (ii) using low-carbon technology (including renewable energy) to reduce the carbon intensity of production, (iii) expanding domestic carbon pricing, with carbon income going to their own governments, or (iv) moving along the value chain by upgrading their exports (moving, say, from steel to finished steel products). Moreover, supply chains may become shorter, thereby reducing transport-related emissions. For instance, shipment by road from a country neighbouring the EU would generate savings of between a third and a half in terms of GHG emissions per tonne shipped relative to shipment from China by sea. Those savings are equivalent to approximately 5 per cent of the emissions that are embedded in Chinese steel at the factory gates.[30]

Firms' awareness of the CBAM

The CBAM is scheduled to come into force in 2027, with carbon intensity data being collected as of 2023, and thus firms in the EBRD regions need to get ready. In order to continue selling goods on the EU market, exporters need to understand their low-carbon transition pathways and manage their climate-related transition risks as a matter of urgency. However, fewer than four in ten firms have even heard of the CBAM – and of those that have, less than half expect to be affected. Around 30 per cent of firms have started preparing for the new regime by assessing the carbon intensity of their production or services – and of the remaining 70 per cent or so, less than a fifth plan to do it in the future. The estimates in Table 3.3 provide some further insights into firms' levels of preparedness, indicating the results of regression analysis linking data on firms' awareness with various firm-level characteristics.

FEWER THAN **FOUR IN TEN** FIRMS IN THE EBRD REGIONS HAVE HEARD OF THE CBAM

[28] See UNCTAD (2021).
[29] See European Commission (2021), Annex 9.
[30] These calculations draw on Hasanbeigi et al. (2016), European Environment Agency (2012), Oceana Europe (2010) and OECD data.

TABLE 3.3. Firms with better green management practices are also more likely to have assessed the carbon intensity of their production

	Has heard of the CBAM	Is likely to be affected by the CBAM	Has assessed the carbon intensity of its production/services	Promotes its products or services as being environmentally friendly
	(1)	(2)	(3)	(4)
Green management (z-score)	0.045**	0.056*	0.094***	0.054***
	(0.019)	(0.033)	(0.017)	(0.019)
SME (indicator)	-0.081**	-0.014	-0.182***	-0.057
	(0.039)	(0.076)	(0.034)	(0.040)
Age of firm (log)	0.047	0.058	-0.001	0.042
	(0.035)	(0.065)	(0.030)	(0.035)
Firm led by a woman (indicator)	0.044	-0.021	0.048	0.089*
	(0.049)	(0.099)	(0.044)	(0.051)
Had direct supplier located in China in last three years (indicator)	0.012	-0.045	-0.006	0.017
	(0.022)	(0.044)	(0.020)	(0.024)
Percentage of employees with university degree	-0.000	-0.001	0.001	-0.000
	(0.001)	(0.002)	(0.001)	(0.001)
R^2	0.179	0.141	0.184	0.108
Observations	729	261	787	787

SOURCE: Enterprise Surveys, EBRD survey and authors' calculations.
NOTE: Estimated using ordinary least squares. All regressions include country and sector fixed effects, as well as an indicator for missing information on the percentage of employees with a university degree. SMEs are defined as firms with fewer than 100 employees. The sample for column 1 consists of firms located in the EU and non-EU firms that export to the EU. The sample for column 2 consists of non-EU firms that export to the EU and have heard of the CBAM. The sample for columns 3 and 4 consists of all firms with no missing variables. Standard errors are indicated in parentheses, with *, ** and *** denoting statistical significance at the 10, 5 and 1 per cent levels, respectively.

Strikingly, firms with higher scores for green management are more likely to have heard of the CBAM (see column 1). Those green management scores were calculated using firms' answers to Enterprise Surveys conducted in 2018-20. They cover practices in four areas: strategic objectives relating to the environment and climate change; the existence of a manager with an explicit mandate to deal with green issues; the setting of clear and attainable environmental targets; and the monitoring of environmental objectives.[31]

Moreover, non-EU firms with good green management are more likely to report that they will probably be affected by the CBAM (column 2). Firms with better green management practices are also more likely to have assessed the carbon intensity of their operations and promote their products or services as being environmentally friendly. SMEs are less likely to have heard of the CBAM or assessed the carbon intensity of their operations than large enterprises, suggesting that smaller firms may require an additional information campaign giving them guidance on the steps that need to be taken in order to comply with the new regulations.

Conclusion and policy implications

Many economies in the EBRD regions have been keen participants in global supply chains and have benefited from that participation in terms of the sophistication and diversification of exports. However, while firms have experience of dealing with idiosyncratic shocks (such as natural disasters, strikes and suppliers going bankrupt), nobody was prepared for the kind of systemic shock that was seen at the onset of the Covid-19 pandemic, when many sectors and countries were affected at the same time. The survey evidence presented in this chapter indicates that many firms are already taking steps to make their supply chains more resilient, primarily by increasing stocks of inputs and sourcing from larger numbers of suppliers.

Policymakers can also take a number of steps to increase the robustness and resilience of global supply chains. For example, governments can help to address the information failures that prevent firms from correctly estimating the amount of risk that is embedded in their supply chains. Akin to the stress tests that were introduced in the banking sector after the global financial crisis of 2008-09, policymakers could introduce stress tests for supply chains in critical sectors.[32] Requiring companies to report on their ability to deal with disruption in regular exercises would give them an incentive to continuously monitor and evaluate risks. Governments can review trade agreements for potential incentives to concentrate suppliers in certain locations and share that information with the private sector, as well as promote the use of digital technology for

[31] See De Haas et al. (2022) for more details.

[32] See Simchi-Levi and Simchi-Levi (2020).

risk management and real-time monitoring of input flows. Following a major shock, the reorientation of supply chains can be facilitated by reducing trade and transport barriers (for instance, by facilitating customs clearance and operation permits, expediting certification procedures or prioritising the shipment of essential goods).[33]

The policy options that are chosen (be it taxation, the introduction of subsidies or administrative control of trade flows) need to match the type of supply chain shock (varying, for example, depending on whether supply is being squeezed, demand has surged or there has been a breakdown in transport). For instance, subsidies could be used to incentivise supply, but they might not be appropriate when facing a surge in demand or a transport outage.

Policymakers also need to distinguish between boosting robustness – the ability to continue production during a shock – and increasing resilience – the ability to return to previous production levels within a reasonable time frame after a shock. When it comes to food, energy, medicine and other essential supplies, robustness is key, whereas resilience may be prioritised in other sectors. Promoting robustness inevitably involves some degree of redundancy at the level of suppliers and production sites, whether it is within an individual firm, across multiple firms in the economy or both.[34]

Policies that promote nearshoring, friendshoring or reshoring (which involves moving production back to the home country from abroad) may address some supply chain risks, but exacerbate other risks. For example, while decoupling from global supply chains reduces exposure to foreign supply shocks, it also limits the economy's ability to cushion the impact of local shocks (such as those arising from extreme weather or strikes) through trade, thus magnifying the negative impact that such shocks have on welfare.[35] Moreover, "friends" – countries with similar values and institutions – tend to have similar levels of income, so prioritising trade with such countries will eliminate any gains from the exploitation of comparative advantages and will be associated with welfare losses (as discussed in Box 3.2).[36] Policymakers should therefore think carefully about the balance of risks and costs when considering nearshoring, friendshoring or reshoring.[37]

Lastly, due attention needs to be paid to environmental aspects of global supply chains and their role in facilitating the transition to a green economy. Climate-related risks to global supply chains are rising, with wide-ranging and complex implications for the production, manufacture and distribution of goods around the world. If governments do not act, extreme weather events and other climate shocks will become more common and severe. Consequently, environmental considerations need to become an integral part of firms' risk management.[38] There are various international initiatives aimed at promoting the disclosure and management of climate-related risks across the financial sector and developing the necessary reporting standards and criteria. At present, however, there is no clear standard for calculating a firm's carbon footprint. Strengthening national climate goals and developing a long-term transition pathway can not only reduce the risk of a highly disruptive transition process, but also create new opportunities for innovation and increase economic competitiveness and sustainability.

BOX 3.1.

Calculating the sophistication of exports

The UN Comtrade database often reports two values for a trade flow: exports from country A to country B as reported by country A; and imports to country B from country A as reported by country B. This chapter assumes that the larger of the two values is the more reliable. Since exports are reported on an FOB (free on board) basis, while imports are reported on a CIF (cost, insurance and freight) basis, the mean difference between the two values across the dataset is used to adjust the value of exports where no imports are reported.[39]

In order to construct a measure of the sophistication of exports, we first need to calculate the average GDP per capita of all countries exporting the product in question, weighted by each country's share in total exports of that product (termed PRODY). This is calculated using annual trade and GDP per capita data for the period 2017-19, in order to ensure that the sophistication of exports is calculated on the basis of products traded by rich countries in recent years (rather than in the 1990s). Export sophistication is then calculated as the export-weighted average of all PRODY measures for products exported by a particular country, with weights equivalent to the share that each product has in the total exports of a particular country in each year between 1990 and 2020. All calculations exclude energy commodities. This measures the implied productivity level that is associated with a country's export basket.

[33] See OECD (2020).
[34] See Miroudot (2020).
[35] See Eppinger et al. (2021) and OECD (2021).
[36] See Rajan (2022).
[37] See OECD (2020).
[38] See IPCC (2022).

[39] This is roughly in line with the approach adopted by Head et al. (2010).

BOX 3.2.

The implications of friendshoring and sanctions in terms of international trade

Policies that affect trade need to be evaluated using general equilibrium frameworks, which consider the intricate linkages between economies and between sectors within economies. This box uses a model that accounts for the presence of international input-output linkages, using nested production functions to evaluate the implications of a shift towards friendshoring (which involves sourcing inputs predominantly from economies with shared cultural values – as regards democratic institutions or maintaining peace, for example).[40] In this model, each country produces a different range of products within a given industry. To produce this variety of products, a firm in a given country combines labour and other inputs from different industry bundles – which, in turn, are based on inputs from different countries. For example, the German automotive industry uses labour, as well as industry bundles such as steel and plastic. The steel bundle consists of German steel, Turkish steel, Chinese steel, and so on. Meanwhile, consumers in a country decide to spend their income on consumption bundles, which again consist of different ranges of products from different countries.

The model makes the following assumptions: (i) the ranges of products produced by countries are substitutable, with an industry-specific constant elasticity of substitution (CES);[41] (ii) inputs are complementary to each other (with elasticities of 0.6 and 0.2 being assumed for goods production and intermediate bundle aggregation, respectively); and (iii) consumption is based on a Cobb-Douglas aggregation with an elasticity of 1. The model has been calibrated using the 2018 Inter-Country Input-Output (ICIO) Tables produced by the Organisation for Economic Co-operation and Development (OECD). It can capture developments in the medium term, as it allows for the movement of labour between sectors within a country, but not between countries. It does not allow for changes in productivity or capture the formation of new trade links between countries.

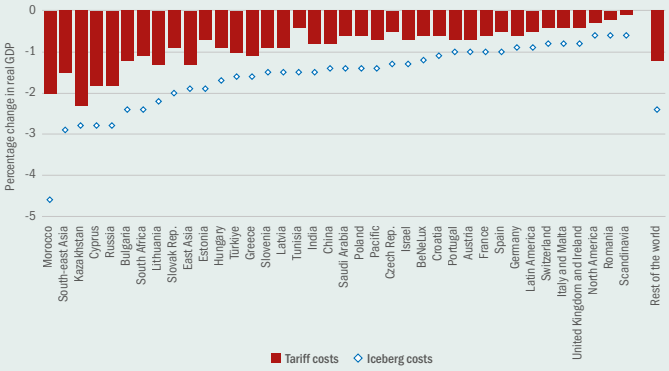
This model is used to study three different scenarios: (i) friendshoring, (ii) the sanctions imposed on Russia as a result of its invasion of Ukraine and (iii) severe Covid-19 lockdowns in China.

As part of these scenarios, the model differentiates between two blocs of economies: (i) the 141 countries that voted in favour of the UN General Assembly resolution condemning the aggression against Ukraine on 2 March 2022 and (ii) the 40 countries that voted against it or abstained.[42] In these scenarios, countries in the former group are assumed to place value on sourcing production inputs from other countries that condemned the invasion of Ukraine.

Friendshoring

Globalisation has resulted in an integrated world, with many countries having highly accommodative trade policies. Recently, however, restrictive trade policies (such as high tariffs, strict import quotas and the need for administrative approval for exports of specific technologies), sanctions and trade bans have all been used extensively to limit the risk of disruptions to supply or to punish unfriendly countries. The friendshoring scenario that is modelled here assumes a 20 per cent increase in the cost of international trade between the two blocs of economies based on the UN resolution on the invasion of Ukraine. That increase in trade costs can be modelled as either (i) an increase in tariffs,

CHART 3.2.1. Friendshoring results in real GDP losses for everyone



SOURCE: OECD's ICIO Tables, WITS website and authors' calculations.
NOTE: Based on a modelling exercise. The countries that condemned the invasion of Ukraine are those that voted in favour of the UN resolution on 2 March 2022. To make the computations feasible in this model, the OECD's ICIO Tables data have been aggregated to 39 countries or 'country groups' and 16 industries. The groupings reflect the construction of this model and do not reflect the status of any country or its sovereignty.

[40] The model used here is based on Baqaee and Farhi (2019) and Çakmaklı et al. (2021). See Javorcik et al. (2022b).
[41] These are taken from Caliendo and Parro (2015).
[42] See UN General Assembly Resolution ES-11/1: https://digitallibrary.un.org/record/3959039 (last accessed 21 September 2022).

which are paid by importers and generate revenues for the governments that apply them, or (ii) iceberg trade costs – costs that are assumed to be proportionate to the value of traded goods and do not feed into government revenues.

The rise in trade costs results in welfare losses. In the EBRD regions, the largest declines in GDP are experienced by Morocco (between 2 and 4.6 per cent of GDP, depending on whether some of the losses are offset by an increase in tariff revenues), Kazakhstan (between 2.3 and 2.8 per cent), Bulgaria (between 1.2 and 2.4 per cent) and Lithuania (between 1.3 and 2.3 per cent; see Chart 3.2.1). Kazakhstan and Morocco are both in the bloc of countries that declined to condemn the invasion of Ukraine; however, the common denominator among the economies that are the biggest losers is that they have strong trade links with economies in *both* blocs.

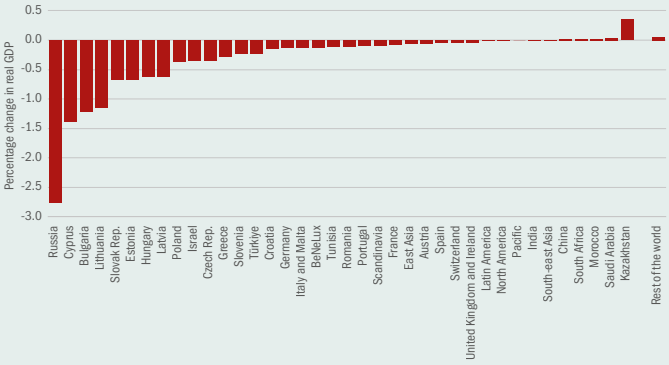
Sanctions imposed on Russia owing to its invasion of Ukraine

Following the invasion of Ukraine, many countries imposed trade sanctions on Russia. While these sanctions often concern specific products or industries, their economic impact can be modelled as a 20 per cent increase in the overall cost of trade between Russia and the bloc of economies that condemned the invasion of Ukraine. In this scenario, an increase in the cost of trade leads to a decline of nearly 3 per cent in Russia's GDP on the basis of constant prices (see Chart 3.2.2).[43] Countries where production is more reliant on imports from Russia also experience sizeable losses (with declines of more than 1 per cent of GDP estimated for Bulgaria and Lithuania, for instance). Kazakhstan, on the other hand, is poised to make a small gain (0.4 per cent of GDP) as it scales up exports of goods that were previously exported by Russia.[44]

Severe Covid-19 lockdowns in China

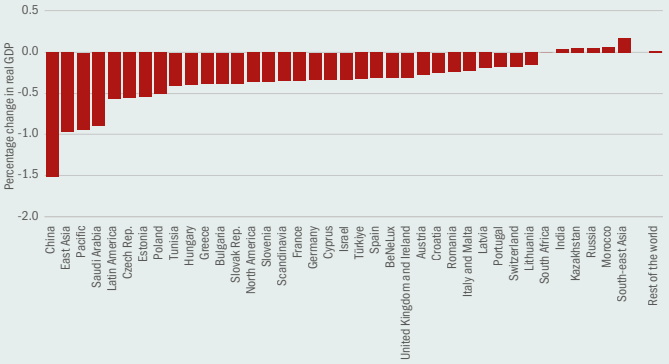
The last scenario concerns the strict zero-Covid policy pursued by China, which is resulting in frequent lockdowns and stopping firms from producing. The model approximates an extreme version of these disruptions by means of a 20 per cent increase in iceberg trade costs between China and the bloc of countries that voted in favour of the UN resolution condemning the invasion of Ukraine. In this scenario, economies with heavy reliance on Chinese inputs are more likely to be negatively affected (with the Czech Republic, for example, losing an estimated 0.6 per cent of real GDP; see Chart 3.2.3). Economies that have the potential to replace China as suppliers of the necessary inputs enjoy small gains (with Kazakhstan and Morocco, for example, both gaining close to 0.05 per cent of real GDP). Most economies in the EBRD regions and the EU experience declines in real GDP.

CHART 3.2.2. Real GDP losses following an increase in the cost of trade between Russia and countries that condemned the invasion of Ukraine are highest in Russia and countries where production is reliant on imports from Russia



SOURCE: OECD's ICIO Tables, WITS website and authors' calculations.
NOTE: Based on a modelling exercise. The countries that condemned the invasion of Ukraine are those that voted in favour of the UN resolution on 2 March 2022. To make the computations feasible in this model, the OECD's ICIO Tables data have been aggregated to 39 countries or 'country groups' and 16 industries. The groupings reflect the construction of this model and do not reflect the status of any country or its sovereignty.

CHART 3.2.3. Real GDP losses following an increase in the cost of trade between China and countries that condemned the invasion of Ukraine are highest in China and economies with heavy reliance on Chinese inputs



SOURCE: OECD's ICIO Tables, WITS website and authors' calculations.
NOTE: Based on a modelling exercise. The countries that condemned the invasion of Ukraine are those that voted in favour of the UN resolution on 2 March 2022. To make the computations feasible in this model, the OECD's ICIO Tables data have been aggregated to 39 countries or 'country groups' and 16 industries. The groupings reflect the construction of this model and do not reflect the status of any country or its sovereignty.

[43] Current estimates by forecasters point to a larger contraction in Russia in 2022 (see Guriev, 2022). The 20 per cent increase in the cost of trade that is applied here is just a proxy, as this modelling cannot fully capture the complexity of sanctions in the real world. Ultimately, the primary focus of our analysis is the impact that sanctions have on EBRD economies, rather than their impact on the Russian economy.

[44] These estimates are broadly in line with the findings presented by Baqaee et al. (2022), who used a similar model to estimate the impact that stopping energy imports from Russia would have on the EU's 27 member states. In their model, Lithuania, Bulgaria and the Slovak Republic experienced the largest declines in gross national income.

BOX 3.3.

A survey of firms that both export and import

Between 2018 and 2020, the EBRD, the EIB and the World Bank conducted the most recent round of Enterprise Surveys in the EBRD regions – face-to-face interviews with firms' senior executives. The majority of those interviews were completed before the onset of the Covid-19 pandemic and the subsequent disruptions to global supply chains.

A follow-up telephone survey was then conducted between May and July 2022, targeting 1,805 firms in 15 countries that were both direct exporters and directly imported inputs or supplies of foreign origin. A total of 815 firms participated in that follow-up survey, while the other 990 could not be reached, declined to take part or had gone out of business in the meantime. The 815 respondent firms were not statistically different from the other 990 in terms of the number of employees, the age of the firm, foreign ownership, listed status and sole proprietorship.

In addition to questions about supply chain disruption, respondents were also asked about the CBAM, their firm's financial situation, issues relating to the recruitment of workers and their views regarding refugees.

BOX 3.4.

Increased demand for supply chain managers and green skills

This box looks at the evolution of demand for supply chain managers in the United Kingdom using data on online vacancies that were collected by Burning Glass Technologies by means of web crawling.[45] The dataset includes information on more than 67 million job adverts over the period 2012-21, broken down by occupation. Although Burning Glass data do not cover all vacancies, they offer good overall coverage of vacancies in the United States of America and the United Kingdom, particularly for more highly skilled professional occupations.[46]

While the number of vacancies for supply chain managers dropped sharply when Covid-19 lockdowns were at their most severe in the second quarter of 2020, demand quickly recovered, with vacancies reaching an all-time high in the middle of 2021, exceeding the average for the period 2012-19 by around 65 per cent (see Chart 3.4.1). This compares with a 44 per cent increase in vacancies for managers in general.

Those data on vacancies contain detailed information on the skill requirements that are associated with each job, with the average job advert listing six distinct skills. In the case of supply chain managers, for instance, the most commonly required skills include procurement, communication, planning, logistics, budgeting, and working with key performance indicators. In addition, a not insignificant percentage of adverts for supply chain manager positions list at least one skill relating to the green economy, such as environmental management (and the related ISO 14001 standards) or skills associated with carbon reduction, climate change, biomass or environmental policy.

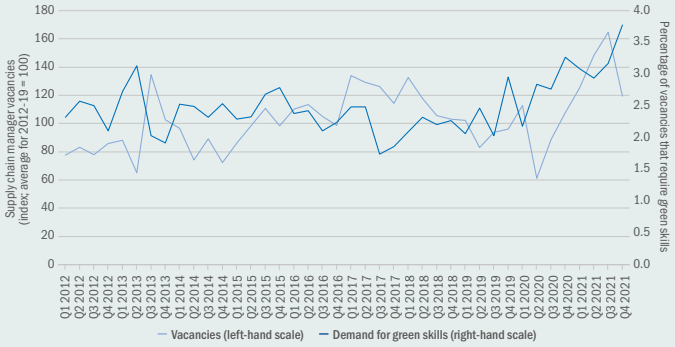
Prior to mid-2020, the percentage of UK supply chain manager adverts that required green skills was fairly stable at around 2.5 per cent. Since then, it has increased considerably,

[45] See Chupilkin et al. (2022).
[46] See, for instance, Javorcik et al. (2019).

approaching 4 per cent in the second half of 2021 (see Chart 3.4.1). This increase has largely been driven by greater demand for experience of carbon reduction, climate change, environmental management and work with environmental agencies.

By contrast, in the 12 EBRD economies for which comparable data are available for the period 2019-21 (Bulgaria, Egypt, Greece, Hungary, Latvia, Lithuania, Morocco, Romania, Poland, the Slovak Republic, Tunisia and Ukraine), supply chain managers are not typically required to have green skills. For management positions in general, 2.2 per cent of vacancies in those 12 EBRD economies require green skills, close to the 2.6 per cent observed in the United Kingdom.

CHART 3.4.1. Demand for supply chain managers has increased markedly in the United Kingdom since late 2020, with greater emphasis on green skills



SOURCE: Burning Glass Technologies and authors' calculations.
NOTE: Supply chain managers correspond to Standard Occupational Classification categories 1133, 1161 and 1162 mapped to category 1324 of the European Skills, Competences, Qualifications and Occupations system.

References

R. Baldwin and R. Freeman (2021)
"Risks and global supply chains: What we know and what we need to know", NBER Working Paper No. 29444.

D. Baqaee and E. Farhi (2019)
"Networks, Barriers, and Trade", NBER Working Paper No. 26108.

D. Baqaee, B. Moll, C. Landais and P. Martin (2022)
"The economic consequences of a stop of energy inputs from Russia", French Council of Economic Advisors, No. 084-2022.

O. Cadot, C. Carrère and V. Strauss-Kahn (2011)
"Export diversification: What's behind the hump?", *The Review of Economics and Statistics*, Vol. 93, No. 2, pp. 590-605.

C. Çakmaklı, S. Demiralp, Ş. Kalemli-Özcan, S. Yeşiltaş and M.A. Yıldırım (2021)
"The economic case for global vaccinations: an epidemiological model with international production networks", NBER Working Paper No. 28395.

L. Caliendo and F. Parro (2015)
"Estimates of the Trade and Welfare Effects of NAFTA", *The Review of Economic Studies*, Vol. 82, No. 1, pp. 1-44.

M. Chupilkin, B. Javorcik and A. Plekhanov (2022)
"Green skills: Evidence from the UK", EBRD working paper, forthcoming.

R. De Haas, R. Martin, M. Mûuls and H. Schweiger (2022)
"Managerial and financial barriers during the green transition", CEPR Discussion Paper No. DP15886.

EBRD (2014)
Transition Report 2014: Innovation in Transition, London.

P. Eppinger, G.J. Felbermayr, O. Krebs and B. Kukharskyy (2021)
"Decoupling global value chains", CESifo Working Paper No. 9079.

European Commission (2021)
"Proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism", COM(2021) 564 final, 2021/0214 (COD). Available at: https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf (last accessed on 17 August 2022).

European Environment Agency (2012)
Environmental indicator report 2012: Ecosystem resilience and resource efficiency in a green economy in Europe. Available at: https://www.eea.europa.eu/publications/environmental-indicator-report-2012 (last accessed on 14 September 2022).

European Parliament (2022)
"Amendments adopted by the European Parliament on 22 June 2022 on the proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism", COM(2021)0564 – C9-0328/2021 – 2021/0214(COD), P9_TA(2022)0248. Available at: www.europarl.europa.eu/doceo/document/TA-9-2022-0248_EN.pdf (last accessed on 15 September 2022).

S. Guriev (2022)
"The implications of sanctions on the Russian economy and financial system", presentation at the PIIE event entitled "How Russia's war in Ukraine affects the financial sector" on 23 March. Available at: www.piie.com/sites/default/files/documents/guriev-2022-03-23ppt.pdf (last accessed on 31 August 2022).

M. Haddad, J. Lim, L. Munro, C. Saborowski and B. Shepherd (2011)
"Volatility, export diversification, and policy", in M. Haddad and B. Shepherd (eds.), *Managing Openness*, Chapter 11, World Bank.

A. Hasanbeigi, M. Arens, J. Cardenas, L. Price and R. Triolo (2016)
"Comparison of carbon dioxide emissions intensity of steel production in China, Germany, Mexico, and the United States", *Resources, Conservation & Recycling*, Vol. 113, pp. 127-139.

T.A. Hassan, S. Hollander, L. Van Lent, M. Schwedeler and A. Tahoun (2020a)
"Firm-level exposure to epidemic diseases: COVID-19, SARS, and H1N1", NBER Working Paper No. 26971.

T.A. Hassan, S. Hollander, L. Van Lent and A. Tahoun (2020b)
"The global impact of Brexit uncertainty", NBER Working Paper No. 26609.

T.A. Hassan, J. Schreger, M. Schwedeler and A. Tahoun (2021)
"Sources and transmission of country risk", NBER Working Paper No. 29526.

R. Hausmann, J. Hwang and D. Rodrik (2007)
"What you export matters", *Journal of Economic Growth*, Vol. 12, No. 1, pp. 1-25.

K. Head, T. Mayer and J. Ries (2010)
"The erosion of colonial trade linkages after independence", *Journal of International Economics*, Vol. 81, No. 1, pp. 1-14.

H. Inoue and Y. Todo (2017)
"Propagation of negative shocks through firm networks: Evidence from simulation on comprehensive supply chain data", RIETI Discussion Paper No. 17-E-044.

IPCC (2022)
"Climate Change 2022: Impacts, Adaptation and Vulnerability", contribution of Working Group II to the *Sixth Assessment Report of the Intergovernmental Panel on Climate Change*.

B. Javorcik (2020)
"Global supply chains will not be the same in the post-COVID-19 world", in R. Baldwin and S. Evenett (eds.), *COVID-19 and Trade Policy, Why Turning Inward Won't Work*, Chapter 8, VoxEU.org.

B. Javorcik, L. Kitzmüller and H. Schweiger (2022a)
"The Big Squeeze: Evidence on Global Supply Chain Disruptions from Earnings Calls Text Data", EBRD working paper, forthcoming.

B. Javorcik, L. Kitzmüller, H. Schweiger and M.A. Yıldırım (2022b)
"Economic costs of friendshoring", EBRD working paper, forthcoming.

B. Javorcik, K. Stapleton, B. Kett and L. O'Kane (2019)
"Unravelling Trade Integration: Local Labour Market Effects of the Brexit Vote", CEPR Discussion Paper No. DP14222.

L. Leruth, A. Mazarei, P. Régibeau and L. Renneboog (2022)
"Green energy depends on critical minerals. Who controls the supply chains?", Peterson Institute For International Economics Working Paper No. 22-12.

T. Loughran and B. McDonald (2011)
"When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks", *The Journal of Finance*, Vol. 66, No. 1, pp. 35-65.

S. Lund, J. Manyika, J. Woetzel, E. Barriball, M. Krishnan, K. Alicke M. Birshan, K. George, S. Smit, D. Swan and K. Hutzler (2020)
"Risk, resilience, and rebalancing in global value chains", McKinsey Global Institute.

P. Matous and Y. Todo (2017)
"Analyzing the coevolution of interorganizational networks and organizational performance: Automakers' production networks in Japan", *Applied Network Science*, Vol. 2, No. 1, pp. 1-24.

S. Miroudot (2020)
"Reshaping the policy debate on the implications of COVID-19 for global supply chains", *Journal of International Business Policy*, Vol. 3, No. 4, pp. 430-442.

A. Nicita, V. Ognivtsev and M. Shirotori (2013)
"Global supply chains: Trade and economic policies for developing countries", Policy Issues in International Trade and Commodities, Study Series No. 55, UNCTAD.

Oceana Europe (2010)
"Climate change: Shipping pollution". Available at: https://europe.oceana.org/en/shipping-pollution-1 (last accessed on 16 August 2022).

OECD (2020)
COVID-19 and Global Value Chains: Policy Options to Build More Resilient Production Networks, Paris.

OECD (2021)
Global value chains: Efficiency and risks in the context of COVID-19, Paris.

R.G. Rajan (2022)
"Just Say No to 'Friend-Shoring'", Project Syndicate, 3 June. Available at: www.project-syndicate.org/commentary/friend-shoring-higher-costs-and-more-conflict-without-resilience-by-raghuram-rajan-2022-06?barrier=accesspaylog (last accessed on 17 August 2022).

Z. Sautner, L. Van Lent, G. Vilkov and R. Zhang (2021)
"Firm-level climate change exposure", ECGI Finance Working Paper No. 686/2020.

H. Schweiger and A. Stepanov (2022)
"When good managers face bad incentives: Management quality and fuel intensity in the presence of price distortions", *Energy Policy*, Vol. 164, Article 112827.

Y. Sheffi (2015)
"The Tears in the Deep Tiers", *European Business Review*, November-December. Available at: https://sheffi.mit.edu/sites/sheffi.mit.edu/files/2017-06/TEBR%20NovDec15-The%20Tears%20in%20%20the%20Deep%20Tiers_0.pdf (last accessed on 17 August 2022).

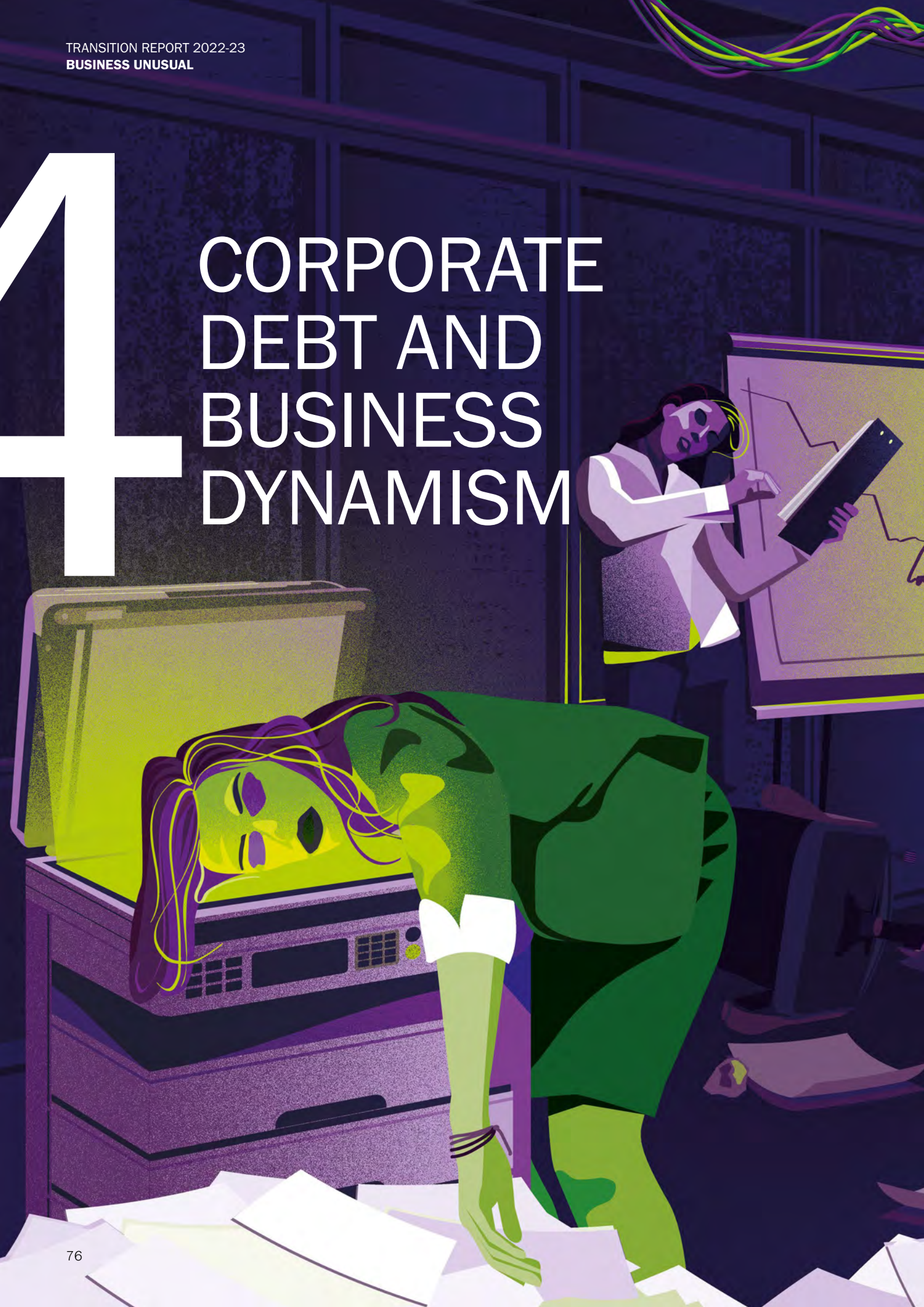
D. Simchi-Levi and E. Simchi-Levi (2020)
"We need a stress test for critical supply chains", *Harvard Business Review*, 28 April. Available at: https://hbr.org/2020/04/we-need-a-stress-test-for-critical-supply-chains (last accessed on 17 August 2022).

UNCTAD (2021)
"A European Union Carbon Border Adjustment Mechanism: Implications for developing countries", Geneva. Available at: https://unctad.org/webflyer/european-union-carbon-border-adjustment-mechanism-implications-developing-countries (last accessed on 14 September 2022).

World Bank (2020)
World Development Report 2020: Trading for Development in the Age of Global Value Chains, Washington, DC.

World Economic Forum (2021)
The resiliency compass: Navigating global value chain disruption in an age of uncertainty, white paper produced in collaboration with Kearney, Geneva.

4 CORPORATE DEBT AND BUSINESS DYNAMISM



After years of rising indebtedness, financially weak firms are constraining business dynamism across parts of the EBRD regions. Zombie lending – the evergreening of cheap loans to unviable firms – is especially prevalent when banks are undercapitalised or state-owned and when insolvency frameworks are weak. Zombie firms then create negative spillovers for healthy companies: strong firms see weaker growth in investment, revenue and employment when they operate in sectors with more zombie firms. Such negative spillovers are particularly pronounced along the value chain. On the upside, the large-scale government support provided during the Covid-19 pandemic is unlikely to have exacerbated the zombification of firms in the EBRD regions.

Introduction

The Covid-19 pandemic has been a major shock to the global economy, triggering an extraordinary fall in economic activity and high levels of uncertainty for businesses. Policymakers have responded by taking far-reaching steps to help businesses navigate the pandemic successfully. Thanks to the scale of those measures and their swift implementation, corporate defaults currently stand at record lows – a situation that is uncharacteristic of recessions in general. However, there is a significant risk that this will result in the proliferation of "zombie firms" – indebted companies that are in distress but avoid default thanks to their continued access to cheap funding and forbearance from their lenders.[1]

This chapter begins by documenting the existence of zombie lending across the EBRD regions just before the Covid-19 pandemic, doing so against the background of rising debt levels over the last decade. It then takes a detailed look at what happened at the onset of the pandemic. The vast majority of businesses across the EBRD regions suffered substantial

[1] See Acharya et al. (2022).

negative cash flow shocks. Day-to-day banking operations were disrupted, too, making it difficult for lenders to assess the viability of businesses. Despite these severe shocks to both the real economy and the financial sector, a wave of insolvencies and non-performing loans (NPLs) has not yet materialised. This reflects the large-scale policy support provided by governments, which will need to be withdrawn now that Covid-19 is beginning to move towards endemic status.

Many worry that policy measures aimed at supporting businesses and the economy during the pandemic may mainly have supported zombie firms. This, in turn, has raised concerns about accelerated zombification, which has the potential to constrain the post-pandemic recovery. The evidence in this chapter suggests that the feared zombification has not taken place – or at least, not yet.

This chapter then looks at why zombie lending has proven to be so persistent over the last decade and how weak firms – and zombie firms in particular – affect economic activity. Two main findings emerge. First, healthy businesses that operate in sectors and countries with relatively high percentages of zombie firms experience subdued investment rates, revenue growth and employment creation. Second, those negative spillovers are more pronounced along the value chain, adding to the global supply chain disruption that was discussed in the previous chapter. The chapter ends with a discussion of the options available to policymakers who want to ensure that the zombification that was feared at the start of the pandemic does not materialise.

THE AVERAGE DEBT-TO GDP RATIO ACROSS THE EBRD REGIONS, WEIGHTED BY COUNTRIES' INCOME LEVELS, IS ESTIMATED TO HAVE EXCEEDED

150%

FOR THE FIRST TIME IN 2021

Firms' vulnerability in the run-up to the Covid-19 pandemic

When the Covid-19 pandemic pushed the global economy into a sharp slowdown in 2020, it exposed a key underlying financial vulnerability: record levels of debt. At more than 322 per cent of GDP, global debt in 2019 was 40 percentage points (or US$ 87 trillion) higher than it had been in 2008 at the onset of the global financial crisis.[2] The rise in the debt of non-financial firms had been especially pronounced in emerging markets, where it had increased from 56 per cent of GDP in 2008 to 96 per cent of GDP in 2018 (while the equivalent ratio had remained stable in developed economies).[3]

The main policy response to the economic fallout from the global financial crisis was a long period of exceptionally loose monetary policy around the world, resulting in extremely low interest rates and ample provision of liquidity. The growth in non-financial corporate debt in emerging markets can largely be attributed to that accommodative monetary policy, which was spearheaded by developed economies.[4] When credit conditions are highly accommodative, productive firms are not the only ones that are likely to benefit from lower rates; the same is also true of zombie firms – companies that are unable to make future debt repayments but are artificially kept alive as a result of forbearance by lenders in the form of repayment holidays (temporary deferral of payments), negotiated reductions in outstanding amounts, temporary interest-only loans and even new lending. Research suggests that declines in interest rates following economic downturns have, since the 1980s, reduced financial pressure on distressed firms to restructure or exit the market.[5]

In emerging Europe and the rest of the EBRD regions, the immediate aftermath of the global financial crisis was characterised by rapid deleveraging on the part of foreign banks and the eurozone sovereign debt crisis. That deleveraging led to a drying-up of cross-border funding, as well as a credit crunch – especially for small businesses. As a result of a combination of economic contractions and unfavourable exchange rate developments, the total domestic and external debt of households, firms and governments rose higher and higher.[6]

At an aggregate level, debt-to-GDP ratios in the EBRD regions reached a historical high in 2016, with government debt and non-financial corporate debt (defined as the stock of all loans and debt securities issued by non-financial corporations) making up the bulk of the debt stock. Indebtedness then started to decline somewhat in the second half of the decade, with governments and firms taking advantage of favourable economic and financial conditions around the world and beginning to deleverage.

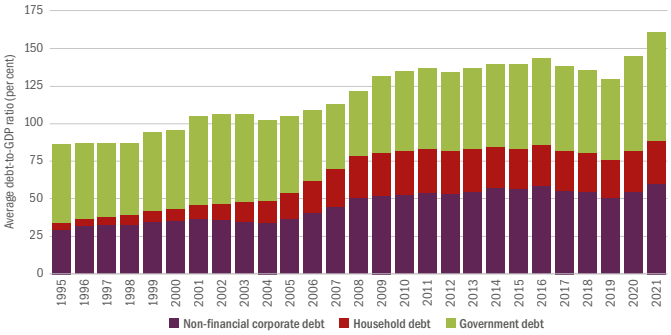
[2] See IIF (2020).
[3] See Abraham et al. (2020).
[4] See Abraham et al. (2020).
[5] See Banerjee and Hofmann (2018).
[6] See EBRD (2015).

However, the Covid-19 pandemic has reversed that trend (see Chart 4.1). Driven by government borrowing, debt levels have jumped back up again, exceeding the levels observed around 2016. The average debt-to-GDP ratio in the EBRD regions, weighted by GDP, is estimated to have exceeded 150 per cent for the first time in 2021.

What does this record level of debt mean for businesses across the EBRD regions? On the one hand, there are numerous firms that continue to have difficulty accessing bank loans. In the most recent round of Enterprise Surveys, which was conducted by the EBRD, the EIB and the World Bank in 2018 and 2019 for a representative sample of firms with at least five employees, 22 per cent of all respondent firms across the EBRD regions reported that access to finance was a moderate obstacle to doing business, while a further 19 per cent said that it was a major or very severe obstacle.

On the other hand, there are also firms that have become overleveraged or gained access to credit that is too "easy" or "cheap" – zombie firms. The proliferation of such firms across the EBRD regions remains an understudied aspect of the global rise in corporate debt. It is important to note that credit-constrained firms and zombie firms can co-exist at the same time. Since bank lending is often constrained by the availability of bank capital, the more banks roll over debt to zombie firms, the more they may need to starve healthy firms of credit.[7]

CHART 4.1. Debt levels in the EBRD regions have reached historical highs



SOURCE: IMF Global Debt Database, *IMF World Economic Outlook 2021* and authors' calculations.
NOTE: Average debt-to-GDP ratios are weighted by GDP at market exchange rates. Non-financial corporate debt is the stock of all loans and debt securities issued by non-financial corporations. For Armenia, Azerbaijan, Jordan, Lebanon, Morocco, Tunisia, Türkiye and the West Bank and Gaza, government debt excludes central government debt. Estimates of private debt for 2021 assume that half of an economy's current account deficit was financed by private debt, and that non-financial corporate debt accounted for the same percentage of total private debt as in 2020.

Vulnerable and zombie firms

In a well-functioning market economy, banks lend to viable firms but reject loan applications from firms that are not expected to be able to make repayments. Firms which accumulate too much debt cannot service that debt using future revenues and will default at some point when they run out of cash flow. Well-capitalised banks which realise that a firm has become overindebted can either try to restructure the company's debt burden (so that it matches the firm's capacity to generate revenue) or liquidate collateralised assets when the firm stops making repayments. Depending on the value of those assets, the bank may realise a loss. In practice, however, banks – especially those with a thin capital buffer – may be tempted to roll over (or "evergreen") loans to overindebted firms or offer repayment holidays, so as to avoid writing off bad debts and preserve the limited capital they have. Thus, underperforming and vulnerable firms continue to have access to – often cheap – credit.

This chapter distinguishes between healthy businesses and financially vulnerable firms (some of which are categorised as zombie firms). Financially vulnerable firms are defined as those that, in a given year, have both (i) a leverage ratio (debt over assets) that is above the median for the country and sector where they operate and (ii) an average interest coverage ratio (earnings before interest and taxes (EBIT) over interest expenses) that is below the median for the country and sector where they operate over the last two years.[8] This definition captures the firms that are at the greatest risk of being unable to meet their obligations to creditors when faced with an adverse economic shock, while abstracting from economic shocks or technological shifts that affect most firms in an industry (such as a shift from hard copies to digital publications in the case of book sales). If a company does not satisfy both conditions, it is defined as a financially healthy firm.

A financially vulnerable firm that, in addition, has access to subsidised credit is classified as a zombie firm. A firm is assumed to have access to subsidised credit if its average interest expenses (relative to its stock of debt) are below those of the most creditworthy firms in the economy, which are proxied by firms with an interest coverage ratio in excess of 9.5 (the median interest coverage ratio for publicly listed US firms that are rated AA by Standard & Poor's).[9]

[7] See Berglöf and Roland (1998).

[8] This definition is based on Acharya et al. (2020).
[9] This methodology is based on Acharya et al. (2019).

THE INTEREST RATE PAID BY THE TYPICAL FIRM IN THE EBRD REGIONS DROPPED FROM NEARLY **10%** IN 2009 TO LESS THAN **4%** IN 2020

Access to cheap credit is what sets zombie firms apart from other financially vulnerable firms, as implicit subsidisation lies at the core of the credit misallocation caused by zombie lending. It is that subsidisation that weakens the relationship between the firm's level of risk and its borrowing costs.[10]

In order to classify firms as healthy, financially vulnerable or zombies, this chapter uses a cross-country sample of firms from Bureau van Dijk's Orbis database spanning the period 2009-20. That sample covers 12 countries in the EBRD regions for which Orbis provides reliable information on leverage and interest expenses over the last decade (Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Latvia, Poland, Romania, Serbia, the Slovak Republic, Slovenia and Ukraine). Business activity in those EBRD countries is benchmarked against four comparators: Austria, France, Germany and Portugal. The average interest rate paid by a firm is inferred from the ratio of its interest expenses to the sum of its outstanding loans, credit and bonds in a given year.

First of all, the data show that firms in the EBRD economies in question have obtained loans at ever cheaper rates over the last decade or so, with the median interest rate dropping from nearly 10 per cent in 2009 to less than 4 per cent in 2020. However, whereas financially vulnerable firms often obtain credit at higher rates than healthy firms, zombie firms – by definition – obtain credit at much lower rates than both of those other groups (see Chart 4.2). It is noticeable that firms maintained their leverage and continued to access debt at low interest rates in 2020 – the first year of the Covid-19 pandemic. However, their revenue flows declined considerably. The median ratio of EBIT to interest expenses in the EBRD sample dropped from 3.2 in 2019 to 2.2 in 2020.

Over the last decade, around 20 to 25 per cent of the firms in the EBRD sample could be classified as financially vulnerable (see Chart 4.3). Just over a quarter of those vulnerable firms – or around 5 per cent of all firms by total assets – could be classified as zombie firms. While the percentage of vulnerable firms declined between 2011 and 2016, it has crept back up again since 2018. In contrast, the percentage of zombie firms has been relatively stable throughout the last decade.

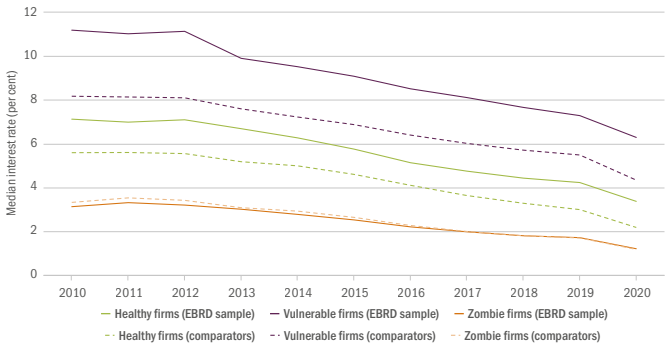
The prevalence of zombie firms varies substantially across sectors and countries. In 2019, around one in three country-sector pairs had no zombie firms, while a few had as much as 20 per cent of their total assets in the hands of zombie companies. Zombie firms were relatively prevalent in the extraction of oil and gas, coal mining and water supply, suggesting that banks may tolerate lending to zombie firms in certain sectors on account of their strategic importance.

Zombie companies are also more common among state-owned firms. In the EBRD regions, large state-owned enterprises (SOEs) often manage to access more funding from state banks.[11] At the same time, standard insolvency regimes sometimes do not fully apply to state-owned banks and enterprises. For instance, SOEs in Ukraine are exempt from debt enforcement, while some SOEs (particularly those operating in the energy, defence and transport sectors) are subject to sector-specific moratoria on insolvency. On the basis of the Orbis dataset used for this chapter, 13 per cent of SOEs in the EBRD sample and comparator economies can be classified as zombie firms, compared with 9 per cent for privately owned firms. In many economies around the world, state-owned banks have a tendency to allocate credit to large favoured SOEs (often referred to as "national champions"), although not necessarily at subsidised interest rates.[12]

[10] See Acharya et al. (2022).

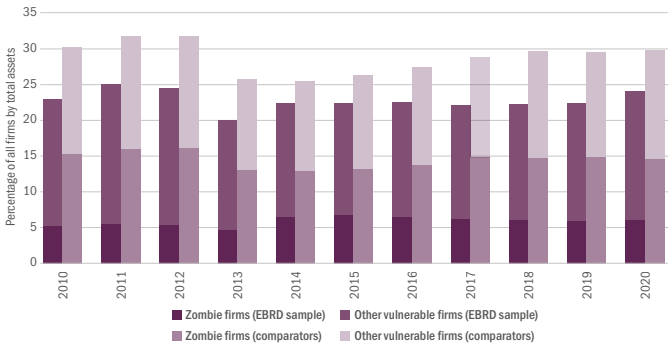
[11] See EBRD (2020).
[12] See De Haas et al. (2022).

CHART 4.2. Zombie firms access loans at cheaper rates than other companies



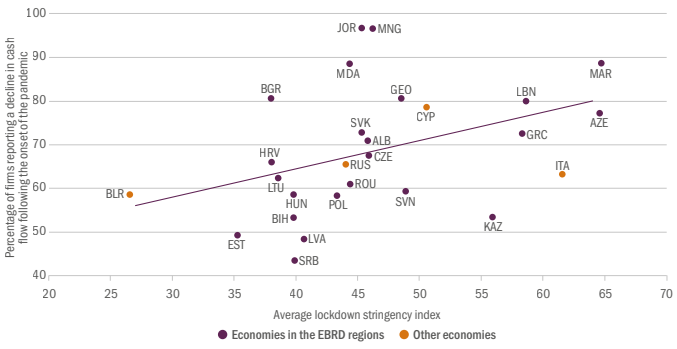
SOURCE: Bureau van Dijk's Orbis database and authors' calculations.
NOTE: Median interest rates are weighted by total assets.

CHART 4.3. Nearly a quarter of the firms in the EBRD sample are financially vulnerable



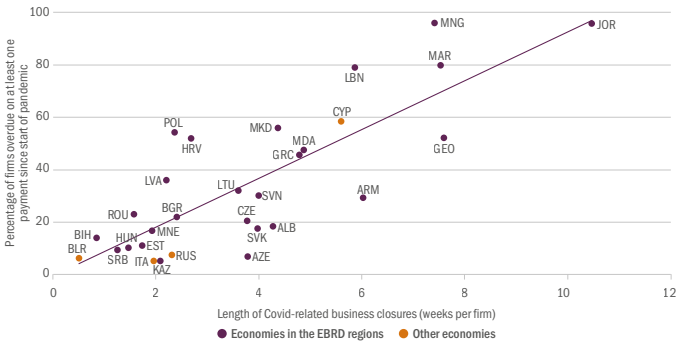
SOURCE: Bureau van Dijk's Orbis database and authors' calculations.
NOTE: The EBRD sample comprises firms in Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Hungary, Latvia, Poland, Romania, Serbia, the Slovak Republic, Slovenia and Ukraine. The comparators are Austria, France, Germany and Portugal.

CHART 4.4. Lockdowns hit firms' cash flows hard



SOURCE: Enterprise Surveys, Oxford University Covid-19 Government Response Tracker and authors' calculations.
NOTE: The average lockdown stringency index is based on policies that primarily restrict people's movements and public information campaigns.

CHART 4.5. There were more overdue payments in economies with longer business closures



SOURCE: Enterprise Surveys and authors' calculations.

Firms and banks during the pandemic

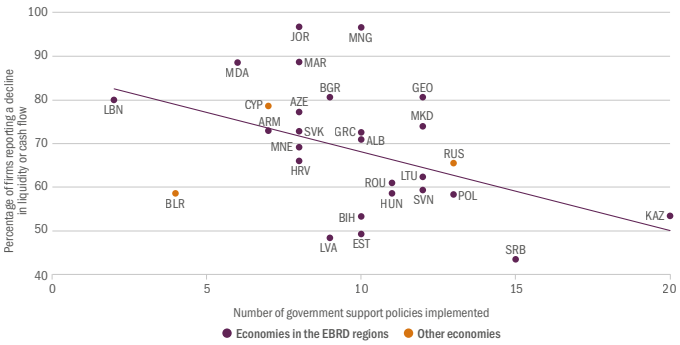
The first part of this chapter set the stage by describing firms' indebtedness and vulnerabilities in the run-up to the Covid-19 pandemic. This next section discusses the ways in which the Covid-19 pandemic has affected this financial landscape and how governments have responded.

Covid-19 and firms across the EBRD regions: business unusual

The onset of the Covid-19 pandemic was an unprecedented liquidity shock for many businesses across the EBRD regions, particularly for firms that were directly affected by lockdowns. In late 2020 and 2021, the World Bank re-surveyed many of the firms that had participated in the most recent round of Enterprise Surveys to see how businesses had fared during the Covid-19 crisis. The percentage of firms that reported suffering a negative cash flow shock at the start of the pandemic ranged from 43 per cent in Serbia to 95 per cent in Jordan and Mongolia. Percentages were higher in countries with more stringent social distancing measures, as captured by Oxford University's Covid-19 Government Response Tracker (see Chart 4.4).

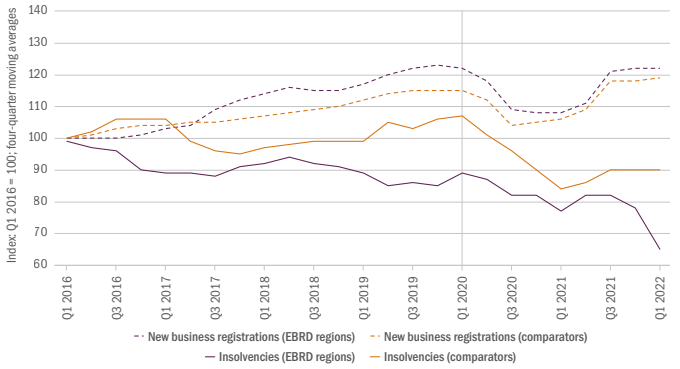
The most common response to that cash flow shock was to delay payments to suppliers, tax authorities and landlords, with the World Bank's follow-up Enterprise Surveys indicating that pandemic-related closures had caused a large percentage of businesses to become overdue on at least some of their payment obligations (see Chart 4.5).

CHART 4.6. Extensive government support helped to keep businesses afloat



SOURCE: Enterprise Surveys, EBRD Regional Economic Prospects (April 2020) and authors' calculations.

CHART 4.7. While new business registrations have recovered, firm exit rates remain subdued



SOURCE: Eurostat and authors' calculations.
NOTE: Data for the EBRD regions cover Bulgaria, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania and Slovenia. Data for comparators cover Belgium, Denmark, France, Germany, Iceland, Ireland, Italy, Luxembourg, Malta, The Netherlands, Norway, Portugal and Spain.

In addition to repayment holidays, governments and central banks put in place emergency measures to inject liquidity into the corporate sector, while providing extra support for individuals and households. In countries where larger numbers of these economic policies were introduced early in the pandemic, smaller percentages of businesses reported a decline in their cash flow in the World Bank's follow-up survey (see Chart 4.6).

Almost half of all economies in the EBRD regions introduced emergency insolvency legislation in response to Covid-19 (see Box 4.1). Many countries also suspended – at least temporarily – the obligation to file for insolvency, which gave affected companies more time to carry out fundamental restructuring (whether in or out of court) or delay their dissolution in the case of de facto insolvency. Thanks to the scale of countries' policy responses and the speed of their implementation, firms' default rates are now at all-time lows.

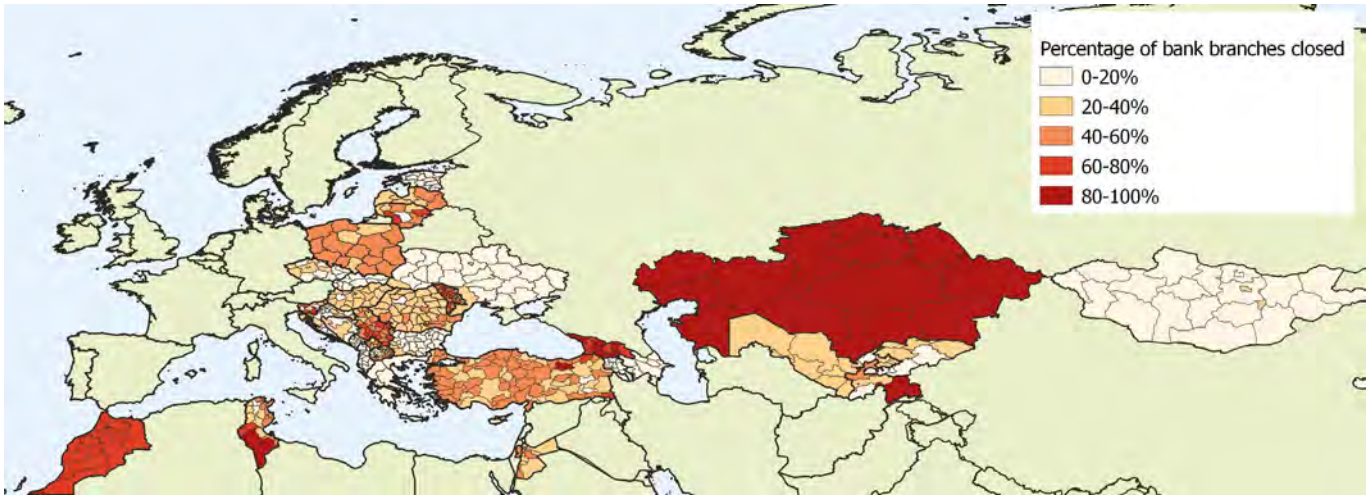
As a result, however, the creative destruction process that is typically observed in a recession, cleansing the economy of poorly performing businesses and helping to reallocate resources to better-performing ones, has not – or not yet – materialised this time around. In the EBRD regions, insolvencies and the registration of new businesses both saw sharp falls following the onset of the pandemic. While new business registrations have since returned to pre-pandemic levels, insolvencies seem to have fallen even further (see Chart 4.7). The risk here is that too much human and physical capital remains locked up in unviable – potentially zombie – firms, thereby contributing, for example, to staff shortages in more dynamic parts of those economies (among start-ups, for instance).

Banks' experience of the Covid-19 pandemic

This section looks at banks' experience of the pandemic across the EBRD regions using evidence from the third round of the EBRD's Banking Environment and Performance Survey (BEPS III) – a survey of bank CEOs in all EBRD economies, plus Belarus and Russia, that was conducted between December 2020 and March 2021. There were three main types of disruption to banks' activities at the start of the pandemic. First, banks were often unable to serve customers in person at branches. In May 2020, when lockdowns were at their most severe, many bank branches remained closed (see Chart 4.8). Around 33 per cent of all bank branches were closed for up to one month, another 30 per cent were closed for two months, 15 per cent were closed for three months, and a further 5 per cent were closed for four months or longer.

Second, banks were unable to monitor some of their clients, as on-site visits were not possible for an extended period of time. Around 80 per cent of the CEOs interviewed reported that their banks had been negatively affected by their loan officers' inability to monitor clients during the pandemic (see Chart 4.9).

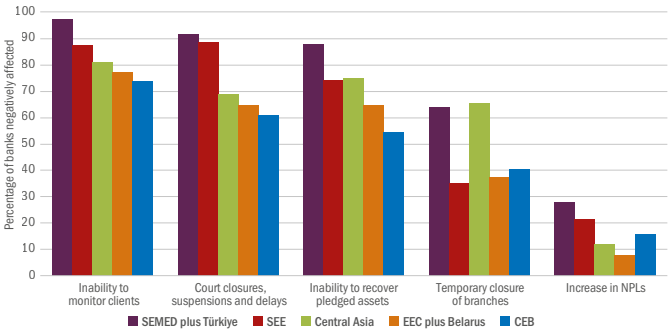
CHART 4.8. Bank branch closures were widespread in May 2020



SOURCE: BEPS III.

AROUND
80%
PERCENTAGE OF INTERVIEWED CEOs WHOSE BANKS HAD BEEN NEGATIVELY AFFECTED BECAUSE THEY COULD NOT PROPERLY MONITOR CLIENTS DURING THE PANDEMIC

CHART 4.9. Banks were impacted by the pandemic in multiple ways



SOURCE: BEPS III.

Third, banks were often unable to recover pledged assets, mostly owing to the temporary closure of courts during the pandemic and delays to court proceedings. Although there were 14 countries where courts did not close and 20 countries where remote hearings were an option (see Box 4.1), between 60 and 90 per cent of bank CEOs across the EBRD regions reported that their banks had been negatively affected by delays to court proceedings.

An important point in this regard is that banks were in a significantly healthier position at the onset of the pandemic than they had been at the start of the global financial crisis in 2008. The various policy interventions that had followed the financial crisis had helped to clean up banks' balance sheets, with the

result that banks were able to continue meeting firms' funding needs when the pandemic hit.[13] The fact that most banks had relatively strong capital positions at the onset of the pandemic might also have mitigated the risk of excessively lenient lending to zombie firms.

Relatively few CEOs were worried about increases in NPLs, reflecting the swift adoption of extensive policy support packages, as well as regulatory forbearance. Nearly half of all CEOs reported that their banks had voluntarily deferred loan repayments in anticipation of this measure being imposed by their governments, while around a quarter reported that payment deferrals had been imposed directly by the government (see Chart 4.1.1). According to a survey of law firms conducted by the EBRD's Legal Transition Programme, forbearance in respect of loans (capital and interest repayments) was applied in 26 of the 33 economies surveyed, with all surveyed economies having introduced emergency banking regulations. In some economies, however, compliance with banking regulations was either partly or completely voluntary.

Did the onset of the pandemic lead to an increase in zombification?

Businesses were able to raise substantial amounts of external financing in response to the pandemic, both by drawing down on lines of credit from banks and by accessing government support programmes. In the EBRD regions, access to bank credit jumped in the first half of 2020. Evidence from Meta's Future of Business Surveys corroborates findings from the World Bank's follow-up Enterprise Surveys in showing that, in many countries, job losses were – to some extent, at least – prevented by extensive government support programmes (see Box 4.3).

The scale of these support programmes has fuelled concerns about a possible increase in zombification – whereby weak firms are kept alive artificially using cheap credit, with uncertainty as to whether those loans will be repaid – as well as fraud. Such zombification could have negative consequences for post-pandemic recovery plans if labour and capital get tied up in struggling firms and moribund sectors. This section revisits those concerns using regression analysis based on firm-level data.

On average, firms that had been classified as vulnerable or zombies in 2019 (before the onset of the pandemic) were no more likely to increase their debt levels in 2020 than firms that had been classified as healthy. In other words, Covid-19 support programmes were not biased in favour of weak firms.

Regression analysis can also be used to link changes in firms' debt in 2020 broken down by type of firm (healthy, vulnerable or a zombie based on 2019 accounts) with the number of supportive policy measures that were implemented in the early stages of the Covid-19 crisis in the economies where firms operate. In this analysis, the total number of supportive government policies is based on programmes in place as at April 2020, as documented in the EBRD's Regional Economic Prospects. Such policies include payment holidays for loans, rent and utilities, wage subsidies, the deferral of tax payments and social security contributions, the provision of loan subsidies and credit guarantees, and the suspension of inspections and audits.

This analysis reveals that in countries that introduced a larger number of policy measures to help businesses, zombie firms saw their borrowing grow at a faster rate than healthy firms (see Chart 4.10), with zombies benefiting disproportionately from preferential loan schemes and accommodative credit conditions. Consequently, it may be too early to dismiss concerns about accommodative policies encouraging the proliferation of zombie firms.

ONE IN FOUR
BANKS IN THE EBRD REGIONS HAD A TIER 1 CAPITAL ADEQUACY RATIO OF LESS THAN 13.5 IN 2019

[13] See Ellul et al. (2020).

Why do banks continue lending to vulnerable firms and zombies?

What causes banks to provide subsidised credit to borrowers that they know to be financially vulnerable (a practice sometimes referred to as "extending and pretending")? Four different mechanisms may be at play here, with the main one centring around bank capital and limited liability.[14] In essence, banks with low levels of capital roll over credit to financially vulnerable firms in order to avoid writing off existing loans, as write-offs further erode their already thin capital base. In countries with weak banking supervision, regulatory forbearance towards banks can exacerbate this tendency.

Thus, undercapitalised banks can prolong economic slowdowns by continuing to lend to weaker firms that are on the verge of insolvency while withholding credit from healthy borrowers. The resulting economic weakness, in turn, prevents banks from rebuilding capital buffers. Prominent examples of such a vicious circle include Japan's "lost decade" in the 1990s, the eurozone in the immediate aftermath of the global financial crisis of 2008-09 and India in 2016-19.[15]

Second, the inefficient resolution of financial difficulties or insolvency also plays a role.[16] If restructuring struggling firms is costly and time-consuming or banks have limited influence over insolvency procedures, the restructuring route becomes less attractive for lenders relative to the evergreening of loans. In such an environment, a creditor may feel that the risk associated with evergreening is preferable to long, value-destroying court proceedings, which carry negative stigma for the debtor and may or may not lead to partial recovery of the creditor's assets.[17] Foreign-owned banks tend to be particularly sensitive to deficiencies in a local legal and institutional environment and may shy away from lending as creditor protection falls.[18]

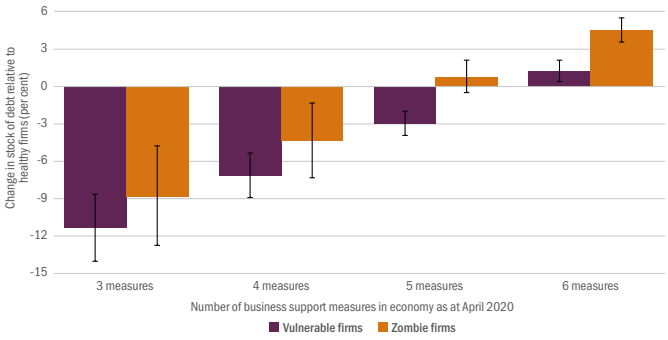
Third, the type of bank lending relationship also matters. Some banks establish long-term relationships with firms, whereby they gain detailed information about their clients over time and leverage that competitive advantage. On the basis of those insights, they may take a long-term view of a firm's prospects, opting to help it weather temporary financial shocks (although such bridge funding may come at a price, with higher interest rates being charged).[19] While relationship-based lenders will also need to cut funding to firms that are not viable in the long term, they may be in a better position to distinguish between temporary and chronic difficulties when compared with transaction-based lenders (which make decisions on the basis of algorithms, maintaining a short-term focus).

Fourth, banks – especially state-owned ones – may be under political pressure to limit firm closures and prevent job losses.[20]

In order to shed light on the relative importance of these various mechanisms in the EBRD regions, this section combines information on firms' finances taken from the Orbis database with detailed information on bank ownership, capital adequacy and lending techniques that was obtained as part of BEPS III (which covered 339 banks in economies across the EBRD regions). In particular, bank CEOs were asked how important relationship-based lending was to their business on a five-point scale ranging from "very unimportant" to "very important". Banks that replied "very important" are regarded as relationship-based lenders, as opposed to transaction-based lenders.[21]

The data show that undercapitalised banks (those with a tier 1 capital adequacy ratio of less than 13.5 in 2019) are just as common among relationship-based banks as they are among transaction-based banks, indicating that the approach to lending is largely independent of the level of capitalisation. However, the prevalence of undercapitalised banks does vary by ownership type. While only 18 per cent of majority foreign-owned banks in the sample were undercapitalised, that figure rises to 29 per cent for privately owned domestic banks and 32 per cent for banks with majority state ownership.

CHART 4.10. In countries with significant support for businesses in the early stages of the Covid-19 pandemic, lending to zombie firms expanded faster than lending to healthy firms



SOURCE: Bureau van Dijk's Orbis database, EBRD Regional Economic Prospects (April 2020) and authors' calculations.
NOTE: Bars denote coefficients that are derived from regressing changes in stocks of debt between 2019 and 2020 on interaction variables combining indicators for vulnerable firms and zombie firms with the number of business support measures at country level. 95 per cent confidence intervals are shown.

[14] See Caballero et al. (2008), Giannetti and Simonov (2013) and Acharya et al. (2022).
[15] See Caballero et al. (2008) for Japan, Acharya et al. (2019), Kalemli-Özcan et al. (2022) and Schivardi et al. (2022) for the eurozone, and Kulkarni et al. (2021) for India.
[16] See Altman et al. (2021) and Becker and Ivashina (2022).
[17] See Helmersson et al. (2021).
[18] See Qian and Strahan (2007).
[19] See Beck et al. (2018) and Hu and Varas (2021).
[20] See Kulkarni et al. (2021).
[21] See Beck et al. (2018).

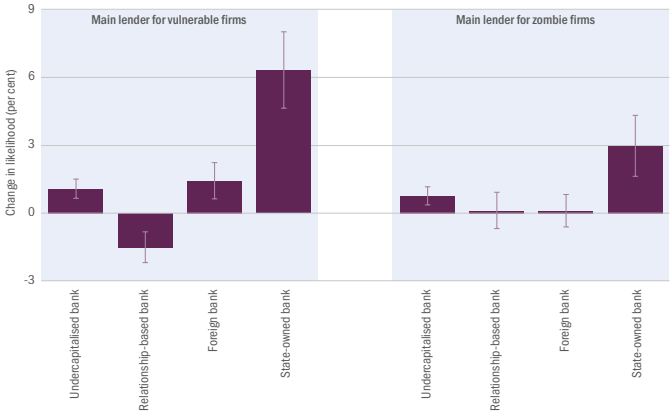
Which banks lend to vulnerable and zombie firms?

Since the Orbis dataset indicates the identity of the main lender to a firm (if any) as at 2020, it is possible to see whether certain types of bank are more inclined to lend to zombie firms. This analysis assumes that firms' main lenders did not change over the preceding decade, as earlier studies have found that lending relationships tend to be fairly stable.[22] A simple regression analysis relates the indicator variable for the type of firm (such as a zombie firm) to a bank of a certain type (state-owned or undercapitalised, for instance) being the main lender to the firm, with country fixed effects.[23] This analysis reveals two findings.

First, undercapitalised banks and state-owned banks are much more likely to be the main lenders to zombie firms (see Chart 4.11). A firm whose main lender is undercapitalised is 0.8 per cent more likely to be a zombie than a firm that borrows from a highly capitalised bank (while the average likelihood of being a zombie across all firms is around 5 per cent). Similarly, the likelihood of a firm being a zombie increases by 2.9 per cent when its main lender is state-owned, as opposed to privately owned.

Second, a relationship-based bank is less likely to be the main lender to a financially vulnerable firm, with higher likelihoods being observed for undercapitalised, foreign and state-owned banks. A firm's likelihood of being in this category is 1.3 per cent lower if its main lender is a relationship-based bank, but 6.3 per cent higher if its main lender is state-owned. Around 20 to 25 per cent of all firms in the EBRD sample are classified as financially vulnerable.

CHART 4.11. Undercapitalised and state-owned banks are more likely to lend to zombie firms



SOURCE: Bureau van Dijk's Orbis database and authors' calculations.
NOTE: Changes in the likelihood of a firm being vulnerable or a zombie have been calculated by regressing the type of firm on the type of main lender. 95 per cent confidence intervals are shown.

Bank lending when firms' financial health deteriorates

Different types of bank may be more or less inclined to continue lending to firms if their financial health suddenly deteriorates. On the one hand, banks may be inclined to help firms to weather shocks, especially if those shocks are expected to be transitory in nature. On the other hand, banks may be unwilling or unable to accumulate additional risks on their balance sheets, especially if their capital base is already thin.

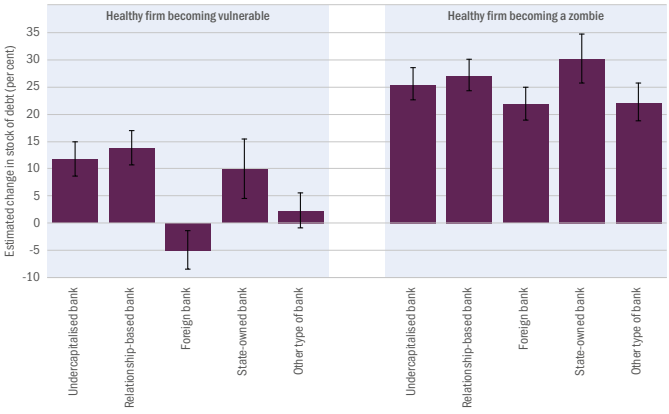
The following firm-level analysis looks at banks' responses to deteriorations in firms' health by linking changes in the logarithm of debt held by a particular firm to an indicator that captures deterioration in the firm's financial indicators which results in it being reclassified as financially vulnerable or a zombie (having previously been healthy). The analysis uses Orbis data on more than 2 million firms across 12 economies in the EBRD regions for the period 2009-20. Firm fixed effects take into account unobservable firm-level characteristics (such as business contacts and management know-how) which could affect the evolution of credit, as well as country-sector-year and bank-year fixed effects capturing factors that affect a certain bank or industry at a particular point in time. As such, the documented relationships do not simply reflect changes in firm-bank pairings whereby better-performing firms switch to working with better-performing banks.

The analysis reveals that when a healthy firm becomes vulnerable its subsequent ability to borrow depends strongly on the type of bank that it borrows from. For a firm whose main lender is a well-capitalised, privately owned domestic bank that adopts a transaction-based approach (the most common scenario in the data), no statistically significant change in debt levels is observed. If the firm's main lender is an undercapitalised bank, its borrowing increases by an average of 9.4 per cent when its financial health deteriorates (relative to a firm whose main

ON AVERAGE, A ZOMBIE FIRM WILL HAVE
22%
MORE DEBT THAN A FINANCIALLY HEALTHY EQUIVALENT

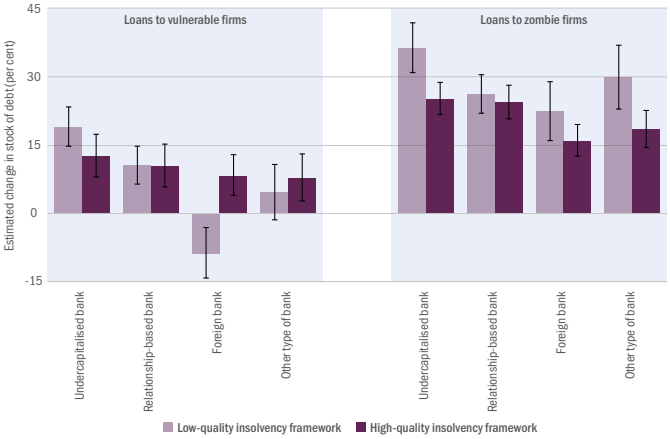
[22] See Giannetti and Ongena (2012) and Kalemli-Özcan et al. (2022).
[23] These time-invariant effects ensure that the correlations are not driven by compositional changes.

CHART 4.12. The debt dynamics of a firm whose health deteriorates will depend on the nature of its main lender



SOURCE: Bureau van Dijk's Orbis database, BEPS III, World Bank Doing Business indicators (discontinued) and authors' calculations.
NOTE: Bars denote coefficients that are derived from regressing the logarithm of firms' debt on interaction variables combining indicators for vulnerable firms and zombie firms with indicators for types of main lender. 95 per cent confidence intervals are shown. Regressions include firm, country-sector-year and bank-year fixed effects, as well as controls for firms' assets and revenues.

CHART 4.13. The debt dynamics of a firm whose health deteriorates will also depend on the strength of insolvency law



SOURCE: Bureau van Dijk's Orbis database, BEPS III and authors' calculations.
NOTE: Bars denote coefficients that are derived from regressing the logarithm of firms' debt on interaction variables combining indicators for vulnerable firms and zombie firms with indicators for types of main lender. 95 per cent confidence intervals are shown. Regressions include firm, country-sector-year and bank-year fixed effects, as well as controls for firms' assets and revenues.

lender is a well-capitalised, privately owned domestic bank; see Chart 4.12). Similar average differentials are estimated for a relationship-based bank (11.4 per cent) and a state-owned bank (7.6 per cent). In contrast, this differential is negative for firms whose main lender is a foreign bank, with stocks of debt falling when firms become financially vulnerable.

When a healthy firm becomes a zombie, its stock of debt increases by an average of 22 per cent if its main lender is a well-capitalised, privately owned, transaction-based domestic bank. That same firm will, on average, see its debt increase by an additional 3.3 percentage points if its main lender is undercapitalised, by 4.9 percentage points more if its main lender is a relationship-based bank, and by 8 percentage points more if that lender is a state-owned bank.

Lending to financially vulnerable firms may also be dependent on the local institutional environment. In order to account for this, the analysis is conducted separately using samples of countries with strong and weak insolvency procedures as reflected in the World Bank's Resolving Insolvency Indicator, which estimates, by means of a case study, the time, cost and outcome of – primarily liquidation-type – insolvency proceedings involving domestic entities in individual countries.[24]

This analysis indicates that zombie firms tend to increase their borrowing by more in settings with less efficient insolvency regimes – for instance, where creditors' expected recovery rates for distressed assets are lower, where commencement of insolvency proceedings takes a long time, or where creditors' participation in insolvency proceedings is limited. When a healthy firm becomes a zombie, it will increase its borrowing by an average of 29 per cent where the insolvency regime is weak – as opposed to 19 per cent where the regime is strong – if its main lender is a well-capitalised, privately owned, transaction-based domestic bank (see Chart 4.13). Other banks, including foreign-owned banks, also lend more to firms that become zombies when insolvency frameworks are weak.

[24] This indicator has been discontinued, so the analysis here should be interpreted as a historical comparison.

Zombie firms distort business operations

The presence of zombie firms can, in turn, affect the operations of other companies in the same sector (through horizontal spillovers), as well as having an impact via supply chain linkages (vertical spillovers). The next section documents such spillovers using firm-level data.

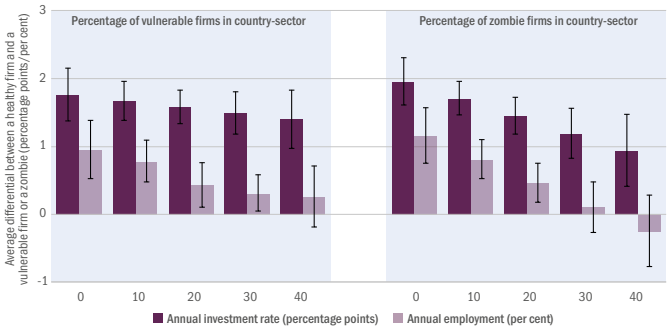
Horizontal spillovers

There are two main mechanisms underpinning horizontal spillovers from zombification. First, healthy firms face increased competition for inputs from zombies, as well as extra competition in product markets (a "congestion effect"). This pushes market prices downwards and wages upwards, squeezing operating margins.[25] In principle, better-performing firms should push weaker competitors out of the market, with workers being reallocated to more efficient producers. However, if large numbers of non-productive companies remain in the market, this creative destruction will be weakened, reducing numbers of new businesses and lessening existing firms' incentives to invest.

Second, zombie firms make it harder for financially healthy firms to access credit (via a "crowding-out effect"), as capital-constrained banks that evergreen loans to zombies have less scope to lend to healthy firms.[26] Squeezed margins, as described above, may further impair firms' ability to access external funding.

In order to illustrate these channels, the analysis that follows uses a firm-level regression framework which relates annual revenue, investment rates (proxied by percentage changes in fixed assets relative to the previous year's stock of fixed assets)

CHART 4.14. Healthy firms perform less well in sectors with large numbers of zombie firms



SOURCE: Bureau van Dijk's Orbis database and authors' calculations.
NOTE: Bars denote coefficients that are derived from regressing firms' annual investment rates and annual employment on an indicator for healthy firms and an interaction variable combining that indicator with the percentages of vulnerable firms and zombies in the relevant country-sector. 95 per cent confidence intervals are shown. Regressions include firm and country-sector-year fixed effects, as well as controls for firms' assets and stocks of debt.

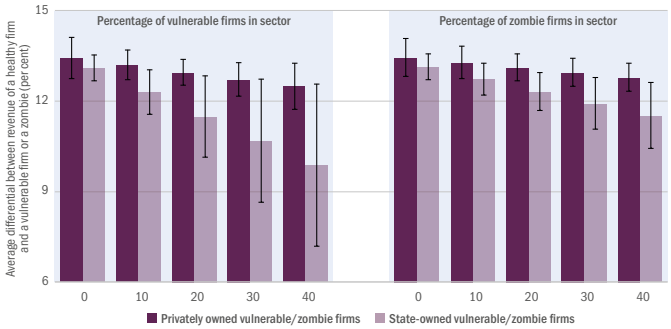
[25] See Acharya et al. (2022).
[26] See Acharya et al. (2022).

and employment to a firm's status as a healthy firm, as well as the asset-weighted prevalence of financially vulnerable and zombie firms in the same sector. Specifications control for healthy firms' past stocks of debt and include firm and country-sector-year fixed effects, which take into account industry-specific trends, as well as firm-level characteristics that remain unchanged over time.

This analysis reveals that the presence of zombie firms is more harmful to healthy firms than the presence of other vulnerable firms, especially when it comes to investment and employment. The annual investment rate of a healthy firm will, on average, be 2 percentage points stronger than that of a vulnerable firm or a zombie if it operates in a sector with no zombie firms but an average number of vulnerable firms (see Chart 4.14). This differential drops to 1.4 percentage points when zombie firms account for 20 per cent of the sector on an asset-weighted basis. This is a sizeable effect, given that the average annual investment rate in the sample is 6 per cent. A similar trend can be observed for average annual employment changes (see Chart 4.14). Spillover patterns are similar, although somewhat weaker, in the presence of greater numbers of financially vulnerable firms with an average number of zombie firms.

Moreover, the analysis also reveals that such spillover effects are greater in the presence of state-owned zombies. On average, a healthy firm's revenue will be around 13 per cent higher than that of a vulnerable firm in the absence of any zombies but with an average number of vulnerable firms in its sector. If such a firm finds itself in a sector where privately owned zombies account for 20 per cent of total assets, that differential drops by half a percentage point. However, in a sector where state-owned zombies make up the same proportion of total assets, the differential drops by 2 percentage points to 11 per cent (see Chart 4.15).

CHART 4.15. Negative spillovers are greater in the presence of state-owned zombie firms



SOURCE: Bureau van Dijk's Orbis database and authors' calculations.
NOTE: Bars denote coefficients that are derived from regressing firms' revenue on an indicator for healthy firms and an interaction variable combining that indicator with the percentages of state-owned and privately owned vulnerable firms and zombies in the relevant country-sector. 95 per cent confidence intervals are shown. Regressions include firm and country-sector-year fixed effects, as well as controls for firms' assets and stocks of debt.

ON AVERAGE, A HEALTHY FIRM'S REVENUE WILL BE AROUND **13%** HIGHER THAN THAT OF A VULNERABLE FIRM IN THE ABSENCE OF ANY ZOMBIES

Vertical spillovers

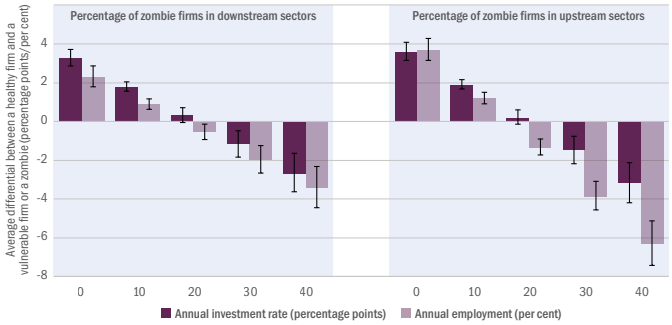
Distortions created by zombies and other financially vulnerable firms can also spread along supply chains. Downstream spillovers occur when distortions among suppliers are passed on to businesses that receive inputs from those suppliers. For instance, suppliers that are exposed to a large decline in bank financing can pass that liquidity shock on to their customers by reducing the amount of trade credit that is on offer or failing to deliver goods and services on time.[27] Meanwhile, a decline in market competition among a firm's suppliers (owing to a congestion effect caused by zombie firms, for instance) may result in less innovation and lower-quality inputs.

Upstream spillovers occur when credit market and other distortions cause a demand shock for suppliers providing inputs to a firm. If zombie firms become more prevalent in a sector that a business typically sells its products to, this will create uncertainty about future demand for the business's output and may prompt it to scale back its investment or operations. In the case of indirect exporters, which use intermediaries in other sectors to sell their products abroad, financial trouble for customers may also mean losing access to international markets.

The analysis that follows captures such vertical spillovers by using Eurostat's supply, use and input-output tables to account for the presence of vulnerable firms and zombies along the supply chain. An input-output matrix represents the linkages between different sectors of an economy – recording, for instance, how many of the inputs that a sector uses for production come from each of the other sectors. These input coefficients are used as weights to calculate the prevalence of vulnerable firms and zombies among a business's potential suppliers (that is to say, among

[27] See Costello (2020).

CHART 4.16. The presence of zombies negatively affects healthy firms via the supply chain



SOURCE: Bureau van Dijk's Orbis database, Eurostat and authors' calculations.
NOTE: Bars denote the coefficients that are derived from regressing firms' annual investment rates and annual employment on an indicator for healthy firms and an interaction variable combining that indicator with the percentages of vulnerable firms and zombies in the relevant country-sector. 95 per cent confidence intervals are shown. Regressions include firm and country-sector-year fixed effects, as well as controls for firms' assets and stocks of debt.

firms operating in upstream industries). Likewise, this information is also used to calculate the prevalence of vulnerable firms and zombies among a business's potential customers or off-takers (that is to say, among firms operating in downstream industries).

The analysis provides strong evidence of negative spillovers – both downstream and upstream – resulting from the presence of zombie firms in the supply chain. These spillovers can be observed for revenue growth, investment rates and employment (see Chart 4.16). In fact, if zombie firms are sufficiently prevalent in either downstream or upstream sectors – if they account for more than 20 per cent of total assets – that is predicted to result in *negative* investment rates and employment growth for affected healthy firms. No such spillovers arise in the presence of vulnerable firms that are not zombies, highlighting the distortionary effect that subsidised credit has on the allocation of resources within the economy.

The estimates indicate that the presence of zombie firms is slightly more harmful among customers than it is among suppliers. On average, a healthy firm that sees zombie firms' share of its off-takers rise from zero to 20 per cent will see its annual investment rate fall by 3 percentage points, while its annual employment will fall by an average of 4 per cent (see Chart 4.16).

Thus, zombie firms have more of an impact via vertical spillovers (that is to say, via supply chains) than via horizontal spillovers (that is to say, via spillovers within a given sector).

Conclusion and policy options

Policymakers provided unprecedented assistance to businesses in response to the Covid-19 pandemic, supporting firms using emergency grants, lines of credit, temporary moratoria on filing for insolvency and mandatory forbearance on payments of loan principal and interest. Such concerted action probably helped to prevent job losses and limited firm closures. However, partly as a side effect of those policies, many businesses are now shouldering a heavy debt burden at a time when global interest rates are rising.

This chapter has shown that weak businesses – especially zombie firms – can weigh on growth and investment by affecting the operations of otherwise healthy firms, be they direct competitors, suppliers or off-takers. In order to prevent zombification and help their economies to recover, policymakers can take action in four key areas: (i) gradual withdrawal of support for businesses, (ii) strengthening of banking supervision, (iii) reforms to insolvency resolution mechanisms and (iv) development of private debt and equity markets.

Withdrawal of support

The withdrawal of government credit guarantees and subsidies needs to be carried out gradually, with loan foreclosures ideally targeting structurally weak firms. Where countries have sufficient fiscal space, continued business support should be fine-tuned to ensure that only solvent and viable firms with temporary liquidity problems receive financial assistance. If risks are not properly priced, zombification will continue to pose risks to financial stability, as well as the outlook for growth in the medium term. After all, if zombie firms' viability is challenged further (for instance, in the event of a weak recovery, faster-than-expected interest rate hikes or an unbalanced withdrawal of policy support), creditors will be left exposed.

Banking supervision

Banking supervisors can support the economic recovery in three main ways. First, they need to ensure that banks provision adequately for losses as it becomes clearer which borrowers are viable and which are not. This will require banks to continually assess the risks associated with their loans and identify borrowers that are experiencing financial difficulties at an early stage. In order to incentivise the early resolution of financial distress, policymakers can introduce statutory frameworks that support hybrid or out-of-court financial restructuring outside of a full court-based insolvency process, thereby enabling banks and firms to apply faster and more cost-efficient solutions that are less damaging to the reputation of the borrower in question.[28] This will allow banks to find appropriate solutions in a timely manner and create a sufficient capital buffer to protect against unexpected losses.

Second, banks need to have sufficient capacity to monitor the financial health of borrowers and make greater use of expert judgement to identify firms in financial distress. For instance, large-scale on-site inspections of the credit portfolios of several Portuguese banks in 2012 and 2013 made it less likely that those banks would refinance zombie firms, with the banks immediately triggering those firms' default instead.[29]

Third, banks can establish dedicated workout units to resolve distressed loans – which should be independent of loan origination activities, as recommended by the European Banking Authority (EBA).[30] This can prevent conflicts of interest between the team that originates loans and the team that is engaged in corporate recovery. Staff and management involved in workout activities should be given clear individual or team goals and incentives as part of an operational plan geared towards achieving an agreed target of reducing exposure to distressed borrowers. Having a dedicated workout unit can also ensure that the resolution of NPLs is handled by expert staff with specialist skills. Banks should take account of the specificities of their exposure to distressed borrowers (retail, SMEs or larger firms) and the particular types of collateral held when creating such workout units. Where overlaps between workout units and loan origination teams are unavoidable, a bank's internal controls should ensure that any potential conflicts of interest are sufficiently mitigated.

Reforms to insolvency frameworks

Efficient insolvency frameworks can reduce undercapitalised banks' incentives to evergreen loans, making insolvency reform a key complement to capital requirements, banking supervision and the reduction of NPLs. For example, when China introduced specialist courts for insolvency procedures, it reduced the duration of such proceedings by 36 per cent relative to traditional civil courts (thanks to better-trained judges and greater judicial independence from politicians) and helped to reallocate labour and capital away from zombie firms.[31]

Measures to improve the efficiency of insolvency procedures include electronic filing and case management systems, virtual court hearings and creditors' meetings, and out-of-court or hybrid solutions.[32] All economies in the EBRD regions allow for court-supervised reorganisation, but hybrid procedures where part of the process is conducted out-of-court are only available in half of them, and private workouts (consensual financial restructuring based on contracts) are not common.[33] In private workouts, debtors and major financial creditors negotiate directly. In a hybrid approach, similar negotiations take place, but the court typically confirms any majority creditor agreement and a court order ensures that such an agreement is binding on all creditors. Out-of-court and hybrid approaches are a key feature of the insolvency landscape in developed markets and can also be particularly beneficial in countries with limited fiscal space and less effective insolvency systems.[34]

Within the European Union, further harmonisation of insolvency frameworks (as foreseen under the action plan for the capital markets union) and restructuring schemes have the potential to be of great benefit. For instance, the EU directive on preventive restructuring frameworks offers the possibility of implementing hybrid or out-of-court debt restructuring in order to prevent a "hold-out" creditor or class of creditors from blocking a reasonable restructuring plan, subject to certain protections.

It is important to note, however, that insolvency legislation and efficient restructuring are not, on their own, sufficient to prevent lending to zombie firms. For example, the new insolvency law that was introduced in India in 2016 had a limited impact on lending to such firms because of the prevalence of poorly capitalised and state-owned banks.[35] As this chapter has found, state-owned banks are more likely than privately owned banks to engage in lending to financially vulnerable firms and zombies, especially if those firms are themselves state-owned. The removal of moratoria on debt enforcement and insolvency for state-owned firms, and the use of insolvency procedures for insolvent state-owned enterprises, are therefore essential in order to improve the governance of those firms in the longer term.

[28] See EBRD (2022).
[29] See Bonfim et al. (2022).
[30] See EBA (2018).
[31] See Li and Ponticelli (2022).
[32] See Helmersson et al. (2021) and EBRD (2022).
[33] See EBRD (2022).
[34] See Araujo et al. (2022).
[35] See Kulkarni et al. (2021).

Development of private debt and equity markets

A more efficient insolvency framework will enable all types of creditor – not just banks – to monitor their exposures closely and, where necessary, take steps to wind up distressed borrowers or support a formal restructuring of their debts. One emerging source of credit is private debt provided by global private debt funds. Importantly, private debt funds not only have the necessary experience of working with firms in financial distress and providing equity, they also have lower coordination costs and more institutional flexibility than banks when it comes to restructuring the debt of a struggling borrower. Indeed, private debt funds are dependent on the ability to restructure, as they target riskier borrowers in exchange for higher returns. Evidence shows that making greater use of private debt markets can help to curb lending to zombie firms when coupled with better-functioning insolvency regimes.[36]

Banks' balance sheets need to remain well capitalised in order to help fund a strong economic recovery. To this end, contingency planning may include the use of credit-servicing companies to support the resolution of NPLs. Debt restructuring schemes that make use of the informational advantages and skills of investors in distressed debt can be particularly beneficial. Such investors may be more motivated than banks to turn a distressed business around and sell it as a going concern, rather than liquidating it on a piecemeal basis.

While many businesses have burned through their equity in a bid to survive the Covid-19 pandemic, government support has focused heavily on liquidity support via loans. As loan support schemes and credit guarantees are phased out, they may need to be complemented or replaced with measures that promote the use of equity or equity-like instruments (such as debt-for-equity swaps in jurisdictions where insolvency law permits it). This can help to reduce the debt burden on businesses that are already overleveraged but otherwise viable, while giving a bank creditor a potential future upside if the business is successfully restructured. Equity injections can also help where companies that are on the verge of becoming zombie firms require costly restructuring and fresh resources in order to turn them around.

BOX 4.1.

Insolvency and debt restructuring during the pandemic

In May 2022, the EBRD's Legal Transition Programme completed a survey of the emergency insolvency, banking and tax regulations that had been adopted by countries across the EBRD regions, as well as Belarus and Russia, in response to the Covid-19 pandemic (see Box 4.2 for an overview of insolvency regimes in those regions). The survey found that, overall, emergency banking and tax regulations were much more common than emergency insolvency measures. Thirty-three of the 35 EBRD economies surveyed adopted emergency banking regulations and tax relief measures, but only 18 of them introduced emergency insolvency measures. Common emergency tax measures included temporary tax relief and discounts (particularly for micro-firms and SMEs), the relaxation of real estate taxes and the acceleration of tax refunds. Of the 33 EBRD economies that introduced emergency banking regulations, 26 adopted forbearance measures. However, in some countries (Croatia, Georgia, Jordan, Moldova, North Macedonia and Poland), as well as in Belarus, compliance with emergency banking regulations was either partly or completely voluntary.

The use of banking regulations to introduce forbearance measures was an important indirect means of preventing mass insolvencies, with such measures including full or partial relief from the repayment of loan principal and capitalisation of interest. Adapting banking regulations in order to provide relief to borrowers was, in many countries, faster than amending insolvency legislation through a formal parliamentary process, with many changes to national banking rules coming in March and April 2020 in the early stages of the pandemic.

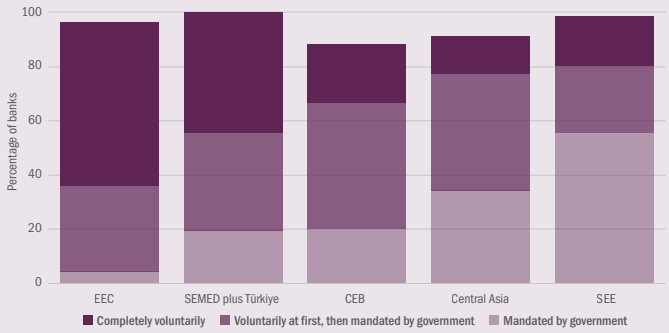
Data from the recent BEPS III survey show that almost all respondent banks (98 per cent) allowed at least some existing SME clients to temporarily defer repayment in response to Covid-19. More than 65 per cent of banks implemented such measures voluntarily – either completely voluntarily, or

[36] See Becker and Ivashina (2022).

voluntarily in the first instance before deferrals were mandated by the government. Another 27 per cent of surveyed banks reported that the temporary deferral of repayment had been imposed on them by the government (see Chart 4.1.1).

Respondents in countries that did not introduce emergency insolvency measures indicated either that insolvency was not a priority for policymakers or that the legislative process was inefficient. Countries reacted at different speeds to the Covid-19 pandemic: the Czech Republic, Türkiye and Uzbekistan were relatively quick to respond, adopting emergency insolvency legislation in March and April 2020, whereas Armenia and Ukraine did not complete that process until the fourth quarter of 2020. In May 2022, emergency insolvency legislation was still in force in Armenia, Belarus, the Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania, showing the lingering effects of the pandemic.

CHART 4.1.1. Almost all banks gave existing SME clients some form of temporary repayment holiday in response to Covid-19



SOURCE: BEPS III.

A few countries, such as Hungary and Poland, made substantial changes to insolvency legislation as part of their emergency measures. Poland, for example, introduced a new simplified procedure for the reorganisation of businesses, which proved to be highly popular. Of the 18 countries that adopted emergency bankruptcy legislation of some kind, eight (Lithuania, North Macedonia, Romania, Russia, the Slovak Republic, Slovenia, Ukraine and Uzbekistan) imposed temporary bans preventing creditors from filing for a debtor's insolvency, while seven (the Czech Republic, Latvia, Lithuania, Poland, Romania, Russia and Slovenia) suspended the debtor's obligation to file for insolvency. In many other countries, such suspensions were not necessary, since – unlike in western Europe – firms' directors did not have a statutory duty to file for insolvency.

In some countries, court closures removed the need to legislate for temporary restrictions on the insolvency of creditors (or relax directors' statutory obligation to file for insolvency in countries where this was applicable). Court closures were seen in 25 of the surveyed economies. In 20 countries, this was a direct legal requirement, but in five economies (Albania, Bosnia and Herzegovina, Kazakhstan, the Kyrgyz Republic and Mongolia) court closures were an indirect result of other social distancing measures or stemmed from the relevant court exercising its discretion to close its courtrooms or postpone hearings. In economies where this was a legal requirement, the average length of such a suspension was two months. However, the duration of court closures varied considerably, and in Greece the suspension of courts' operations lasted a full 16 months. In some countries (such as the Slovak Republic and Slovenia) courts were able to hear urgent matters on an exceptional basis, despite the closure.

Seventy-four per cent of all banks surveyed in the context of BEPS III (which covered all of the EBRD regions, plus Belarus and Russia) reported that courts' enforcement of debt recovery had been negatively affected by their temporary closure or suspension, or the increased delays to court proceedings. Of those banks, almost a quarter indicated that the temporary closure or suspension of courts had a very negative or extremely negative effect on their ability to recover pledged assets.

BOX 4.2.

Insolvency regimes across the EBRD regions

A country's insolvency regime – the legal framework that deals with the solvency of businesses and individuals – needs to function well if it is to contribute to a resilient and sustainable financial system. Effective and efficient insolvency procedures not only help firms to access credit and invest in new projects, they also make it easier to deal with NPLs when firms can no longer repay their outstanding debts.

Given the economic importance of insolvency regimes, the EBRD's Legal Transition Programme recently carried out an in-depth assessment of those frameworks in a wide range of economies across the EBRD regions, plus Belarus and Russia. That assessment measured the availability, effectiveness and extensiveness of national insolvency procedures aimed at reorganising insolvent or financially distressed businesses. It covered all of the main measures that could be used to rescue a business, including temporary moratoria on creditor action (to provide breathing space for restructuring negotiations) and "cram down" provisions (which bind a dissenting minority of creditors to a plan that has majority creditor and/or court approval). The assessment reviewed national legislation and practices using a questionnaire that was circulated to law firms, banks and judicial representatives between September and November 2020.[37] A total of 457 respondents completed that questionnaire.[38]

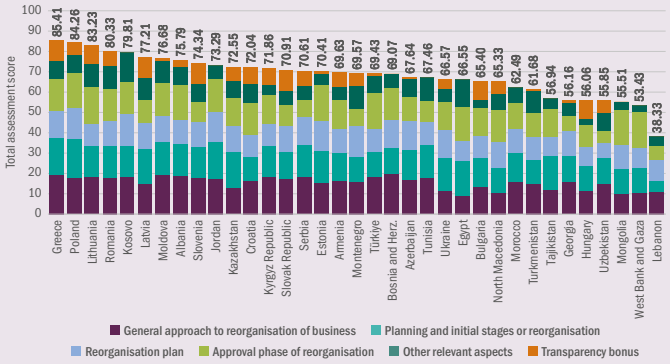
On the basis of this information, countries were scored on a scale of 0 to 100, focusing on five specific areas of interest: a country's general approach to the reorganisation of businesses; the planning and initial stages of the reorganisation procedure; the reorganisation plan; the approval phase of the reorganisation; and other relevant aspects. Countries also received a data transparency bonus of up to 10 points for publishing clear and comprehensive data on insolvency proceedings in general (including business reorganisation proceedings). Thus, the total assessment score had a possible range of 0 to 110.

First and foremost, the assessment showed that most EBRD economies still need stronger insolvency frameworks when it comes to the reorganisation of businesses. On a scale of 0 to 110, those economies only averaged 64 in terms of the strength of their legal, institutional and regulatory frameworks for the rescue of businesses, with scores ranging from 85 in Greece to just 38 in Lebanon (see Chart 4.2.1). Poland, Lithuania, Romania and Kosovo were the other top performers in terms of overall scores.

Second, the assessment reveals a significant data gap when it comes to insolvency. Only six of the economies covered by the assessment (Belarus, Greece, Latvia, Russia, the Slovak Republic and Slovenia) currently have a centralised electronic insolvency register. Much of the insolvency data collected in other countries is incomplete or out of date, which tends to reduce transparency for creditors, debtors and other stakeholders. The recent EU directive on preventive restructuring frameworks requires EU member states to collect certain insolvency data in the future and will help to narrow that data gap in those countries.[39]

Third, many countries have not invested sufficiently in insolvency regulation. In the majority of EBRD economies, a government ministry (usually the ministry of justice) oversees the insolvency framework. There are only five countries with a dedicated state

CHART 4.2.1. The quality of business reorganisation varies across economies



SOURCE: EBRD (2022).
NOTE: Total assessment scores are on a scale of 0 to 110.

[37] See www.ebrd-restructuring.com (last accessed on 26 September 2022).
[38] For details, see EBRD (2022), Annex 1.
[39] Directive (EU) 2019/1023 of the European Parliament and of the Council of 20 June 2019 on preventive restructuring frameworks, on discharge of debt and disqualifications, and on measures to increase the efficiency of procedures concerning restructuring, insolvency and discharge of debt.

agency or government department responsible for insolvency (Albania, the Kyrgyz Republic, Latvia, Serbia and Uzbekistan). Moreover, commercial insolvency proceedings are often overseen by general civil courts, which limits the development of judicial expertise in this highly specialist area. Only 16 of the economies covered by the assessment have commercial courts or departments specialising in insolvency cases, with Armenia the only country to have a dedicated insolvency court.

Fourth, in some economies secured creditors do not participate fully in national insolvency procedures aimed at reorganising businesses. In 18 economies, there is at least one reorganisation procedure where secured creditors are not fully bound by the procedure, often because they retain certain veto rights. In eight of those economies – Armenia, Azerbaijan, Bosnia and Herzegovina, Croatia, Egypt, Estonia, North Macedonia, and the West Bank and Gaza – secured creditors are prevented from participating in some (but not all) reorganisation procedures, being required to either relinquish their security to vote on a reorganisation plan or restrict their participation and voting on a plan to the unsecured portion of their claims. And in three economies – the Kyrgyz Republic, Lebanon and Turkmenistan – that restriction applies to *all* reorganisation procedures. This can jeopardise a successful outcome, since secured creditors are not signatories to the reorganisation plan and can enforce their security following the expiry of any statutory moratorium or stay on creditor action.

Fifth, while insolvency procedures aimed at reorganising businesses should be efficient and time limited to improve the chances of a successful outcome, respondents completing the questionnaire reported long average durations. While stakeholders in Estonia, Latvia, Lithuania, Jordan and Romania reported average durations of three to six months, proceedings tend to last more than a year in Bosnia and Herzegovina, Croatia, Georgia, the Kyrgyz Republic, Morocco, Tunisia and Türkiye. Furthermore, there is also a general perception that business reorganisation can be misused in order to delay inevitable liquidation-type procedures. In most jurisdictions, the court will order a statutory moratorium or stay, preventing any new or ongoing proceedings or actions by creditors against the debtor business from going ahead for the duration of the procedure, in order to support any reorganisation of the business. Thus, long average durations can significantly affect creditors' rights and recoveries.

ONLY
16
OF THE ECONOMIES COVERED BY THE ASSESSMENT HAVE COMMERCIAL COURTS OR DEPARTMENTS SPECIALISING IN INSOLVENCY CASES

MOST EBRD ECONOMIES
STILL NEED STRONGER INSOLVENCY FRAMEWORKS WHEN IT COMES TO THE REORGANISATION OF BUSINESSES

BOX 4.3.

Government support, corporate debt and business challenges during the pandemic

The outbreak of Covid-19 and the resulting economic hardship faced by individuals and businesses across the EBRD regions prompted extensive government support. Much of the assistance that governments provided to firms took the form of financial support (especially grants and loans with flexible terms). While these measures helped to protect jobs and livelihoods, they also created challenges as regards corporate indebtedness.

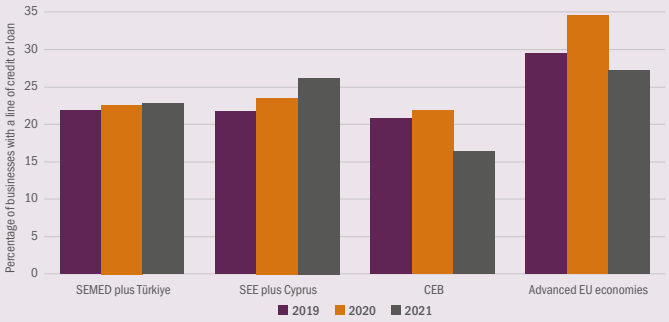
Effects and perceptions of government support measures

Since February 2016, Meta has been working with the OECD and the World Bank to administer surveys to SMEs, targeting firms that have an active business page on Facebook. These Future of Business Surveys offer unique insights into the challenges that smaller businesses have faced during the pandemic, with questions covering topics such as employment, government support and financial assistance. The project began as a monthly survey spanning 17 countries, before expanding to 42 countries in 2018. In 2019 it expanded again, covering 97 countries, but switched to a biannual basis. In 2020 additional monthly survey waves were conducted as questions shifted to issues relating to Covid-19. Overall, SMEs in 29 countries across the EBRD regions have been surveyed.

In their survey responses, firms pointed to the need for social security exemptions, tax deferrals and salary subsidies. Nearly a quarter of respondent firms in the EBRD regions reported that they needed access to loans and credit guarantees, while almost 20 per cent of businesses (including 40 per cent of firms in Türkiye) cited a need to defer loan repayments.

By March 2022, 29 per cent of the small firms surveyed had received government support in response to the pandemic: 15 per cent had received non-repayable grants or subsidies, while almost 10 per cent had received extra credit or been granted payment deferrals as part of government programmes. Government interventions had often made it much easier for SMEs to obtain bank credit, with the percentage of businesses with bank loans rising by a third between December 2019 and May 2020. In August 2020, the percentage of businesses with loans from financial institutions peaked at 29 per cent. That 2020 spike in access to credit was driven largely by firms in the southern and eastern Mediterranean (SEMED) and Türkiye, where levels of access to finance approached the levels seen in advanced EU economies.

CHART 4.3.1. The percentage of businesses with access to credit increased in 2020



SOURCE: Meta Future of Business Survey.
NOTE: The group of advanced EU economies comprises Austria, France, Germany, Italy, Portugal and Spain.

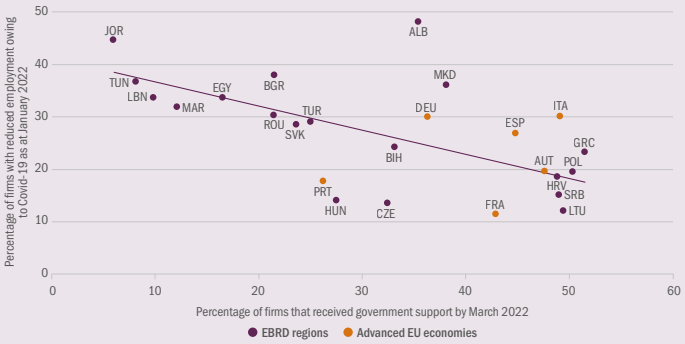
In central Europe and the Baltic states (CEB) and advanced EU economies, the impact of government support packages was relatively short-lived, however (see Chart 4.3.1). After increasing markedly in 2020, the percentage of SMEs with a bank loan was back to – or even below – pre-pandemic levels by 2021, with government programmes in those regions mainly acting as short-term bridge financing to help firms weather the initial period of social distancing. Once that period had passed, many businesses started paying back business support loans. By the end of March 2022, over 85 per cent of borrowers under the United Kingdom's Covid-19 loan guarantee schemes were making monthly repayments as scheduled or had fully repaid the relevant loans.[40]

Overall, national policies targeting SMEs' access to funding appear to have been effective in preventing declines in employment: in economies where larger percentages of firms received government support (according to the survey), fewer firms had to make staff redundant (see Chart 4.3.2). In Lithuania and Poland, for instance, as many as half of all businesses surveyed received government support in response to the pandemic, and no more than 14 per cent of firms had to lay off staff. This effect is even stronger where government support was in the form of extra credit or temporary deferral of payment. In advanced EU economies, government support measures were similarly essential in providing liquidity to businesses and stabilising the economy.[41]

While more flexible lending dampened negative employment shocks during the pandemic, the overindebtedness of some firms is posing its own challenges. A firm-level phone survey that was conducted by the EBRD in 15 economies in the EBRD

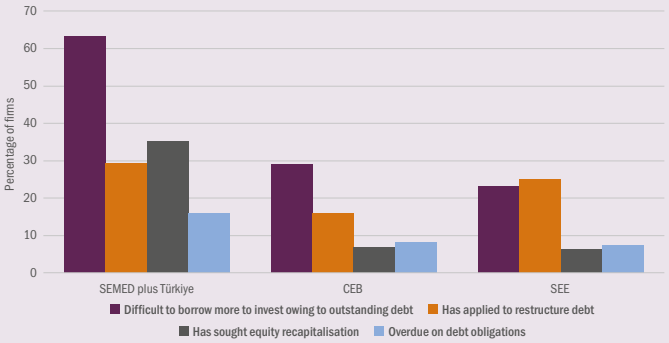
[40] See "Covid-19 loan guarantee repayment data as at 31 March 2022". Available at https://www.gov.uk/government/publications/covid-19-loan-guarantee-schemes-repayment-data/covid-19-loan-guarantee-schemes-repayment-data-as-at-31-march-2022 (last accessed on 26 September 2022).
[41] See Cœuré (2021) for France, Tielens et al. (2021) for Belgium, and ESRB (2021) for the EU as a whole.

CHART 4.3.2. Government support for SMEs helped to prevent job losses during the pandemic



SOURCE: Meta Future of Business Survey.
NOTE: Where countries do not have data as at January 2022, values relate to December 2020.

CHART 4.3.3. Outstanding debt is weighing on new investment plans



SOURCE: EBRD survey of more than 800 firms conducted in May and June 2022.

regions in May and June 2022 (see Box 3.3) indicated that many businesses were struggling with their debt obligations. Over a third of respondents reported that their outstanding debt had made it difficult to borrow more to finance new investment. A total of 63 per cent of firms in the SEMED region and Türkiye reported that new investment was being restricted (see Chart 4.3.3), compared with around 25 per cent in central Europe and south-eastern Europe (SEE).

Businesses had coped with financial hardship caused by the pandemic in a variety of ways – for example, by applying to restructure their liabilities (20 per cent of firms) or seeking equity recapitalisation (10 per cent of firms). In addition, 10 per cent of the firms surveyed were behind on their repayments to financial institutions.

NEARLY
ONE IN FOUR
FIRMS IN THE EBRD REGIONS REPORTED THAT THEY NEEDED ACCESS TO LOANS AND CREDIT GUARANTEES FOLLOWING THE OUTBREAK OF COVID-19

ALMOST
20%
OF BUSINESSES CITED A NEED TO DEFER LOAN REPAYMENTS FOLLOWING THE OUTBREAK OF COVID-19

References

F. Abraham, J.J. Cortina Lorente and S.L. Schmukler (2020)
"Growth of global corporate debt: Main facts and policy challenges", World Bank Policy Research Working Paper No. 9394.

V. Acharya, M. Crosignani, T. Eisert and C. Eufinger (2020)
"Zombie credit and (dis-)inflation: Evidence from Europe", NBER Working Paper No. 27158.

V. Acharya, M. Crosignani, T. Eisert and S. Steffen (2022)
"Zombie lending: Theoretical, international and historical perspectives", *Annual Review of Financial Economics*, forthcoming.

V. Acharya, T. Eisert, C. Eufinger and C. Hirsch (2019)
"Whatever it takes: The real effects of unconventional monetary policy", The *Review of Financial Studies*, Vol. 32, No. 9, pp. 3366-3411.

E.I. Altman, R. Dai and W. Wang (2021)
"Global zombies", mimeo.

J.D. Araujo, J. Garrido, E. Kopp, R. Varghese and W. Yao (2022)
"Policy options for supporting and restructuring firms hit by the COVID-19 crisis", IMF Departmental Paper No. DP/2022/002.

R. Banerjee and B. Hofmann (2018)
"The rise of zombie firms: causes and consequences", *BIS Quarterly Review*, September.

T. Beck, H. Degryse, R. De Haas and N. Van Horen (2018)
"When arm's length is too far: Relationship banking over the credit cycle", *Journal of Financial Economics*, Vol. 127, No. 1, pp. 174-196.

B. Becker and V. Ivashina (2022)
"Weak corporate insolvency rules: The missing driver of zombie lending", *AEA Papers and Proceedings*, Vol. 112, pp. 516-520.

E. Berglöf and G. Roland (1998)
"Soft budget constraints and banking in transition economies", *Journal of Comparative Economics*, Vol. 26, No. 1, pp. 18-40.

D. Bonfim, G. Cerqueiro, H. Degryse and S. Ongena (2022)
"On-site inspecting zombie lending", *Management Science*, forthcoming.

R.J. Caballero, T. Hoshi and A.K. Kashyap (2008)
"Zombie lending and depressed restructuring in Japan", *The American Economic Review*, Vol. 98, No. 5, pp. 1943-1977.

B. Cœuré (2021)
"What 3.5 million French firms can tell us about the efficiency of Covid-19 support measures", VoxEU.org. Available at: https://cepr.org/voxeu/columns/what-35-million-french-firms-can-tell-us-about-efficiency-covid-19-support-measures (last accessed on 26 September 2022).

A.M. Costello (2020)
"Credit market disruptions and liquidity spillover effects in the supply chain", *Journal of Political Economy*, Vol. 128, No. 9, pp. 3434-3468.

R. De Haas, S. Guriev and A. Stepanov (2022)
"State ownership and corporate leverage around the world", CEPR Discussion Paper No. DP17300.

EBA (2018)
Guidelines on management of non-performing and forborne exposures, London. Available at: www.eba.europa.eu/regulation-and-policy/credit-risk/guidelines-on-management-of-non-performing-and-forborne-exposures (last accessed on 26 September 2022).

EBRD (2015)
Transition Report 2015-16 – Rebalancing Finance, London.

EBRD (2020)
Transition Report 2020-21 – The State Strikes Back, London.

EBRD (2022)
EBRD Insolvency Assessment on Reorganisation Procedures, London. Available at: https://ebrd-restructuring.com/storage/uploads/documents/13472%20EBRD%20(Insolvency%20Assessment%20Database%20REPORT%20ARTWORK).pdf (last accessed on 26 September 2022).

A. Ellul, I. Erel and U. Rajan (2020)
"The COVID-19 pandemic crisis and corporate finance", *The Review of Corporate Finance Studies*, Vol. 9, No. 3, pp. 421-429.

ESRB (2021)
Monitoring the financial stability implications of COVID-19 support measures, Frankfurt am Main. Available at: www.esrb.europa.eu/pub/pdf/reports/esrb.20210908.monitoring_the_financial_stability_implications_of_COVID-19_support_measures~3b86797376.en.pdf (last accessed on 26 September 2022).

M. Giannetti and S. Ongena (2012)
"'Lending by example': Direct and indirect effects of foreign banks in emerging markets", *Journal of International Economics*, Vol. 86, No. 1, pp. 167-180.

M. Giannetti and A. Simonov (2013)
"On the real effects of bank bailouts: Micro evidence from Japan", *American Economic Journal: Macroeconomics*, Vol. 5, No. 1, pp. 135-167.

T. Helmersson, L. Mingarelli, B. Mosk, A. Pietsch, B. Ravanetti, T. Shakir and J. Wendelborn (2021)
"Corporate zombification: Post-pandemic risks in the euro area", *Financial Stability Review*, ECB, May.

Y. Hu and F. Varas (2021)
"A theory of zombie lending", *The Journal of Finance*, Vol. 76, No. 4, pp. 1813-1867.

IIF (2020)
Global Debt Monitor, April 2020, Washington, DC. Available at: www.iif.com/Portals/0/Files/content/Research/Global%20Debt%20Monitor_April2020.pdf (last accessed on 26 September 2022).

Ş Kalemli-Özcan, L. Laeven and D. Moreno (2022)
"Debt overhang, rollover risk, and corporate investment: Evidence from the European crisis", *Journal of the European Economic Association*, forthcoming.

N. Kulkarni, S.K. Ritadhi, S. Vij and K. Waldock (2021)
"Unearthing zombies", mimeo.

B. Li and J. Ponticelli (2022)
"Going bankrupt in China", *Review of Finance*, Vol. 26, No. 3, pp. 449-486.

J. Qian and P.E. Strahan (2007)
"How laws and institutions shape financial contracts: The case of bank loans", *The Journal of Finance*, Vol. 62, No. 6, pp. 2803-2834.

F. Schivardi, E. Sette and G. Tabellini (2022)
"Credit misallocation during the European financial crisis", *The Economic Journal*, Vol. 132, No. 641, pp. 391-423.

J. Tielens, C. Piette and O. De Jonghe (2021)
"Belgian corporate sector liquidity and solvency in the COVID-19 crisis: a post-first-wave assessment", *Economic Review*, National Bank of Belgium, June.

This chapter presents the latest assessment of transition challenges in the EBRD regions, tracking progress in the area of structural reform. It focuses on six key qualities of a sustainable market economy, looking at whether economies are competitive, well governed, green, inclusive, resilient and integrated. Since 2016, reform scores have converged in most areas, notably as regards competitiveness, resilience and economic integration. This contrasts sharply with the divergence seen in the area of green reform. To some extent, patterns in terms of reforms are aligned with citizens' preferences in corresponding policy areas. This chapter also surveys the wide range of measures that have been adopted across the EBRD regions in response to high and rising food and energy prices.

Introduction

This chapter presents the latest assessment of transition challenges in the EBRD regions, tracking progress in the area of structural reform. It focuses on six key qualities of a sustainable market economy, looking at whether economies are competitive, well governed, green, inclusive, resilient and integrated. Building on seven years of data, this chapter also looks back at the progress made in those six areas since 2016, highlighting a number of important trends.

Reform scores have converged in most areas since 2016, notably as regards competitiveness, resilience and economic integration. This contrasts sharply with developments in the area of green reform, with growing divergence between greener and less green economies. That divergence in the area of green reform could, in part, reflect cross-country differences in the tolerance of pollution and climate-related risks, whereas convergence appears to occur in areas where the relevant objectives are universally shared.

5 STRUCTURAL REFORM

Almost all of that convergence occurred before the Covid-19 pandemic, on progress having slowed in the last couple of years. That slowdown has been particularly stark in economies with lower initial reform scores, causing convergence to stall.

To some extent, progress on reforms is aligned with citizens' preferences in the respective policy areas. Such alignment is strongest in the area of inclusion and weakest as regards the green economy. Citizens' preferences themselves also vary considerably across economies. On average, survey data suggest that people in the EBRD regions have a greater desire for economic integration than their peers in advanced comparator economies, whereas support for the green economy is stronger in comparator countries.

The relationship between preferences and reforms is also affected by media freedom. Overall, policy preferences as reported in representative household surveys are more closely aligned with progress in the relevant areas of structural reform where economies have free media, while this relationship is not statistically significant in economies with censored media.

The last section of this chapter looks specifically at the various measures that have been implemented across the EBRD regions in response to high and rising prices of food staples and energy. Policymakers have used a wide range of measures to mitigate the impact that rising energy and food prices have on households and firms, with most countries taking action of some kind. The varied nature of countries' responses reflects the multitude of policy objectives being pursued, such as the desire to reach out to those in need, ensure cost-effectiveness, avoid negative externalities (such as excessive consumption of energy or food) and achieve a broad consensus on such measures within society.

Energy subsidies (per unit consumed), means-tested support for individuals, subsidies for firms and price controls are all common across the EBRD regions. However, the policy responses of EBRD economies are, on average, estimated to be less effective overall than those of advanced comparator economies, partly reflecting inferior administrative capacity. Differences between the policies adopted by individual economies are, to some extent, aligned with differences in their "assessment of transition qualities" (ATQ) scores, particularly in the area of inclusion. This partly reflects the fact that at least a third of all policy responses have involved modifying and expanding existing schemes and initiatives (such as means-tested support programmes or subsidies).

ATQ scores for 2022

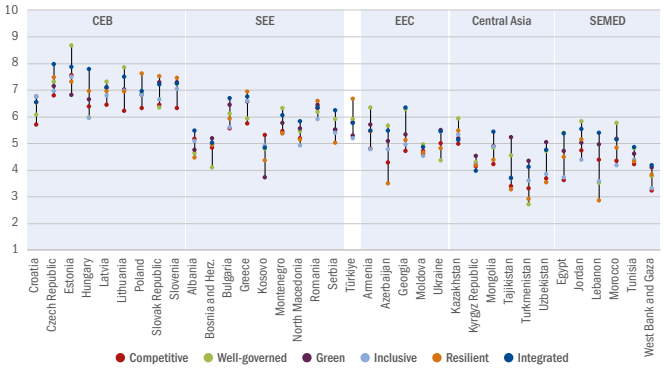
Since 2016, the EBRD has assessed progress in the field of structural reform on the basis of six key qualities of a sustainable market economy, looking at whether economies are competitive, well governed, green, inclusive, resilient and integrated. Progress in each area is scored on a scale of 1 to 10, where 1 corresponds to the worst possible performance and 10 corresponds to the standards of a sustainable market economy. Those ATQ scores are based on a wide range of external and internal data sources and are calculated in accordance with a detailed methodology.[1]

Across those six qualities, increases in scores in 2022 have been concentrated mainly in central Europe and the Baltic states (CEB) and south-eastern Europe (SEE), while declines have been observed primarily in the southern and eastern Mediterranean (SEMED). Improvements have been seen mainly in the areas of competitiveness, the green economy and inclusion, while declines have tended to be concentrated in scores for governance (see Chart 5.1 and Table 5.1).

Competitive

Most EBRD economies have seen modest increases in their competitiveness scores over the last year, thanks to improvements in labour productivity and increases in the percentage of total service exports that is accounted for by advanced business services (such as information, telecommunication and financial services). However, minor deteriorations have been recorded in Jordan, Lebanon, Montenegro, North Macedonia and Türkiye, driven mainly by declines in labour productivity and exports of advanced business services.

CHART 5.1. ATQ scores for six key qualities of a sustainable market economy, 2022



SOURCE: EBRD.
NOTE: Scores range from 1 to 10, where 10 represents a synthetic frontier corresponding to the standards of a sustainable market economy.

[1] See https://2022.tr-ebrd.com/reform for a detailed description of that methodology.

TABLE 5.1. ATQ scores for six key qualities of a sustainable market economy

	Competitive			Well-governed			Green			Inclusive			Resilient			Integrated		
	2022	2021	2016	**2022**	2021	2016	**2022**	2021	2016	**2022**	2021	2016	**2022**	2021	2016	**2022**	2021	2016
Central Europe and the Baltic states																		
Croatia	5.71	5.69	5.82	6.08	6.08	6.22	6.76	6.52	5.92	6.76	6.82	6.42	6.54	6.54	6.08	6.55	6.39	6.10
Czech Republic	6.79	6.77	6.64	7.32	7.30	6.98	7.14	6.90	6.56	6.97	6.87	6.67	7.48	7.48	7.53	7.98	8.11	7.88
Estonia	7.56	7.52	7.39	8.67	8.68	8.50	6.82	6.57	6.23	7.50	7.40	7.19	7.31	7.29	7.09	7.88	7.74	7.43
Hungary	6.39	6.38	6.17	5.97	6.04	5.77	6.65	6.41	6.08	5.95	5.88	5.83	6.97	6.88	6.53	7.79	7.73	7.48
Latvia	6.45	6.39	6.20	7.31	7.31	6.83	7.10	6.86	6.24	6.81	6.72	6.44	6.97	6.98	6.80	7.10	6.97	7.36
Lithuania	6.22	6.19	6.44	7.86	7.82	7.26	7.03	6.79	6.42	7.00	6.96	6.93	6.94	6.94	6.57	7.49	7.51	6.98
Poland	6.33	6.32	6.52	6.88	6.92	7.34	6.82	6.58	6.45	6.81	6.89	6.62	7.62	7.62	7.37	6.96	6.94	6.66
Slovak Republic	6.44	6.43	6.27	6.35	6.35	6.22	7.29	7.05	6.76	6.65	6.54	6.42	7.51	7.50	7.22	7.22	7.28	7.35
Slovenia	6.32	6.29	6.42	7.24	7.31	7.18	7.29	7.05	6.92	7.06	6.97	6.77	7.46	7.44	7.11	7.25	7.23	6.94
South-eastern Europe																		
Albania	5.16	5.16	4.82	4.62	4.71	5.26	4.76	4.76	4.76	5.08	5.07	4.63	4.46	4.45	4.25	5.47	5.45	5.12
Bosnia and Herzegovina	4.83	4.82	4.97	4.10	4.16	4.66	5.20	4.98	4.76	4.96	4.86	4.83	4.94	4.94	4.86	5.03	5.01	4.66
Bulgaria	5.57	5.55	5.29	6.12	6.17	5.83	6.46	6.22	5.59	5.61	5.59	5.45	5.94	5.94	5.70	6.71	6.74	6.65
Greece	5.75	5.73	6.03	5.93	6.02	5.69	6.58	6.34	6.15	6.58	6.39	6.49	6.95	6.89	6.63	6.76	6.71	5.83
Kosovo	5.32	5.27	4.96	4.81	4.80	4.91	3.72	3.74	3.62	4.92	4.97	5.05	4.37	4.36	4.01	4.83	4.76	4.39
Montenegro	5.46	5.54	5.16	6.32	6.31	5.92	5.77	5.53	5.10	5.37	5.35	4.97	5.38	5.43	5.06	6.06	6.12	5.47
North Macedonia	5.19	5.22	5.33	5.47	5.43	5.78	5.56	5.15	4.79	4.92	4.90	4.81	5.15	5.13	4.76	5.83	5.84	5.31
Romania	6.33	6.27	6.14	6.18	6.20	5.97	6.44	6.20	5.87	5.92	5.95	5.85	6.59	6.59	6.24	6.34	6.35	6.01
Serbia	5.49	5.47	5.44	5.90	5.94	5.72	5.51	5.38	5.14	5.39	5.36	5.09	5.03	5.03	4.91	6.24	6.13	5.69
Türkiye	5.79	5.80	5.75	5.92	5.98	5.97	5.29	5.25	4.98	5.20	5.24	4.89	6.69	6.63	6.62	5.78	5.76	5.85
Eastern Europe and the Caucasus																		
Armenia	4.81	4.80	4.33	6.35	6.34	5.81	5.70	5.70	5.32	4.78	4.79	4.52	5.45	5.45	5.05	5.48	5.42	5.08
Azerbaijan	4.29	4.29	4.18	5.66	5.68	5.18	5.08	5.08	4.85	4.77	4.74	4.67	3.51	3.51	3.31	5.49	5.72	5.52
Georgia	4.71	4.71	4.38	6.29	6.39	6.47	5.33	5.33	4.98	4.97	4.92	4.73	5.13	5.04	4.42	6.34	6.46	6.10
Moldova	4.71	4.70	4.56	4.96	4.90	4.52	4.61	4.52	4.25	4.52	4.59	4.54	4.66	4.60	4.28	4.87	4.83	4.78
Ukraine	5.00	4.97	5.04	4.36	4.44	4.10	5.50	5.44	5.05	5.44	5.34	5.23	4.81	4.89	4.10	5.46	5.49	5.13
Central Asia																		
Kazakhstan	4.98	4.97	4.93	5.93	5.92	5.61	5.20	5.20	4.76	5.33	5.31	5.02	5.48	5.48	5.12	5.12	5.23	4.99
Kyrgyz Republic	4.13	4.13	3.86	4.30	4.36	4.24	4.54	4.54	4.16	4.23	4.21	4.18	4.18	4.25	4.20	3.97	4.18	4.31
Mongolia	4.23	4.22	4.16	4.84	4.89	5.31	4.89	4.89	4.80	4.89	4.78	4.61	4.39	4.39	4.31	5.45	5.04	4.95
Tajikistan	3.40	3.40	3.41	4.56	4.58	4.09	5.22	5.22	5.00	3.68	3.76	3.55	3.28	3.18	2.88	3.70	3.68	3.29
Turkmenistan	3.31	3.30	3.30	2.71	2.63	2.65	4.35	4.35	4.31	3.60	3.66	3.43	2.92	2.92	2.87	4.13	4.14	4.17
Uzbekistan	3.69	3.68	3.38	4.71	4.70	4.59	5.04	5.04	4.38	3.84	3.80	3.71	3.54	3.62	3.13	4.75	4.67	4.00
Southern and eastern Mediterranean																		
Egypt	3.62	3.62	3.71	5.39	5.48	4.72	4.71	4.71	4.50	3.72	3.75	3.72	4.50	4.50	4.05	5.38	5.40	4.76
Jordan	4.73	4.74	4.56	5.83	5.85	5.93	5.02	5.02	5.26	4.39	4.44	4.01	5.15	5.15	4.79	5.55	5.60	5.85
Lebanon	4.38	4.41	4.51	3.52	3.65	3.90	4.95	4.96	4.89	3.57	3.76	3.93	2.86	2.86	3.94	5.41	5.27	5.18
Morocco	4.33	4.33	4.04	5.77	5.83	5.43	5.16	5.18	5.39	4.18	4.23	3.96	4.83	4.83	4.69	5.15	5.15	5.00
Tunisia	4.22	4.21	4.25	4.82	4.87	5.05	4.62	4.62	4.43	4.38	4.45	4.29	4.33	4.33	3.97	4.85	4.85	4.58
West Bank and Gaza	3.23	3.22	3.30	3.76	3.89	3.75	4.10	4.10	4.18	3.32	3.31	3.50	3.82	3.80	3.57	4.17	4.19	4.03

SOURCE: EBRD.
NOTE: Scores range from 1 to 10, where 10 represents a synthetic frontier corresponding to the standards of a sustainable market economy. Scores for years prior to 2022 have been updated following methodological changes, so they may differ from those published in the *Transition Report 2021-22*. Owing to lags in the availability of underlying data, ATQ scores for 2022 and 2021 may not fully correspond to that calendar year.

The last year has seen reforms in several countries aimed at improving the business climate and boosting investment. In May 2022, for example, Jordan launched a Support for Industry Development Fund Project, which aims to incentivise modernisation by providing direct support to 500 export-oriented companies. In Morocco, a new investment charter is focused on high value-added activities and making the country more attractive to foreign investors. In Tunisia, the National Programme of Reforms 2023-25, which was launched in June 2022, contains plans to (i) remove the need to apply for investment permits, (ii) incentivise investment in strategic sectors and (iii) establish a special legal framework for start-ups. In Uzbekistan, a new investment programme for the period 2022-26 provides for the establishment of a central project management office to oversee strategic investments. The Uzbek authorities have also announced further measures aimed at simplifying the procedures governing investment in special economic zones. In the Kyrgyz Republic and Tajikistan, amendments have been made to the tax code with the aim of reducing informality and levelling the playing field for companies operating in the formal sector. And in a similar vein, Egypt has introduced an automated tax management system, which is due to be rolled out across the country in the course of 2022.

At the same time, many EBRD economies in the EU have launched initiatives financed through the European Union's Resilience and Recovery Facility in order to support companies affected by the Covid-19 pandemic and the war in Ukraine. In Bulgaria, for instance, the government launched a €130 million state-aid scheme to help SMEs with investment in new technology. In the Baltic states, similar packages are being used to drive investment in innovation and boost exports.

Many countries have also announced reforms supporting the improvement of governance frameworks for state-owned enterprises, as well as the privatisation of state assets. In Egypt, for example, a draft state ownership policy published in May 2022 aims to encourage privatisation in key sectors (including textiles, mining, chemicals and food processing), targeting US$ 40 billion in investment over the next four years. In Georgia, as part of the country's SOE reform strategy for 2021-24, the authorities have launched a series of pilot projects aimed at enhancing the transparency and corporate governance of SOEs such as United Airports of Georgia and the Georgian Railway Company. In Greece, the country's privatisation programme remains on-track, with a number of privatisations being completed in 2022 – including, most notably, that of the Public Gas Corporation (DEPA). In Uzbekistan, meanwhile, a presidential decree on "additional measures to further reduce state participation in the economy and accelerate privatisation" has set out a timeline for the privatisation of some SOEs (including Uzbekistan Airways and the country's national oil and gas company), as well as initial public offerings (IPOs) for state-owned banks.

Bosnia and Herzegovina has taken incremental steps to improve the management of SOEs by establishing central oversight units. And in Serbia, a consolidated list of SOEs has been drawn up as a first step towards implementing the SOE reform action plan that was adopted a year ago.

In Kosovo, the government has dismissed the board of the Privatization Agency of Kosovo (PAK) and is in the process of closing the agency. According to a concept paper approved in June 2022, the government plans to replace the agency with a sovereign fund managing state-owned assets. In Montenegro, further setbacks have been seen in the area of SOE reform, with the country's SOE management company, Montenegro Works, being liquidated after only a year in operation on account of its ineffectiveness. And in Hungary, the government has announced its intention to participate in the buyout of Telecom Vodafone Hungary in 2022, in line with its objective of increasing state participation in strategic sectors.

Over the period 2016-22, marked improvements have been observed in eastern Europe and the Caucasus (EEC) and the SEE region, driven mainly by increased credit to the private sector, improved logistical services, greater access to finance for SMEs, higher labour productivity and the increased sophistication of service exports. Deteriorations have been seen in a number of countries (Greece, Lithuania and Poland) on account of reductions in the quality of logistical and transport services, and declines in credit to the private sector. In Bosnia and Herzegovina, there has been an increase in tariff rates and a decline in the level of participation in global value chains. In North Macedonia, deteriorations stem from an increase in government spending on subsidies, a fall in the quality of transport infrastructure and a decline in the entry of new firms into the market. In Lebanon, meanwhile, declining scores reflect reductions in both labour productivity and the sophistication of the country's exports (as measured by the Index of Economic Complexity).

EGYPT'S STATE OWNERSHIP POLICY IS TARGETING
US$ 40 BILLION
IN INVESTMENT OVER THE NEXT FOUR YEARS

Well-governed

Over the last year, governance scores have deteriorated in many economies in the EBRD regions, driven mainly by the perceived worsening of corruption and a reduction in the freedom of the press. Some modest improvements have been observed in the CEB region (the Czech Republic and Lithuania), the SEE region (Kosovo, Montenegro and North Macedonia) and the EEC region (Armenia and Moldova) as a result of greater compliance with standards aimed at tackling money laundering and the financing of terrorism (AML/CFT standards) and more favourable perceptions regarding corruption.

A number of countries have recently introduced reforms aimed at improving governance in the public sector and tackling corruption. In Armenia, for example, a new public administration reform strategy announced in May 2022 aims to create more effective governance structures, ensure the independence of the civil service and introduce new digital systems for public administration by 2030. In Georgia, a new public service development strategy for 2022-25 sets clear guidelines for improving the design and delivery of public services. In Azerbaijan, the government has launched a National Action Plan to Combat Corruption spanning the period 2022-26, which introduces measures aimed at increasing transparency, improving public services and strengthening public oversight of government agencies. In Moldova, meanwhile, steps have been taken to increase the independence and accountability of the country's anti-corruption body, which was created in 2021. Further legislation on the selection of specialist prosecution bodies was adopted earlier this year, which resulted in the election of an Anti-Corruption Prosecutor in June 2022.

In Ukraine, despite delays caused by the Russian invasion, the government has continued to make progress with tackling corruption. In June 2022, the Ukrainian parliament adopted a new anti-corruption strategy for the period 2021-25, outlining plans to tackle corruption across a number of sectors with a view to meeting the EU accession criterion of accountable government.

Meanwhile, several countries have implemented judicial reforms. In the Czech Republic, for instance, the country's new Law on Courts and Judges, which was adopted at the end of 2021 following recommendations by the Group of States against Corruption (GRECO), reduces the influence of the Ministry of Justice on the selection of judges and officials, narrows the mandate of court chairs and requires that the decisions of lower courts be published online. In Kosovo, a new law establishing a commercial court was passed in January 2022, paving the way for the creation of a special court handling corporate disputes. That court is expected to be operational by the end of 2022. In Albania, meanwhile, judicial reform – a key condition for starting the EU accession process – has progressed at a slow pace. Further constitutional amendments are required to extend the timeline for vetting judges, while the country's high rate of judicial resignations has resulted in growing backlogs of court cases.

IN BULGARIA, UP TO
€297 MILLION
HAS BEEN EARMARKED FOR INVESTMENT IN THE DIGITALISATION OF PUBLIC SERVICES

Many countries have continued to digitalise public services. In Mongolia, for example, the government signed a memorandum of understanding with Estonia's E-governance Academy in April 2022. That partnership is expected to facilitate the introduction of digital identities and signatures, enhance digital skills training for the civil service and help to further develop the e-service platform that was launched in response to the Covid-19 pandemic. In Armenia, meanwhile, the State Revenue Committee has launched a one-stop digital system for permits and customs clearance. For a number of EBRD economies in the EU, digital transformation is a major component of the country's recovery and resilience plan. In Bulgaria, for instance, a sum of up to €297 million has been earmarked for investment in the digitalisation of public services (including judicial services, healthcare, postal services and social services). Similarly, Romania adopted new government cloud legislation in June 2022 – a first step towards the establishment of secure government cloud infrastructure – and has plans to digitalise the country's healthcare system and introduce electronic identity cards. In August 2022, meanwhile, Tunisia launched a pilot project to introduce electronic identity cards. It has also expanded its range of e-government services.

Over the period 2016-22, notable improvements in governance scores have been observed in countries such as Armenia, Azerbaijan, Egypt, Latvia and Lithuania. In Armenia, the increase in the country's score reflects improvements as regards participation in e-government, the provision of public services online, perceptions of corruption, the framework for challenging regulations, judicial independence and the protection of property rights. In Azerbaijan, improvements reflect enhanced protection of intellectual property rights, a new framework for challenging regulations and increases in judicial independence. In Egypt, steady improvements have been seen in perceived political stability, corruption and the effectiveness of the courts. And in Latvia and Lithuania, improved scores reflect the strengthening of corporate governance in the areas of internal control, transparency and disclosure, and board structures. At the same time, governance scores have deteriorated significantly in a number of economies over the last six years, primarily reflecting increases in perceived informality and corruption (as seen, for instance, in Albania and Bosnia and Herzegovina) and declines in the perceived effectiveness of courts (as observed, for instance, in Poland). Several economies have also seen deteriorations in judicial independence, budgetary transparency and the enforcement of contracts.

Green

Green scores have increased considerably over the last year, especially in the SEE and CEB regions. Significant improvements have been observed, for example, in Bulgaria, Montenegro, North Macedonia and Romania, primarily on account of increases in nationally determined contributions (NDCs) in the context of the Paris Agreement. Meanwhile, small declines have been observed in Kosovo, Lebanon and Morocco, partly driven by reductions in the size of conservation areas.

Over the last year, many economies in the EBRD regions have announced measures aimed at increasing the uptake of renewable energy and improving energy efficiency in residential buildings and energy-intensive sectors. For example, Albania's National Energy and Climate Plan, which was adopted in December 2021, is focused on reducing the country's reliance on fossil-fuel imports and decarbonising emission-intensive sectors. In a similar vein, Croatia has adopted a new €133 million programme aimed at raising the energy efficiency of public buildings and apartment blocks, as well as a strategy to decarbonise the energy sector. Egypt, meanwhile, has earmarked US$ 324 billion for its National Climate Change Strategy, which was launched in May 2022. That strategy focuses on five key areas: improved governance frameworks, mitigation of and adaptation to climate change, a system for monitoring, reporting and verifying emissions, financing mechanisms for climate-related activities and incentives for green innovation.

In Türkiye, the country's Capital Markets Board has developed guidelines on green and sustainable debt instruments, paving the way for new green financial instruments, while in Latvia the first sustainability-linked bond was issued in December 2021, raising €600 million.

Several countries have also announced measures to improve waste management and the treatment of water and wastewater. Croatia and Slovenia, for instance, have recently introduced new regulations in this area and announced significant investment in the modernisation of wastewater treatment and waste management facilities as part of their recovery and resilience plans. Jordan, meanwhile, signed a water-for-energy swap deal with Israel in November 2021, which will cover around 12 per cent of Jordan's annual water needs and alleviate water scarcity.

LATVIA'S FIRST SUSTAINABILITY-LINKED BOND WAS ISSUED IN DECEMBER 2021, RAISING

€600 MILLION

At the same time, despite efforts to improve legislative frameworks for renewable energy in Bosnia and Herzegovina, the government of the Federation of Bosnia and Herzegovina has announced its intention to extend the operation of two large coal-fired thermal power plants in Tuzla and Kakanj, thereby failing to live up to its commitments as a member of the Energy Community.

Over the period 2016-22, green scores have improved in most economies in the EBRD regions. These improvements have been driven mainly by reduced GHG emissions from agriculture and the heating of buildings (notably in Bulgaria and North Macedonia), greater uptake of renewable energy, and increases in NDCs and intended NDCs. The most significant improvements have been observed in Bulgaria, Croatia, the Czech Republic, Estonia, Latvia, Lithuania, Montenegro, North Macedonia and Uzbekistan, driven by enhanced commitments in their intended NDCs, the inclusion of adaptation considerations in their NDCs, and progress in the area of "just transition". Montenegro, for example, has improved its carbon-pricing mechanism, while vehicle emission standards have been tightened in Uzbekistan. At the same time, scores have declined in Jordan (on account of a failure to comply with the latest guidance on best practices for carbon-pricing mechanisms, as well as reductions in the size of maritime conservation areas) and Morocco (on account of reductions in the size of protected areas, deteriorating air quality and increases in fossil-fuel subsidies).

THE WATER-FOR-ENERGY SWAP DEAL BETWEEN JORDAN AND ISRAEL WILL COVER AROUND

12%

OF JORDAN'S ANNUAL WATER NEEDS

Inclusive

Over the last year, inclusion scores have improved in many countries, including Bosnia and Herzegovina, the Czech Republic, Estonia, Greece, Mongolia and the Slovak Republic. In Bosnia and Herzegovina, that improvement mainly reflects greater financial inclusion, a decline in the percentage of young people who are not in education, employment or training, and an increase in the female labour-force participation rate. In contrast, significant deteriorations have been recorded in Lebanon, Tajikistan and Tunisia, and in Poland (which had a much higher initial score), driven primarily by a worsening of national frameworks for ensuring equal treatment and preventing discrimination (as well as a decline in financial inclusion in the case of Tajikistan).

A number of economies in the EBRD regions have implemented reforms with the aim of improving employment conditions, supporting the development of human capital and increasing access to services and finance. Georgia, for instance, has announced further investment in technical vocational education and training in order to reduce the mismatch between supply and demand when it comes to skills. Türkiye has adopted a new law on the provision of financial incentives for vocational training with a view to increasing cooperation between the country's vocational training system and local chambers of commerce. And Slovenia has adopted a resolution on a national adult education programme for the period 2022-30, focusing on the development of opportunities for lifelong learning and adult education.

Many EBRD economies have announced measures supporting the integration of Ukrainian refugees into their labour markets and education systems. In Bulgaria, for instance, specific amendments have been made to the country's Employment Promotion Act. And all EU member states have implemented measures granting Ukrainian refugees access to healthcare, education and work, in line with the rights enjoyed by other residents. In Poland, around two-thirds of all working-age refugees had been successfully absorbed into the labour market by August 2022.

Several economies have introduced reforms aimed at increasing the economic inclusion of women. For instance, in June 2022 Egypt launched a new five-year programme targeting economic and social empowerment for women, which seeks to increase women's employment opportunities and reduce gender-based violence across seven governorates. Meanwhile, the parliaments of Moldova and Ukraine have both ratified the Istanbul Convention on violence against women and domestic violence.

Over the period 2016-22, the most significant improvements in the area of inclusion have been seen in Albania, Jordan, Latvia and Montenegro. In Albania and Montenegro, increases in inclusion scores have been driven primarily by greater access to internet services and digital skills. In Latvia, they stem from improved access to training through employment and increases in financial inclusion. And in Jordan, they are due to new legislation aimed at improving opportunities for women and greater access to sanitation and the internet.

The most significant deteriorations over the period 2016-22 have been recorded in Kosovo, Lebanon, and the West Bank and Gaza. In Kosovo, this is mainly due to poor access to formal training opportunities at work and the high percentage of adults who are not in education, employment or training. In Lebanon, it reflects a decline in financial inclusion against the backdrop of the country's deep economic and financial crisis. And in the West Bank and Gaza, it reflects new legislation allowing gender-based discrimination, as well as reductions in access to vital services.

Resilient

ATQ scores for resilience cover issues pertaining to (i) energy security and (ii) financial stability. The discussion below considers each of these in turn.

Energy resilience scores have only changed very modestly over the last year, as many reforms in key sectors have been halted. The exception here is Ukraine, where a decline in the country's score reflects the impact that the war has had on the operations of the state-owned gas company.

In light of the energy crisis faced by many economies in the EBRD regions, recent reform efforts have focused on improving energy security, while progress in other areas has slowed. In Armenia, the country's Public Services Regulatory Commission set up an electronic trading platform for electricity in February 2022 with a view to facilitating free and open trade, while full liberalisation of the electricity market is planned for 2023. In Lebanon, the government approved a plan in March 2022 to restructure the electricity sector and address decade-long inefficiencies in the system. That plan includes the establishment of a regulatory authority for the electricity sector, increases in electricity prices and US$ 3.5 billion of investment in the sector. Parliamentary approval of that plan is currently pending.

In Montenegro, the government passed new legislation in January 2022 giving the national energy regulator greater powers to monitor the country's electricity and gas markets and investigate potential abuse. In Ukraine, given the significant loss of energy production capacity on account of the war, the country's authorities have accelerated the integration of their grid into the EU's single electricity network (ENTSO-E) in order to gain independence from Russia and Belarus in terms of the supply of electricity.

In Poland, meanwhile, plans to liberalise household gas tariffs have been pushed back three years to 2027, as the government has introduced €4.4 billion in heating subsidies for the period from October 2022 to April 2023, in response to increases in energy prices. Similarly, the Lithuanian government has postponed its plans to liberalise the electricity market for customers consuming less than 1,000 kWh per year (which had been due to take place this year). In Hungary, meanwhile, the government has given a green light to the expansion of the Paks nuclear power plant, restarted the coal-fuelled power plant in Matra and banned exports of energy sources (including firewood).

Significant improvements in financial resilience have been observed in Georgia, Greece, Hungary and Tajikistan, driven mainly by increases in capital adequacy ratios (Georgia, Hungary and Tajikistan) and a reduction in NPLs (Greece and Tajikistan). At the same time, the Kyrgyz Republic and Ukraine have seen marked deteriorations in their financial resilience scores on account of rising NPLs, contractions in credit and falling capital adequacy ratios.

Many countries have continued to implement reforms in the banking sector, taking steps to support the development of capital markets and digital payments. In Montenegro, for example, new laws were introduced in early 2022 aligning the country's regulatory and supervisory requirements with Basel III standards and the EU's regulatory framework. Those new regulations introduce higher capital requirements for banks, mandatory board supervision and stricter classification criteria for NPLs. Further efforts have also been made to modernise the country's payment systems. In Serbia, a new Law on Capital Markets was adopted in December 2021, aligning the country's legal framework with EU legislation. And in Estonia, new legislation was adopted in March 2022 with a view to tightening up the licensing rules for virtual asset providers, increasing capital requirements and aligning other customer information requirements with those applicable to traditional payment service providers. Those tighter regulations are aimed at reducing the risk of financial crime and improving customer protection.

In Azerbaijan, measures to stimulate the development of capital markets were introduced in May 2022, scrapping income tax on dividends and interest income from publicly traded shares and bonds. Meanwhile, the country's central bank has developed new guidelines for QR code payments in an effort to improve the affordability of payment services. Similarly, the National Bank of Kazakhstan introduced an instant payment system in June 2022, which enables interbank transfers to be made at any time using mobile phones or QR codes.

In Mongolia, however, implementation of the banking sector reform that was launched in 2021 (which requires systemically important commercial banks to become publicly traded) has been slower than anticipated. In February 2022, the country's largest bank, Golomt Bank, was given the go-ahead to become an open joint-stock company by the Bank of Mongolia. However, in light of the difficult economic environment, IPOs of commercial banks are currently on hold until asset quality reviews have been completed.

In Lebanon, losses in the country's financial sector are estimated to have exceeded US$ 70 billion against the backdrop of a widespread economic crisis. The government's proposal to fill that large gap by bailing in shareholders of commercial banks continues to face opposition from the national banking association, which is calling on the government to foot the bill. Amendments to the country's Bank Secrecy Law, which were passed in July 2022 with a view to facilitating the investigation of financial crimes, have been deemed to be insufficient, while depositors continue to find it difficult to access their hard-currency savings.

Over the period 2016-22, marked improvements in energy resilience have been observed in Croatia, Estonia, Ukraine and Uzbekistan. In Croatia, higher scores reflect the diversification of gas supplies, while Ukraine has undertaken various reforms in the gas sector, including the unbundling of the state-owned gas company, Naftogaz. In Uzbekistan, those increased scores reflect continued efforts to improve the regulatory environment, as well as the unbundling of the power sector in 2019. At the same time, deteriorations have been observed in Bosnia and Herzegovina, the Kyrgyz Republic and Moldova, where necessary reforms in the energy sector have been delayed.

Significant increases in financial resilience scores over the period 2016-22 have been observed in Croatia, Egypt, Georgia, Hungary and Ukraine. Those improvements mainly reflect the upgrading of capital market infrastructure, increases in capital adequacy ratios, declines in foreign currency-denominated loans, marked reductions in NPLs, increased activity by non-bank financial institutions, and improvements to the legal and regulatory frameworks governing the banking sector. In Lebanon, however, financial resilience has weakened on account of lower levels of liquidity in the financial system, greater market concentration, a sharp increase in NPLs, and the reversal of earlier reforms to regulatory frameworks and banking supervision.

Integrated

Over the last year, marked improvements have been observed in Croatia, Estonia and Mongolia in the area of economic integration, driven mainly by increases in FDI and portfolio inflows (and, in Croatia, by the increased affordability of mobile broadband). Significant deteriorations have occurred in Azerbaijan and the Kyrgyz Republic on account of fluctuations in FDI inflows. Meanwhile, the use of non-tariff barriers to trade has increased across the EBRD regions.

Several countries have sought to improve their transport infrastructure. Bulgaria, for example, has adopted a strategic plan to develop its transport infrastructure by 2030. That plan includes the establishment of intermodal links in Sofia and northern Bulgaria, a feasibility study for a port terminal in Vidin on the Danube river, and further modernisation of railway links with ports. Similarly, the Czech Republic has scaled up public investment in its railway network, with plans to modernise 35 railway stations and 120 km of railway track by the end of 2022, further electrifying the network and improving safety.

In June 2022, Albania and Kosovo announced the construction of a railway link between Pristina and Durres. This comes in the context of increased cooperation between the two economies, with other measures (such as the development of joint action plans for streamlining business procedures) having been announced in late 2021. In Serbia, a high-speed railway line linking Belgrade to Novi Sad was opened in March 2022. This railway link, which was supported by China's Belt and Road Initiative, is the first stretch of a new railway line connecting Belgrade to Budapest. In Montenegro, the first section of the new Bar-Boljare highway, which will run from the coast to the Serbian border, was completed in July 2022.

In November 2021, Turkmenistan formally applied for membership of the World Trade Organization; it is also set to join the International North-South Transport Corridor, which links India, Iran, Azerbaijan, Russia, Central Asia and Europe.

UZBEKISTAN HAS ANNOUNCED AROUND

US$ 2.5 BILLION

OF INVESTMENT IN DIGITAL INFRASTRUCTURE AS PART OF THE DIGITAL UZBEKISTAN 2030 STRATEGY

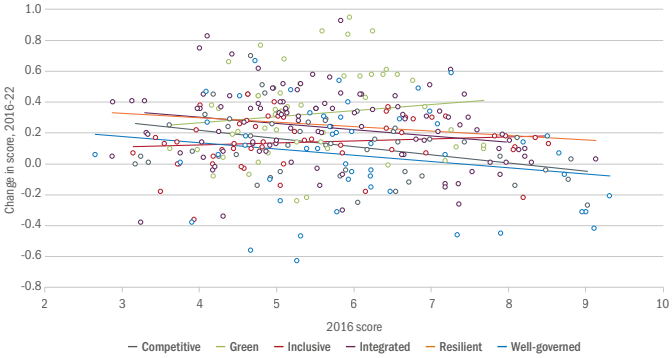
Several countries have also made improvements to their digital infrastructure. Uzbekistan, for example, has announced around US$ 2.5 billion of investment in digital infrastructure projects as part of the Digital Uzbekistan 2030 strategy, which was launched in 2020. Similarly, Georgia is planning to roll out fibre broadband to 1,000 rural settlements, benefiting more than 13 per cent of the country's population. In June 2022, the Georgian government also authorised the launch of satellite internet services, which are set to increase internet penetration in other hard-to-reach areas.

Over the period 2016-22, the largest increases in integration scores have been seen in Egypt, Greece, Montenegro and Uzbekistan, driven by improvements in mobile and fixed broadband coverage and increases in trade volumes (as well as improvements to logistical services in the case of Montenegro and Uzbekistan). Greece's higher score also reflects a rise in non-FDI capital inflows and new regional trade agreements. The most significant deteriorations have been observed in Jordan, the Kyrgyz Republic and Latvia. In Jordan, conditions for international trade and direct investment have worsened, as have logistical services. In the Kyrgyz Republic, FDI inflows and trade volumes have both declined. And in Latvia, the timeliness and traceability of shipping have deteriorated, while losses associated with shipping have increased.

Progress in the area of structural reform, 2016-22

This section takes a closer look at changes to scores over the period 2016-22 for each of the six key qualities of a sustainable market economy, looking not only at economies in the EBRD regions, but also at a number of advanced and emerging-market comparators around the world. Econometric analysis relates changes in scores for each country and quality to the initial level observed in 2016. The analysis also controls for the level of economic development (using the logarithm of GDP per capita at market exchange rates), as well as a set of dummy variables for each quality, in order to capture the average level of progress across all economies in a given area. A number of trends emerge.

CHART 5.2. Convergence has been seen in most areas, but there has been divergence in the area of green reform



SOURCE: EBRD and authors' calculations.
NOTE: Each dot represents a score for a particular country in respect of a particular quality. Thus, each country is represented by six dots. Data cover EBRD economies and a number of advanced and emerging-market comparators

Divergence on the green economy, with convergence in other areas

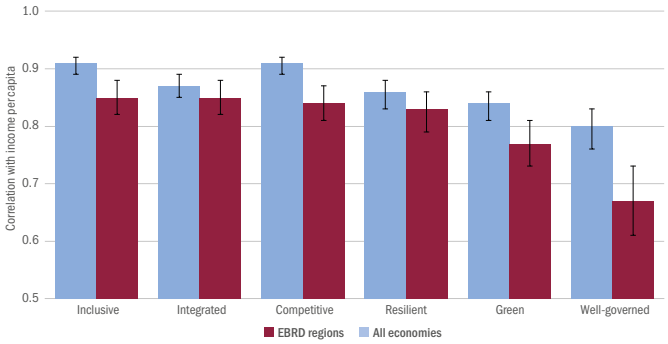
First, progress has been faster in economies that had greater challenges (and, hence, lower ATQ scores) in 2016. This is down to the fact that countries which were initially lagging behind have made efforts to catch up with the policy frontier.[2] This relationship is not statistically significant in the overall sample as a result of differences in the degree of convergence across qualities. Neither is there a statistically significant relationship between progress on reforms and the level of economic development. For competitiveness and economic integration, however, this "catching-up effect" is both sizeable and statistically significant.

In contrast, the opposite can be observed for the green economy and, to a lesser extent, inclusion. In these areas, economies that were lagging behind in 2016 have made less progress on average, resulting in greater divergence – especially between greener and less green economies (see Chart 5.2).

Differences in the degree of convergence can, in part, be explained by differences in the strength of citizens' desire for the relevant reforms. While the desire for greater competitiveness, integration and economic resilience appears to be universal, views differ when it comes to the green economy and inclusion, with tolerance of pollution, risks stemming from climate change and inequality of opportunity varying greatly across societies. This point is explored in more detail in a later section, which looks at views expressed in representative surveys of households around the world.

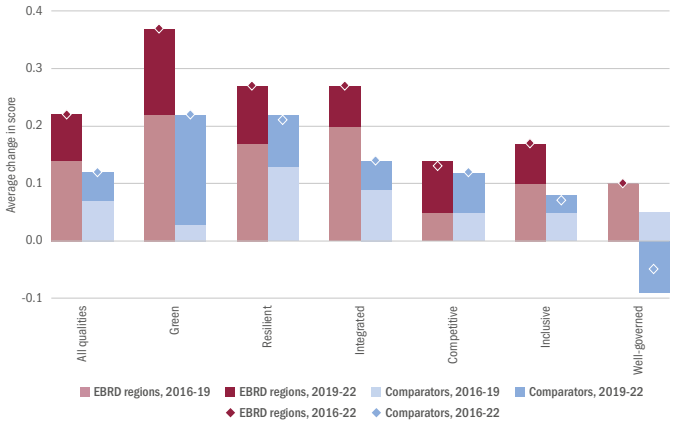
[2] See Da Silva et al. (2018), which documents a similar pattern in structural reform across OECD economies.

CHART 5.3. Inclusion is most strongly correlated with income per capita



SOURCE: EBRD, IMF and authors' calculations.
NOTE: This chart shows bivariate correlations between scores for individual qualities and the logarithm of GDP per capita at market exchange rates in 2021. 90 per cent confidence intervals are shown.

CHART 5.4. Green reforms have, on average, made the most progress across the EBRD regions, while governance reforms have seen the slowest progress



SOURCE: EBRD and authors' calculations.
NOTE: Data represent simple averages of changes in ATQ scores across economies.

Inclusion most strongly correlated with income per capita

Scores in all six areas of reform are strongly correlated with income per capita. However, this correlation is far from perfect and is weaker as regards the green economy and good governance (particularly in the EBRD regions; see Chart 5.3). Inclusion scores exhibit the strongest relationship with income per capita.

PROGRESS HAS SLOWED SINCE THE START OF THE PANDEMIC, ESPECIALLY IN ECONOMIES WITH LOWER ATQ SCORES

Most progress in the area of green reform, while governance reforms have progressed slowly

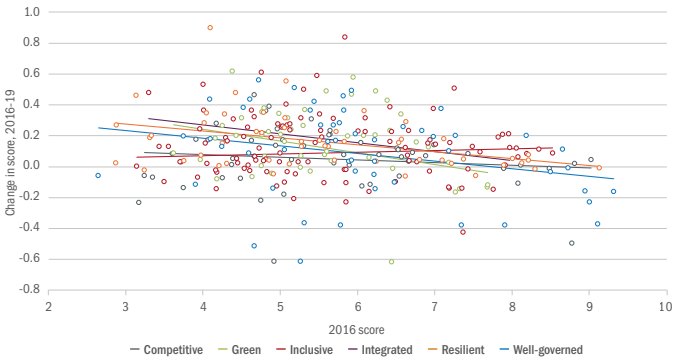
Green reforms have, on average, seen the most progress across the EBRD regions (see Chart 5.4). In contrast, governance reforms have seen the slowest progress. Similar patterns can be observed for the full sample, which includes advanced and emerging market comparators, as well as in a regression framework that accounts for countries' levels of economic development and initial ATQ scores.

Convergence has stalled since the onset of the Covid-19 pandemic

Most of the gains in terms of ATQ scores were made during the pre-pandemic period (2016-19). Average increases in ATQ scores since 2019 have been lower than in previous years, with governance weakening on average since the onset of the pandemic (see Chart 5.4). Consequently, the convergence that was documented in Chart 5.2 mostly reflects changes to scores during the pre-pandemic period (see Chart 5.5).

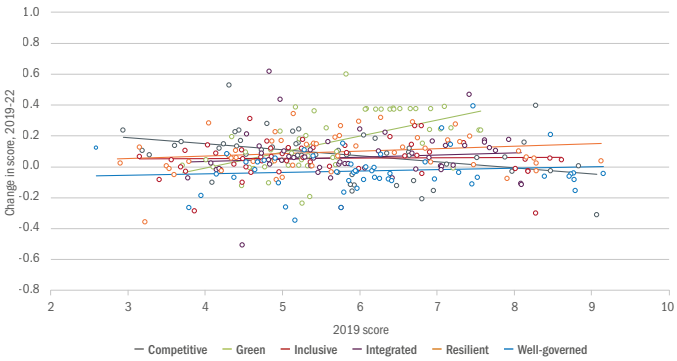
Since the start of the pandemic, convergence has largely stalled in all areas (see Chart 5.6). Scores have stopped increasing faster in economies with lower initial scores, as structural changes in those economies have been more strongly impacted by the Covid-19 crisis. The last couple of years have also seen considerable divergence in the area of green reform, with less-green economies falling further behind peers with more environmentally friendly policies.

CHART 5.5. Convergence in ATQ scores was concentrated in the pre-pandemic period



SOURCE: EBRD, IMF and authors' calculations.
NOTE: Each dot represents a score for a particular country in respect of a particular quality. Thus, each country is represented by six dots. Data cover EBRD economies and a number of advanced and emerging-market comparators.

CHART 5.6. Progress has slowed since the start of the pandemic, especially in economies with lower ATQ scores

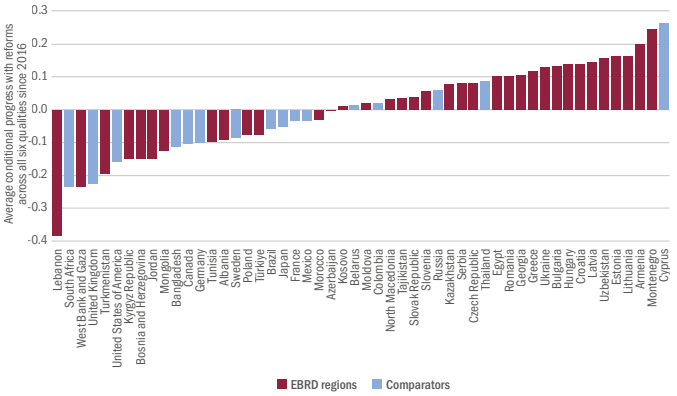


SOURCE: EBRD, IMF and authors' calculations.
NOTE: Each dot represents a score for a particular country in respect of a particular quality. Thus, each country is represented by six dots. Data cover EBRD economies and a number of advanced and emerging-market comparators.

On average, the EBRD regions have made more progress than their comparators

Economies in the EBRD regions have, on average, seen more progress with reforms than advanced and emerging-market comparators (see Chart 5.7). In the EBRD regions, progress across all six areas has been fastest in Montenegro, Armenia, Lithuania, Estonia and Uzbekistan, and slowest in Lebanon, the West Bank and Gaza, Turkmenistan, the Kyrgyz Republic, Bosnia and Herzegovina, and Jordan. This analysis takes account of each economy's level of economic development, initial ATQ scores and average progress in each area. Thus, every economy is compared with its peers – economies that were similar in terms of initial conditions in 2016.

CHART 5.7. On average, economies in the EBRD regions have made more progress than comparators



SOURCE: EBRD, IMF and authors' calculations.
NOTE: This chart shows the residuals that are derived from regressing changes in ATQ scores over the period 2016-22 on quality dummies, initial scores and the logarithm of GDP per capita at market exchange rates in 2016. For each economy, those residuals are averaged across the six qualities of a sustainable market economy.

Citizens' preferences and the qualities of a sustainable market economy

This section investigates the extent to which differences in the speed of reforms are linked to differences between the attitudes of individuals residing in different economies.[3] Such attitudes have been gauged using the latest round of the World Values Survey, which was conducted in countries around the world in the period 2017-20.[4]

Where possible, preferences are inferred from questions that involve some form of trade-off between different desirable features of economic development. For example, in order to assess the strength of citizens' environmental preferences, respondents are asked to choose between the following two statements: "Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs" and "Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent". This kind of formulation, which involves a potential trade-off between the environment and job creation, divides opinions more strongly than a simple question on whether, for instance, more should be done to tackle climate change.

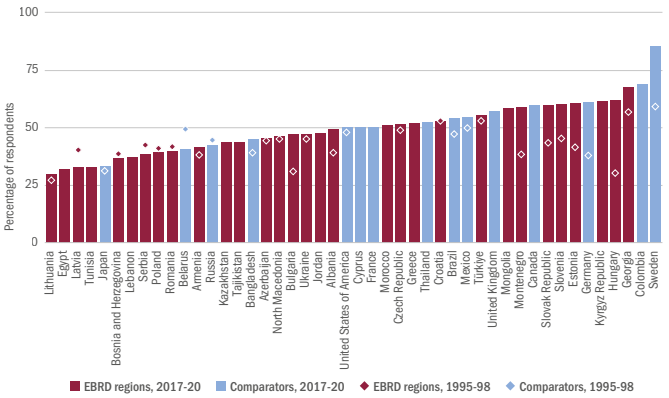
For each key quality of a sustainable market economy, the strength of citizens' preferences is measured using an index constructed from World Values Survey questions. Each index is on a scale of 0 to 1, where 0 and 1 are, respectively, the lowest and highest levels globally.

The index for competitiveness measures the extent to which individuals favour increased private ownership of business and industry (as opposed to state ownership) and prioritise rapid economic growth over other aims. Preferences in terms of integration are assessed using questions about how connected individuals feel to their country and the wider world in comparison with their immediate locality (their village or district). To assess preferences regarding resilience, the analysis uses questions that assess the extent to which economic stability is prioritised over other objectives (such as fighting crime and the promotion of a more humane society). Preferences in terms of inclusion are measured using questions that assess individuals' desire for greater income inequality (as opposed to the incentivisation of personal effort) and attitudes towards gender equality. Preferences as regards governance are measured as the inverse of the extent to which individuals desire a strong leader who can bypass parliament and elections. For further details, see Box 5.2.

When it comes to reducing pollution at the expense of economic growth, preferences vary considerably across economies. At a global level, support for such environmental action has risen over time, with around 56 per cent of respondents now in favour. At the same time, this remains a minority opinion in a number of economies, including Japan (34 per cent according to the latest survey), Egypt (37 per cent) and Poland (47 per cent), with support for environmental action declining over time in some cases (see Chart 5.8). In Sweden, in contrast, more than 80 per cent of respondents are in favour of protecting the environment at the expense of economic growth.[5]

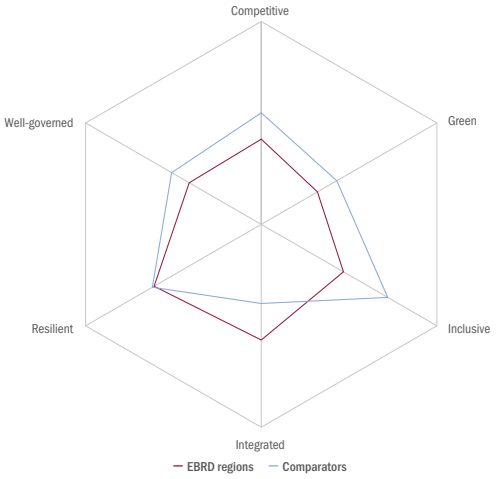
While citizens typically express support for all six key qualities of a sustainable market economy, the extent of this support varies considerably across economies and qualities (see Chart 5.9). For example, average support for integration is higher in the EBRD regions than in advanced or emerging-market

CHART 5.8. Support for protecting the environment at the expense of economic growth varies greatly across economies



SOURCE: World Values Survey and authors' calculations.
NOTE: This chart indicates the percentage of respondents who agree with the statement "Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs". Data are based on the most recent survey round available for each economy (in most cases, the 2017-20 survey round).

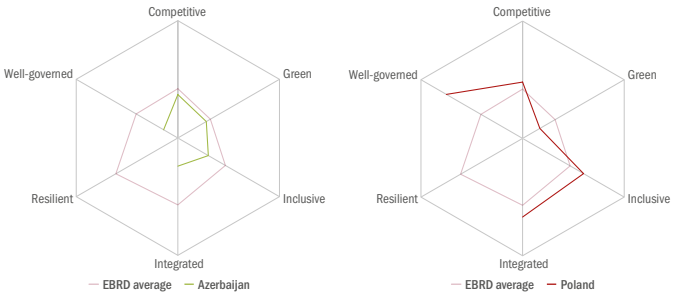
CHART 5.9. Average support for economic integration is higher in the EBRD regions than in comparator economies



SOURCE: World Values Survey and authors' calculations.
NOTE: Data are based on the most recent survey round available for each economy (in most cases, the 2017-20 survey round).

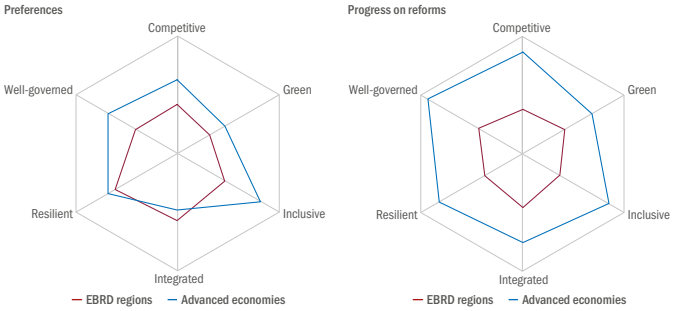
[3] This analysis is based on Carruthers and Plekhanov (2022).
[4] See Inglehart et al. (2014). Where countries were not covered by that most recent round, data from earlier rounds of the survey have been used.
[5] See Gamtkitsulashvili and Plekhanov (2022).

CHART 5.10. Profiles in terms of citizens' preferences vary across economies in the EBRD regions



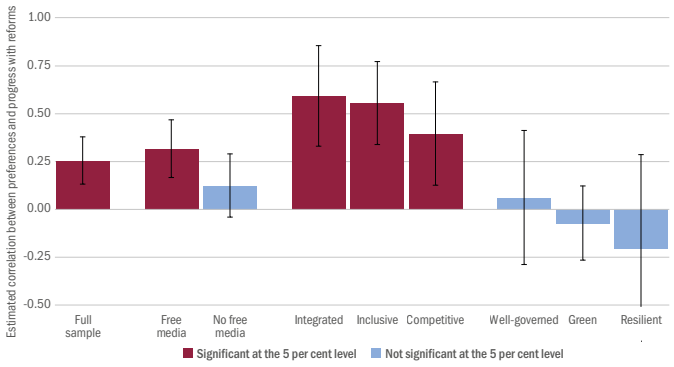
SOURCE: World Values Survey and authors' calculations.
NOTE: Data are based on the most recent survey round available for each economy (in most cases, the 2017-20 survey round).

CHART 5.11. Differences in citizens' preferences are aligned – albeit imperfectly – with differences in reform progress



SOURCE: World Values Survey, EBRD and authors' calculations.
NOTE: Data are based on the most recent survey round available for each economy (in most cases, the 2017-20 survey round). The advanced-economy comparators are Canada, Cyprus, France, Germany, Japan, Sweden, the United Kingdom and the United States of America.

CHART 5.12. The relationship between citizens' stated preferences and structural reforms is stronger in economies with free media



SOURCE: EBRD and authors' calculations.
NOTE: Coefficients have been derived by regressing ATQ scores on citizens' preferences (taking account of the logarithm of GDP per capita and quality-year fixed effects) using a linear model. The 95 per cent confidence intervals shown are based on standard errors clustered at country-year level. Darker bars indicate values that are statistically significant at the 5 per cent level.

GLOBALLY, AROUND
56%
OF SURVEY RESPONDENTS PRIORITISE PROTECTING THE ENVIRONMENT OVER ECONOMIC GROWTH, COMPARED WITH
47%
IN POLAND

comparators. Indeed, accession to the EU has been a strong anchor for economic reforms in emerging Europe, as discussed in the *Transition Report 2013*,[6] while trade integration and FDI have been at the heart of emerging Europe's economic convergence model.[7] In contrast, support for green reforms is considerably weaker in the EBRD regions than in advanced-economy comparators.

Substantial variation in the strength of preferences can also be observed within the EBRD regions. In Poland, for instance, support for good governance is particularly strong, while desire for green reforms is relatively weak (see Chart 5.10). In contrast, desire for good governance is relatively weak in Azerbaijan. To some extent, these differences in preferences reflect and reinforce differences between the "social contracts" in individual economies.

Link between citizens' preferences and progress on reforms

While it is far from perfect, there is considerable alignment between differences in citizens' preferences and differences in the progress made on reforms in each area (see Chart 5.11). In order to assess these links more systematically, regression analysis can be used to look at the significance of the relationship between ATQ scores and preference indices for each quality. That regression includes quality-year fixed effects and the logarithm of GDP per capita, in order to capture average progress on reforms in each area in a given year and the level of economic development, respectively. Additional specifications include interaction terms consisting of the relevant preference index plus (i) dummy variables for each quality of a sustainable market economy and (ii) a dummy variable indicating whether the economy has free media.

This analysis suggests that the relationship between progress on reforms and citizens' stated preferences is strongest in the areas of economic integration and inclusion, with a significant association also being observed for competitiveness (see Chart 5.12). The link between preferences and reforms is weakest when it comes to the green economy and resilience.

[6] See EBRD (2013).
[7] See, for instance, Georgiev et al. (2017).

However, there is no meaningful alignment between changes in ATQ scores since 2016 and average stated preferences, except in the area of resilience: in economies where survey respondents place greater emphasis on economic stability, resilience-oriented reforms have progressed faster.

The causal link between preferences and reforms could plausibly run in both directions simultaneously. Successful reforms could, for example, strengthen people's support for economic integration or inclusion. And at the same time, the strength of citizens' preferences could encourage policymakers to undertake reforms in the relevant areas.

However, a threat to the independence of the judiciary may prompt people to express stronger support for good governance, creating a negative relationship between reforms and preferences. There are many other reasons why the relationship between citizens' preferences and progress on reforms might be somewhat weak – from imperfections in the measurement of preferences using household surveys to the short-term nature of political cycles and the presence of special interests that distort the incentives faced by elected officials.[8]

Stronger links between people's preferences and progress on reforms where media are free

The extent to which economic decision-making is aligned with the stated preferences of citizens may be dependent on the degree of media freedom, as free media are likely to facilitate stronger links between people's preferences and political processes.[9] Media narratives, for instance, have been shown to play an important role in shaping attitudes towards the green economy.[10]

To analyse this, a dummy variable indicating the existence of free media has been calculated, using annual data on countries' media freedom and internet censorship taken from the V-Dem Institute at the University of Gothenburg. On the basis of those data, the sample of countries has been split into two groups: those where the internet and the media are largely free from censorship; and those where the media and/or the internet lack freedom.[11] Preferences in respect of various qualities of a sustainable market economy have then been interacted with that indicator variable, in order to see how media freedom affects the relationship between preferences and reforms.

The relationship between citizens' average preferences and progress on reforms is more than twice as strong where economies have free media (see Chart 5.12), and that difference is statistically significant. ATQ scores and citizens' preferences are also aligned with the ways in which the various countries have responded to rising food and energy prices in 2022 – which is the focus of the next section of this chapter.

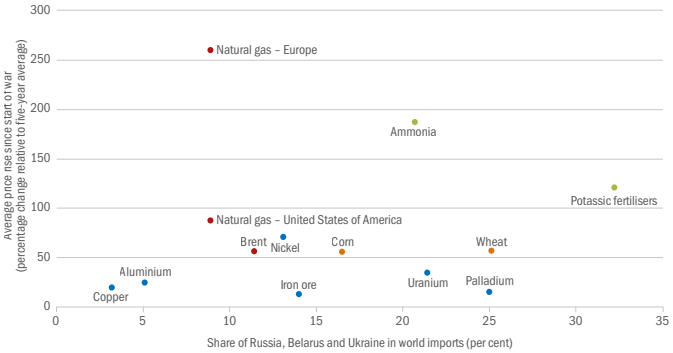
Policy responses to high food and energy prices

Sharp increases in food and energy prices

Commodity and food prices have increased significantly in 2022. This began with a strengthening of demand as Covid-related social distancing was phased out, before being exacerbated by Russia's invasion of Ukraine on 24 February 2022, with markets expecting a major decline in exports from Russia, Ukraine and Belarus, which are all important exporters of commodities (see Chart 5.13). Some buyers stopped purchasing oil from Russia, so Russian oil started being traded at prices significantly below the Brent benchmark (a global benchmark based on North Sea oil). The prices of some commodities (including oil) have been high by the standards of recent years, but have remained below their historical peaks in inflation-adjusted terms. However, the prices of others – notably that of gas in Europe – have reached record levels. (In the first half of 2022, the price of natural gas in Europe was, on average, four times the level seen in the United States of America.)[12]

Many EBRD economies are highly dependent on gas, which accounts for an average of around 30 per cent of total energy consumption in the EBRD regions (and more than half of all energy consumption in Egypt and a number of other economies). What is more, many economies source most of their gas from Russia (with Russia accounting for more than 90 per cent of total gas imports in Serbia and the Slovak Republic in 2021).

CHART 5.13. The prices of many commodities have increased sharply, as Russia and Ukraine are major exporters of commodities



SOURCE: UN Comtrade, World Bank, IMF, Bloomberg and authors' calculations.
NOTE: Average price rises are based on prices between 24 February and end-July 2022 and are expressed as a percentage of average prices over the period 2016-20.

[8] See, for instance, Milesi-Ferretti and Spolaore (1994).
[9] See Leeson (2008), for example.
[10] See Harring et al. (2011).
[11] See, for instance, Guriev et al. (2021) on the role that internet freedom plays in shaping attitudes towards governments.
[12] See EBRD (2022a, 2022b) for more detailed analysis.

IN THE FIRST HALF OF 2022, THE AVERAGE PRICE OF NATURAL GAS IN EUROPE WAS **FOUR TIMES** THAT SEEN IN THE UNITED STATES OF AMERICA

ON AVERAGE, GAS ACCOUNTS FOR AROUND

30%

OF TOTAL ENERGY CONSUMPTION IN THE EBRD REGIONS

Ukraine and Russia are also major exporters of agricultural commodities. In 2019, for example, they accounted for a combined total of almost 70 per cent of global exports of sunflower oil and almost 30 per cent of global wheat exports. In addition, Belarus and Russia are key exporters of fertilisers (as well as fertiliser ingredients such as ammonia and potash), and the highly gas-intensive nature of fertiliser production means that there is a strong pass-through from gas prices to fertiliser prices. As a result, the prices of wheat, corn, soybeans and other agricultural commodities have risen sharply. However, they remain below the historical peaks of 2008 and the 1970s in inflation-adjusted terms.

Some economies in the EBRD regions are highly dependent on wheat imports from Russia and Ukraine. For instance, Armenia and Georgia import over 70 per cent of the wheat that they consume, and Russia and Ukraine account for more than 80 per cent of their total wheat imports. Economies in the SEMED region also tend to be major importers of wheat, as the scarcity of water limits the scope for expanding local production.

Policy responses pursue various objectives

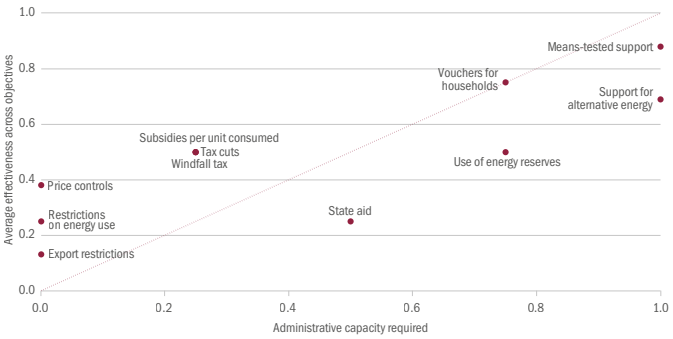
Policymakers have used a wide range of measures to mitigate the impact that those higher energy and food prices have on households and firms, with most countries taking action of some kind. Those measures seek to protect people's purchasing power and minimise the risk of disruptive social unrest, which has often followed episodes of rising fuel and energy prices (see Box 5.1).

The varied nature of those policy responses reflects the multitude of objectives that such policy measures seek to pursue (as summarised in Table 5.2), with those objectives spanning four different qualities of a sustainable market economy: green, inclusive, resilient and well-governed.

First and foremost, policy measures seek to help the people who are most in need – typically low-income households (thereby making them inclusive). The overall fiscal cost of such measures is partly a reflection of how well they are targeted, with economies that face more binding fiscal constraints potentially choosing to prioritise a reduced fiscal cost in order to ensure resilience. Policymakers may also seek to limit any externalities that are caused by fuel and food subsidies (such as increases in energy consumption and associated GHG emissions), in line with green-economy objectives. Measures also differ in terms of both the ease with which they can be communicated to the wider population and their likely reception by voters (which is a question of good governance). The importance of measures' political appeal may also vary from economy to economy. Lastly, some measures are easier to implement, while others require greater administrative capacity.

As a result of that multiplicity of goals and aims, there are complex trade-offs between different policy objectives. In addition, higher levels of administrative capacity tend to be required in order to implement more effective policies (see Chart 5.14). These various trade-offs are discussed in greater detail above.

CHART 5.14. Policymakers face trade-offs between effectiveness and ease of implementation



SOURCE: EBRD and authors' calculations.
NOTE: See the notes on Table 5.2 for details of the calculation of values. Administrative capacity required is calculated as one minus the ease of implementation score.

Subsidies per unit of consumption and price controls are often used in the EBRD regions

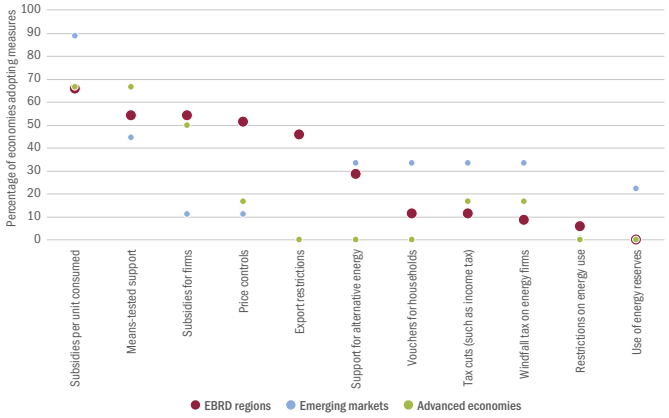
The most common measures are fuel subsidies per unit consumed (per litre of diesel or per kWh of electricity, for instance; see Chart 5.15). By late July 2022, these had been introduced in 64 per cent of all economies in the EBRD regions and the majority of advanced comparator economies, as well as selected emerging-market comparators. For example, in February 2022 value-added tax (VAT) on district heating in Poland was reduced from 23 to 5 per cent, while in the Czech Republic the excise tax on petrol and diesel was reduced by CZK 1.5 (€0.06) per litre from June 2022. For the purposes of this analysis, reductions in *ad valorem* taxes on specific goods,

TABLE 5.2. Policy responses to higher energy and food prices vary in terms of their effectiveness

	Quality-related objectives				Capacity
	Inclusive Helps low-income households	**Resilient** Well-targeted, minimising overall cost	**Green** Avoids externalities (extra consumption)	**Well-governed** Regarded as support by population	Ease of implementation
Means-tested support	1	1	0.75	0.75	0
Energy vouchers for households	1	0	1	1	0.25
Support for alternative energy	0.5	1	1	0.25	0
Fuel subsidies per unit consumed	1	0	0	1	0.75
Tax cuts (such as income tax)	1	0	1	0	0.75
Windfall tax on energy firms	0	1	0.5	0.5	0.75
Use of energy reserves	1	0	0.5	0.5	0.25
Price controls	0.5	0	0	1	1
State aid (subsidies for firms)	0	0.5	0	0.5	0.5
Restrictions on energy use	0	0	1	0	1
Export restrictions	0	0	0	0.5	1

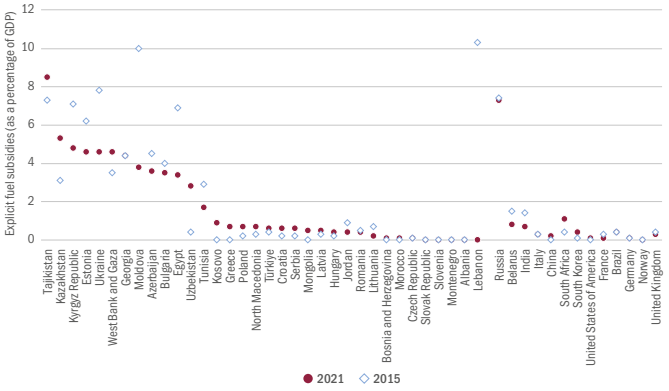
SOURCE: EBRD and authors' calculations.
NOTE: Each score is on a scale of 0 to 1. Measures are ranked on the basis of their overall effectiveness, which is calculated by averaging the four scores for quality-related objectives.

CHART 5.15. A wide range of measures has been introduced in response to high energy and food prices



SOURCE: EBRD and authors' calculations.
NOTE: The advanced-economy comparators are Canada, Cyprus, France, Germany, Italy, Japan, Sweden, the United Kingdom and the United States of America. Emerging-market comparators are Bangladesh, Brazil, Colombia, Mexico, South Africa and Thailand.

CHART 5.16. Explicit fuel subsidies have fallen, but they remain substantial in many economies in the EBRD regions



SOURCE: IMF fuel subsidies template and authors' calculations.
NOTE: Selected comparator economies with significant subsidies are shown.

such as excise duty on fuel or VAT on bread (as opposed to broad changes to tax rates), are considered to be subsidies per unit of consumption.

Such subsidies are usually justified by the fact that lower-income households spend larger percentages of their income on food and energy. These measures are relatively easy to implement and communicate (and typically well received by countries' populations). Consequently, the inclusion and governance columns in Table 5.2 show high scores (1). In contrast, subsidising energy prices encourages overconsumption, making per-unit subsidies environmentally unfriendly (so the corresponding score in the externalities column in Table 5.2 is 0). Moreover, while the poor do benefit, pay-outs accrue primarily to better-off customers who consume more energy and food, making subsidies poorly targeted and fiscally costly. In other words, such measures may score highly in terms of inclusion and governance, but poorly in terms of their green credentials or resilience.

In fact, energy subsidies were common even before this latest increase in commodity prices, although they have fallen over time in many economies (see Chart 5.16). In 2021, explicit subsidies (when prices do not cover production costs) were estimated to exceed 4 per cent of GDP in many economies in Central Asia and the EEC region. Estimates of implicit subsidies, which take into account underpricing of environmental damage, stand at 20 to 25 per cent of GDP. Thus, the fiscal cost of energy subsidies can be substantial, particularly in the context of high energy prices.[13]

Price controls on food and/or energy are also fairly common in the EBRD regions (but much less so in advanced economies). For instance, Slovenia capped fuel prices for a month as of 15 March 2022, while Hungary has capped the prices of various food staples, as well as fuel prices. Price controls are easy to communicate and implement, but they encourage higher energy usage and food waste. They often result in shortages – partly as a result of incentives to buy more and store the goods, and partly as a result of lack of interest on the part of sellers. Whether they help low-income households depends on whether low-income households are able to get hold of price-capped goods in the first place.

Some countries have scaled up means-tested support programmes targeting low-income households. In Poland, for instance, a special allowance for households is expected to provide a maximum of €106 per person per year, depending on income levels, the type of heating and the number of people in the household. The Kyrgyz Republic, meanwhile, has announced handouts of flour and a 50 per cent discount on electricity bills (subject to a cap) for low-income households.

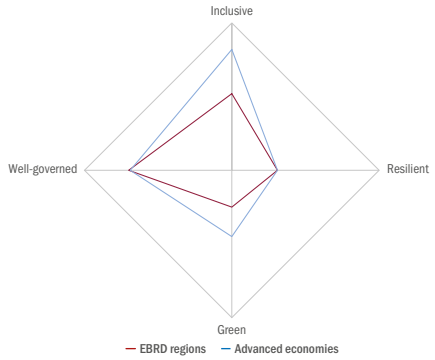
Such means-tested measures are relatively well targeted, which lowers the overall fiscal cost of support programmes. They may also avoid excessive energy usage, depending on their design. For instance, giving a household a voucher (rather than a discount on the price per unit) does not alter the price that the consumer has to pay for an additional unit of electricity or heating. However, reaching out to those households most in need requires a relatively high level of administrative capacity. Strong communication may also be required to ensure that the narrower targeting of benefits does not undermine their political appeal.

Support for alternative energy sources, if well designed, can be highly effective as a longer-term measure complementing policies that have an immediate impact. For instance, several economies in the EBRD regions, including Estonia, have increased their emphasis on nuclear energy. It is worth noting that alternative energy sources are not necessarily green, with several economies (including Bosnia and Herzegovina and Greece) considering postponing shifts away from coal.

Several countries have supported firms directly through state aid or preferential loans. Azerbaijan, for instance, has given subsidised loans to large grain importers, Georgia has issued subsidised loans to farmers, and Kazakhstan has introduced fertiliser and pesticide subsidies for agricultural producers. Meanwhile, temporary

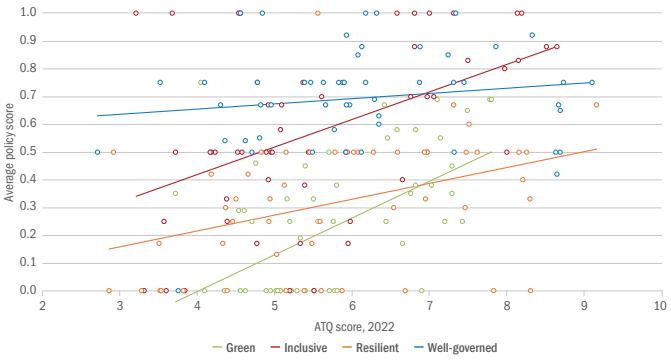
[13] See IMF (2022).

CHART 5.17. The policies of EBRD economies are less effective, on average, than those of advanced comparator economies



SOURCE: World Values Survey, EBRD and authors' calculations.
NOTE: For each economy, policies are scored on four different objectives and average scores are calculated across all policies in place. The advanced-economy comparators are Canada, Cyprus, France, Germany, Italy, Japan, Sweden, the United Kingdom and the United States of America.

CHART 5.18. The quality of policy responses is somewhat aligned with the relevant ATQ scores



SOURCE: EBRD and authors' calculations.
NOTE: For each economy, policies are scored on four different objectives and average scores are calculated across all policies in place. These scores are then related to the corresponding ATQ scores.

restrictions have, at various points in time, been placed on food exports in Hungary, Kazakhstan, the Kyrgyz Republic and a number of other economies. Such restrictions have a tendency to multiply, with a negative effect on food security as economies become vulnerable to idiosyncratic shocks (for instance, if a particular crop has a poor harvest). They have been more prevalent in the EBRD regions than in comparator economies.

Policies in the EBRD regions are less effective, on average

On average, the policy responses of economies in the EBRD regions are less effective (across all four of the qualities in Table 5.2) than those of advanced comparator economies, with the largest differentials being observed in the areas of inclusion and the green economy (see Chart 5.17). In this analysis, policy scores for each of the four objectives (inclusion, resilience, the green economy and governance) are averaged across all of the policies that are in place in a given economy. In Chart 5.17 they are also averaged across the four objectives and across groups of economies.

The quality of policy responses is somewhat aligned with ATQ scores

Analysis of average policy scores for each economy also suggests that cross-country differences in policies are somewhat aligned with differences in ATQ scores. In particular, the analysis in this section relates each economy's policy scores to its ATQ scores. (For instance, a country's green policy score is related to its ATQ score, with the same being done for resilience, governance and inclusion.)

The relationship between the quality of policy responses and ATQ scores is strongest in the area of inclusion (see Chart 5.18), but there is a degree of alignment in the other areas as well. The fact that the characteristics of policy measures are aligned with ATQ scores is, in part, a reflection of the fact that at least a third of policy responses have involved modifying and expanding existing schemes and initiatives (such as means-tested support programmes or subsidies).

Conclusion

This overview of progress across six areas of structural reform since 2016 has revealed convergence in most areas – notably as regards competitiveness, resilience and economic integration. This contrasts sharply with the developments seen in the area of green reform, with growing divergence between greener and less green economies. This could, in part, reflect differences in the tolerance of pollution and climate-related risks across economies, whereas the desire for greater competitiveness, integration and economic resilience appears to be universal.

Indeed, the chapter has documented substantial differences across the various areas in terms of citizens' preferences, and those preferences are, in turn, somewhat aligned with the progress of structural reforms in the respective areas. This alignment, however, is only statistically and economically significant in economies where media and the internet are relatively free from government censorship.

Most countries have introduced food or fuel subsidies, price controls or other measures in response to the high energy and food prices seen in 2022. These measures have varied widely, reflecting differences in governments' ability to afford subsidies and implement measures requiring high levels of administrative capacity, as well as differences in policy priorities when it comes to environmental externalities and variation in the ease of communicating measures to the public. Overall, price controls and export restrictions are far more common in the EBRD regions than in advanced economies.

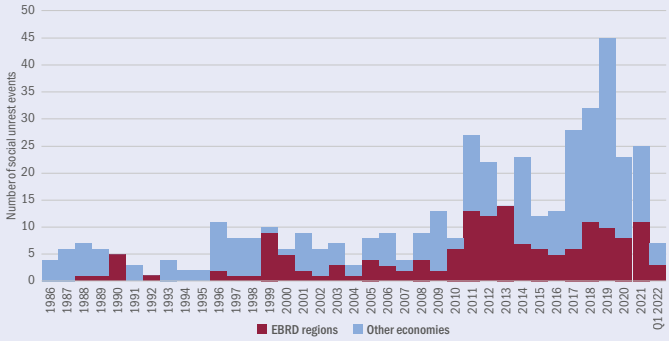
BOX 5.1.

Social unrest

As this chapter has shown, policymakers have used a wide range of measures to mitigate the impact that rising energy and food prices have on households and firms. These measures seek to protect people's purchasing power and minimise the risk of unrest.

In the past, episodes of rising fuel and energy prices have often been followed by disruptive social unrest. Indeed, past food price shocks were one of the factors that contributed to the Arab Spring, while recent protests in Kazakhstan were triggered by a sharp increase in liquefied gas prices following the lifting of a government-enforced price cap. More generally, food and fuel price inflation is an important predictor of mass protests, riots and political violence, even after taking into account demographics and growth – particularly in poorer economies, where food and fuel account for a larger share of total household spending and where governments may have less fiscal space to dampen price shocks.[14]

CHART 5.1.1. Protests have become more common in the last decade or so



SOURCE: Barrett et al. (2022) and authors' calculations.
NOTE: Data for 2022 relate only to the first quarter of the year.

Historically, political – rather than economic – factors have tended to account for the bulk of social unrest, but unrest that is triggered by economic factors is generally costlier. According to the Mass Mobilization database, almost three-quarters of all social unrest is motivated by political factors (such as demands to improve political processes or remove a politician from public office). However, the economic impact of social unrest tends to be more severe when it is caused by socio-economic factors (such as inflation), rather than political factors.[15]

Moreover, social unrest often occurs repeatedly in the same economies over time and it can be contagious. The risk of a country experiencing social unrest quadruples if it has already experienced such an episode in the previous six months. Moreover, it doubles if a neighbouring country has experienced social unrest.[16] Past turmoil – both domestically and in neighbouring countries – is by far the most important predictor of future unrest, proving to be about 10 times more informative than economic or social factors such as inflation, GDP growth or access to basic services.[17]

Social unrest has become more common in the last decade or so – prior to the Covid-19 pandemic, at least. In late 2019, widespread unrest in South America and the Middle East drove the number of social unrest events to its highest level in three decades, according to the Reported Social Unrest Index, a monthly measure of social unrest based on press coverage in 130 economies (see Chart 5.1.1).[18] Numbers of protests remained high thereafter, despite restrictions on mass gatherings on account of the pandemic.

[14] See The Economist (2022a, 2022b).
[15] See Hadzi-Vaskov et al. (2021).
[16] See Barrett et al. (2022).
[17] See Hlatshwayo and Redl (2022).
[18] See Barrett et al. (2022).

BOX 5.2.

Measuring citizens' preferences

In order to analyse the strength of people's preferences in different policy areas, indices for each quality of a sustainable market economy are constructed using questions from the 2017-20 round of the World Values Survey.[19]

Details of the questions that are used for each quality are provided below. For each question, responses are aggregated to form an overall index using the following methodology:

1) A weighted average of the responses to each question is scaled by the response rate, resulting in a question-specific index with a value between 0 and 1. Each question is scaled using a min-max transformation.
2) For each quality, index scores are averaged across questions to produce a composite index for the policy area in question.
3) That composite index is then rescaled using a second min-max transformation, producing an overall index for each quality with a value between 0 and 1.

Competitive

Preferences in terms of competitiveness are captured by the percentage of respondents who state that "a high level of economic growth" should be a country's first or second priority (where the other possible options are "making sure this country has strong defence forces", ensuring "that people have more say about how things are done in their jobs and in their communities" and "trying to make our cities and countryside more beautiful"). A weighting of 1 is given to responses where economic growth is a respondent's first choice, and a weighting of 0.5 is given to those where growth is the second priority. The index also includes participants' views on whether private ownership of business and industry should be increased (as opposed to increasing state ownership).

Green

Preferences as regards the green economy are measured as the percentage of respondents who agree that "protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs", as opposed to "economic growth and creating jobs should be the top priority, even if the environment suffers to some extent".

Integration

Respondents were asked how close they feel to their village, their district, their country, their continent and the world on a four-point scale ranging from "very close" to "not close at all". It is assumed that both (i) greater identification with the world relative to the country and (ii) greater identification with the country relative to the local community (the village or district) indicate a greater preference for economic integration.

Inclusion

Preferences in terms of income equality are based on the extent to which respondents agree that "incomes should be made more equal" (as opposed to believing that "there should be greater incentives for individual effort"). Preferences as regards gender equality are based on the extent to which respondents disagree with the following statements: "Men make better political leaders than women" and "When jobs are scarce, men should have more right to a job than women".

Resilience

Preferences in terms of resilience are measured as the percentage of respondents who state that their country's primary or secondary aim should be "a stable economy" (where the other possible options are "progress towards a less impersonal and more humane society", "progress towards a society in which ideas count more than money" and "the fight against crime"). Answers favouring a stable economy are given a weighting of 1 or 0.5, depending on whether they are the respondent's first or second choice.

Well-governed

Preferences as regards governance are based on the extent to which respondents believe that "having a strong leader who does not have to bother with parliament and elections" is either a "fairly bad" or a "very bad" way of governing (with four possible answers to this question: "very good", "fairly good", "fairly bad" and "very bad").

[19] For more details, see Carruthers and Plekhanov (2022), where an identical methodology is employed.

References

P. Barrett, M. Appendino, K. Nguyen and J. de Leon Miranda (2022)
"Measuring Social Unrest Using Media Reports", *Journal of Development Economics*, Vol. 158.

A. Carruthers and A. Plekhanov (2022)
"Attitudes, beliefs and reforms", EBRD working paper, forthcoming.

A. Da Silva, A. Givone and D. Sondermann (2018)
"When Do Countries Implement Structural Reforms?", in N. Campos, P. De Grauwe and Y. Ji (eds.), *The Political Economy of Structural Reforms in Europe*, Chapter 2.

EBRD (2013)
Transition Report 2013 – Stuck in Transition?, London.

EBRD (2022a)
"The return of runaway prices", *Regional Economic Prospects in the EBRD Regions*, May, London.

EBRD (2022b)
"Cold winter ahead?", *Regional Economic Prospects in the EBRD Regions*, September, London.

T. Gamtkitsulashvili and A. Plekhanov (2022)
"Lifetime experiences and attitudes towards the environment", EBRD working paper, forthcoming.

Y. Georgiev, P. Nagy-Mohacsi and A. Plekhanov (2017)
"Structural reform and productivity growth in Emerging Europe and Central Asia", Asian Development Bank Economics Working Paper No. 523.

S. Guriev, N. Melnikov and E. Zhuravskaya (2021)
"3G Internet and Confidence in Government", *The Quarterly Journal of Economics*, Vol. 136, No. 4, pp. 2533-2613.

M. Hadzi-Vaskov, S. Pienknagura and L. Ricci (2021)
"The Macroeconomic Impact of Social Unrest", IMF Working Paper No. 21/135.

N. Harring, S. Jagers and J. Martinsson (2011)
"Explaining ups and downs in the public's environmental concern in Sweden: the effects of ecological modernization, the economy, and the media", *Organization & Environment*, Vol. 24, No. 4, pp. 388-403.

S. Hlatshwayo and C. Redl (2022)
"Forecasting Social Unrest", IMF working paper, forthcoming.

IMF (2022)
"Fiscal policy from pandemic to war", *Fiscal Monitor*, April.

R. Inglehart, C. Haerpfer, A. Moreno, C. Welzel, K. Kizilova, J. Diez-Medrano, M. Lagos, P. Norris, E. Ponarin and B. Puranen (2014)
"World Values Survey", JD Systems Institute.

P. Leeson (2008)
"Media freedom, political knowledge, and participation", *Journal of Economic Perspectives,* Vol. 22, No. 2, pp. 155-169.

G. Milesi-Ferretti and E. Spolaore (1994)
"How cynical can an incumbent be? Strategic policy in a model of government spending", *Journal of Public Economics*, Vol. 55, No. 1, pp. 121-140.

The Economist (2022a)
"Costly food and energy are fostering global unrest", 23 June.

The Economist (2022b)
"A wave of unrest is coming. Here's how to avert some of it", 23 June.

Acknowledgements

The *Transition Report 2022-23* was prepared by the Office of the Chief Economist of the EBRD, with contributions from other EBRD departments and under the general direction of Beata Javorcik.

The editors of the report are Ralph De Haas and Alexander Plekhanov.

Joseph Sassoon provided research assistance.

The writing teams for the chapters, boxes and annexes comprised:

Chapter 1
Maxim Chupilkin and Zsoka Koczan (team leader), with contributions from Przemyslaw Karpisz.
Box 1.1 was prepared by Helena Schweiger. **Box 1.2** was prepared by Przemyslaw Karpisz. **Box 1.3** was prepared by Calum Wallace and Philipp Paetzold. **Box 1.4** was prepared by Zsoka Koczan and Pawel Krasny.

Chapter 2
Cevat Giray Aksoy (team leader), Maxim Chupilkin, Jan Gromadzki, Anina Harter and Piotr Lewandowski.
Box 2.1 was prepared by Pierre-Louis Vezina. **Box 2.2** was prepared by Cevat Giray Aksoy and Chan Yu. **Box 2.3** was prepared by Anina Harter. **Box 2.4** was prepared by Cevat Giray Aksoy, Jan Gromadzki, Anina Harter and Piotr Lewandowski.
Box 2.5 was prepared by Sami Anouar and Jodeh Reem.

Chapter 3
Francesca Faella, Beata Javorcik, Lucas Kitzmüller, Vincenzo Langella and Helena Schweiger (team leader), with input from Andreas Baur and Lisandra Flach.
Box 3.1 was prepared by Francesca Faella and Helena Schweiger. **Box 3.2** was prepared by Muhammed A. Yıldırım. **Box 3.3** was prepared by Vincenzo Langella and Helena Schweiger. **Box 3.4** was prepared by Maxim Chupilkin and Alexander Plekhanov.

Chapter 4
Çağatay Bircan (team leader), Ralph De Haas and Hannah Moreno.
Box 4.1 was prepared by Catherine Bridge-Zoller, Ralph De Haas and Natalia Pagkou. **Box 4.2** was prepared by Catherine Bridge-Zoller, Ralph De Haas and Natalia Pagkou. **Box 4.3** was prepared by Çağatay Bircan and Hannah Moreno.

Chapter 5
Anna Carruthers, Alexander Plekhanov (team leader), Anna Sali and Joseph Sassoon, with contributions from Siqi Wu and sector and regional economists and analysts.
Box 5.1 was prepared by Zsoka Koczan. **Box 5.2** was prepared by Anna Carruthers and Siqi Wu.

The online country assessments at tr-ebrd.com were prepared by the regional economists and analysts of the Policy Strategy and Delivery Department and edited by Peter Sanfey.

Editorial, multimedia and production guidance for the report was provided by Bianca Beks, Poilin Breathnach, Dermot Doorly, Hannah Fenn, Cathy Goudie, Dan Kelly, Richard Porter, Viktorija Quartly, Jonathan Wells, Bryan Whitford and Marjola Xhunga in the EBRD Communications Department, and by Matthew Hart and Natasha Treloar. The *Transition Report 2022-23* was designed and print-managed by Blackwood Creative Ltd; **www.weareblackwood.com**.

The authors and editors of the report would like to thank Elisabeth Beckmann and Melanie Koch for providing data from the Euro Survey conducted by the Austrian National Bank, and Philip Barrett of the International Monetary Fund for providing data on social unrest. The report benefited from expert advice from Tim Eisert for Chapter 4 and Paul Poast for Chapter 1, as well as comments and suggestions from the EBRD Board of Directors and their authorities, EBRD staff and staff of the European Commission, European Investment Bank, International Monetary Fund and the World Bank Group.

Abbreviations: For charts in this *Transition Report,* the abbreviations used for each economy follow the ISO 3166-1 three-letter economy codes published by the International Organization for Standardization (ISO).

Terms, names, maps and charts used in this report to refer to geographical or other territories, political and economic groupings and units, do not constitute and should not be construed as constituting an express or implied position, endorsement, acceptance or expression of opinion by the European Bank for Reconstruction and Development or its members concerning the status of any country, territory, grouping and unit, or delimitation of its borders, or sovereignty.

A glossary for this report is available at

Printed sustainably in the UK by Pureprint, a CarbonNeutral® company with FSC® chain of custody and an ISO 14001 certified environmental management system recycling over 99 per cent of all dry waste.

The *Transition Report 2022-23* is printed on Galerie Satin, an FSC® certified paper from responsible sources. This ensures that there is an audited chain of custody from the tree in the well-managed forest through to the finished document in the printing factory.

FSC
www.fsc.org
MIX
Paper from responsible sources
FSC® C022913

Five Bank Street
London E14 4BG
United Kingdom
www.ebrd.com

Designed and produced by Blackwood Creative Ltd and the EBRD.

Illustrations: © Blackwood Creative Ltd

1500 Transition Report 2022-23 (E/1,500)

We invest in changing lives

European Bank for Reconstruction
and Development
Five Bank Street
London E14 4BG
United Kingdom

www.ebrd.com

Tel: +44 20 7338 6000

ISBN: 978-1-898802-54-9

ISSN 1356-3424

Discover more at tr-ebrd.com

Find us on:

@EBRD

ebrdhq

EBRD

ebrd_official

ebrdtv