

Raga, Sherillyn et al.

Research Report

Impact of the Russia-Ukraine war on Africa: Policy implications for navigating shocks and building resilience

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Synthesis report

Impact of the Russia– Ukraine war on Africa

Policy implications for navigating shocks
and building resilience

Sherillyn Raga, Heinrich Bohlmann, Alberto Lemma,
Dianah Ngui, Phyllis Papadavid, Dirk Willem te Velde
and Chahir Zaki

January 2024



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policy



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This synthesis paper draws on the following six studies from a project led by the African Economic Research Consortium (AERC), the Economic Research Forum (ERF) and the Partnership for Economic Policy (PEP) and supported by Canada's International Development Research Centre (IDRC):

- 1 Benayad, M. (2023) 'Cas du développement des échanges agricoles entre le Maroc et le Sénégal'. Unpublished draft paper as of June 2023.
- 2 Cororaton, C. (2023) 'The impact of the war in Ukraine: estimating the economic and welfare losses in Africa using a global CGE model' Unpublished draft paper as of June 2023

Cororaton, C., Bohlmann, H., Bohlmann, J. and Henseler, M. (2023) 'The impact of the Russia-Ukraine war: estimating the economic and welfare losses in Africa using a global CGE model'. Policy Brief 267. Partnership for Economic Policy (<https://portal.pep-net.org/public/project/20692>).
- 3 Geda, A. and Musyoka, M.P. (2023) 'Impacts of the Ukraine crises on food security in Kenya and Ethiopia: options for regional Trade collaboration'. Working Paper IWU-CC-002. Nairobi: AERC.
- 4 M'bouke S., Gurara, D., Ngui, D. and Shimeles, A. (2023) 'The echoes of conflict: analyzing the potential impacts of the Russia-Ukraine war on Africa' Unpublished draft paper as of June 2023.

M'bouke S., Gurara, D., Ngui, D. and Shimeles, A. (2023) 'The echoes of conflict: analyzing the potential impacts of the Russia-Ukraine war on Africa'. Policy Brief IWU-PB-001. Nairobi: AERC.
- 5 Ngepah, N. (2023) 'Food security effects of food and agricultural inputs trade shocks from the Russia-Ukraine region in South Africa and Mozambique: exploring the roles of the Maputo corridor, SADC, and continental sources'. Working Paper IWU-CC-003. Nairobi: AERC.
- 6 Zaki, C., Alhelo, A. and Suliman, K. (2023) 'Trade, food security, and the war in Ukraine: The cases of Egypt and Sudan'. Working Paper 1659. Giza: ERF.

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Acronyms

ADB	Asian Development Bank
AERC	African Economic Research Consortium
AfCFTA	African Continental Free Trade Area
BCEAO	Central Bank of West African States
CGE	computable general equilibrium
CDIS	Coordinated Direct Investment Survey
CPIS	Coordinated Portfolio Investment Survey
DRMK	Disaster Risk Management Knowledge Centre
EMBIG	Emerging Market Bond Index Global
ERF	Economic Research Forum
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FSIN	Food Security Information Network
GDP	gross domestic product
GNAFC	Global Network Against Food Crises
GVAR	global vector autoregressive
HIC	high-income country
IDRC	International Development Research Centre
IDS	International Debt Statistics
IFS	International Financial Statistics
ILO	International Labour Organization
IMF	International Monetary Fund
LIC	low-income country
L&MICs	low- and middle-income countries
OECD	Organisation for Economic Cooperation and Development
PEP	Partnership for Economic Policy
pp	percentage points
SVB	Silicon Valley Bank
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
US	United States
WDI	World Development Indicators
WITS	World Integrated Trade Solutions
WTO	World Trade Organization

Executive summary

The global impact of the Russia–Ukraine war, which started in February 2022, has been mediated through trade, commodity prices and financial conditions. Russia and Ukraine are major global suppliers of oil, wheat and fertilisers. The war has disrupted exports from the two countries, induced uncertainties in global supply chains and been used to justify export food bans in some countries. These conditions have contributed to a spike in global prices of oil, food and fertilisers, putting upward pressures on domestic prices. To stop the price shock from transforming into inflation, high-income countries (HICs) have increased their interest rates; this, in turn, has triggered capital outflows, currency depreciation and higher borrowing costs for many low- and middle-income countries (L&MICs).

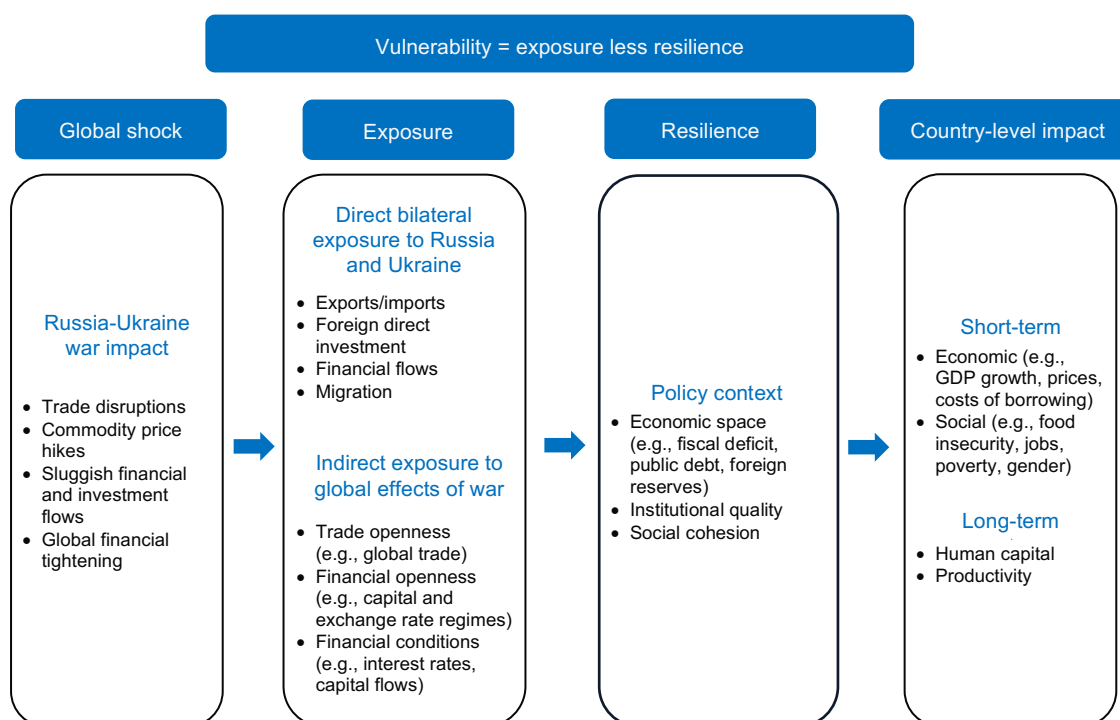
It is not straightforward to isolate the impact of the Russia–Ukraine war from those of other global shocks (e.g. COVID-19) and domestic developments, but some studies attempt to do this by constructing counterfactuals or in-depth case studies.

This paper utilises an analytical framework to understand the transmission channel of the impact of the Russia–Ukraine war at the country level in Africa, particularly tracing the economic exposure and resilience of African countries to the impact of the war (Figure ES1). The paper then synthesises evidence from eight African countries and Africa as a whole based on six studies assessing the impact of the war and its implications for food security in Africa.

The six studies include four case studies covering Egypt, Ethiopia, Kenya, Morocco, Mozambique, Senegal, South Africa and Sudan. Most of the case studies highlight the level of exposure of these countries through trade channels, the effects on exchange rates and prices, and the implications for food consumption. The other two studies utilise econometric modelling techniques (i.e. global vector autoregressive – GVAR, computable general equilibrium – CGE) to simulate the impact of the war on key macroeconomic variables (e.g. growth, income) across African countries. As the studies used different methodological techniques and had different data coverage, our synthesis of the evidence from these studies is complemented by secondary data and insights from the wider literature.

The studies are research outputs from an ongoing collaborative project led by the African Economic Research Consortium (AERC), the Economic Research Forum (ERF) and the Partnership for Economic Policy (PEP) under a project supported by Canada's International Development Research Centre (IDRC).

Figure ES1 Vulnerability to the economic and social impacts of the Russia–Ukraine war



Source: Authors

Economic exposure

African countries have low direct exposure to the Russia–Ukraine war through overall trade, financial flows and migration but are more exposed in specific ways, for example through food and fertiliser imports from Russia and Ukraine. In Kenya, imports from Russia and Ukraine account for only 2.1% and 5.1%, respectively, of imports but wheat made up 85% of these imports in 2018–2021. In Egypt, 20% of food imports (and 67% of wheat imports) in 2021 were from Russia and Ukraine. Meanwhile, between 11% and 41% of fertiliser imports in Egypt, Ethiopia, Morocco, Senegal and South Africa were sourced from Russia and Ukraine in the decade up to 2021.

Beyond direct exposure, African countries have been indirectly exposed to the global effects of the Russia–Ukraine war through demand for exports and investment decisions. Between 2010 and 2019, a median African country’s export goods comprised 28% of gross domestic product (GDP). During the same period, foreign direct investment stock on the continent was equivalent to 35% of GDP.

The tightening of monetary policy in HICs has put pressure on exchange rates and accelerated inflation in Africa. Since early 2022, the US, the EU and the UK have increased interest rates to arrest inflation. This has led to pronounced dollar strengthening and has in turn induced capital outflows, currency depreciation and

widening sovereign spreads in African countries. For example, the Kenyan shilling and the South African rand depreciated against the US dollar by 25% and 21%, respectively, between January 2022 and August 2023. Exchange rate depreciation has pass-through effects on inflation and pushes up the debt burden on foreign-denominated debt.

Resilience

Most African countries were still recovering from Covid-19 limiting their economic policy space when the Russia–Ukraine war hit in early 2022. Sub-Saharan Africa’s fiscal deficit widened from 3.9% of GDP in 2019 to 6.4% of GDP in 2020, while public debt increased by nearly 10 percentage points (pp) to 57% of GDP during the same period. While sub-Saharan Africa’s fiscal deficit and public debt reduced in 2021–2022 they remained worse than pre-pandemic levels in 2019.

Foreign reserves declined in four out of five selected African countries in 2022. In the year before the war (2021), five African countries (Egypt, Kenya, Morocco, Mozambique and South Africa) had foreign reserves worth five to seven months of imports. On average, sub-Saharan Africa had foreign reserves worth five months of imports in 2021. This fell to four months in 2022. At the country level, foreign reserves fell in four out of five case studies in 2022, with the highest declines in Egypt and Mozambique, to an equivalent of three months from five months of imports in 2021. To increase resources, African countries have sought access to multilateral financing. A few countries (Chad, Ethiopia, Ghana and Zambia) have applied for debt treatment under the G20 Common Framework.

African countries have responded to the Russia–Ukraine war shock in various ways. One of the **initial responses to the war included export bans** on food, fertiliser and oil products. Algeria, Burkina Faso, Cameroon, Egypt, Ghana and Tunisia imposed export bans on selected food products and oils whereas Morocco implemented export licensing for tomatoes. Most of these restrictions had been lifted by the end of 2022. As higher prices of imported commodities put pressure on domestic prices, **trade policies in the form of subsidies and suspended import duties on selected staple items** (wheat, cattle, crude oil) were also activated in Morocco.

With increased inflation and exchange rate pressures, **central banks in Africa tightened policy interest rates.** Persistent exchange rate pressures led the Central Bank of Egypt to implement devaluations and to commit to a shift to a flexible exchange rate regime as part of the \$3 billion International Monetary Fund (IMF) financing secured in December 2022. Other central banks (Egypt, Ethiopia, Ghana, and Nigeria) imposed foreign exchange controls and measures to manage foreign currency flows.

With fiscal space squeezed, fiscal policy has been largely limited to a few social protection interventions to help those most vulnerable to food insecurity risks. Egypt and Sudan have implemented conditional cash transfer programmes whereas Mozambique and South Africa have maintained social safety nets and school feeding programmes initiated during the pandemic. In Senegal, the government helped local producers cope with increasing fertiliser prices by continuing its 50% fertiliser subsidy.

The Russia–Ukraine war has activated policy initiatives to improve longer-term agricultural production and trade in commodities affected by the war. Such initiatives include efforts by the Ethiopian government to improve local wheat production, Senegal’s plan to develop its rice value chains to strengthen local production, processing and marketing of rice, and Morocco’s agricultural strategy to double the areas under cultivation for rapeseed and sunflower by 2030.

Country-level impact

Two studies (Cororaton, 2023; M’bouke et al., 2023) have attempted to isolate the impact of the Russia–Ukraine war by constructing counterfactuals and estimating a likely impact. Simulations suggest that a 10% shock in oil, food and fertiliser prices lasting one quarter will lead to declines in Africa’s GDP by 0.1%, 0.1% and 0.04%, respectively. **The combined annual impact in Africa through these price shocks translates to roughly \$7 billion.** Actual impacts are likely to be higher since oil, food and fertiliser prices increased by larger shares, at 40%, 18% and 55%, respectively, in 2022, and other prices increased as well. This means the overall amount is probably an underestimate.

There is significant variation in the impact of the war across African countries, depending on their economic structures and domestic vulnerabilities. Simulations suggest the war may result in falls in food consumption of between zero in some Southern and East African countries and 6% in some North African countries. Price shocks from specific commodities have different effects on countries’ terms of trade: an oil price shock initially benefits net oil exporters with opposing effects on net oil importers; food price shocks negatively affect the terms of trade of 22 African countries; and fertiliser price shocks have an insignificant effect on the terms of trade of most African countries. When the impact of war coincides with droughts, countries in the Horn of Africa experience the highest declines in output (of more than 3%) than the rest of Africa (of 0.2%). Economic recovery is also expected to be faster among non-resource countries than resource-intensive ones because the former are supported by their more diversified economies.

Similarly, while it is difficult to disentangle the impact of the war from multiple factors that drive growth, employment, food insecurity and poverty, **the war may have exacerbated the impact of the**

pandemic on the deterioration of Africa's macroeconomic and social performance. Between 2020 and 2023, the continent lost 4.2 pp of GDP growth compared with the pre-Covid forecast. Beyond output, the number of unemployed Africans was 1.8 million higher in 2022 than in pre-Covid forecasts, partly driven by the lack of productive employment opportunities and by employment not growing as fast as population growth. A higher debt service lowers resources for development financing in Africa, with interest rate payment outpacing education, health and investment spending.

The overlapping shocks have slowed progress in terms of achieving Africa's development goals. In 2022, around 22% of Africans were facing high levels of food insecurity, with incidence between 50% and 75% of the population in Ethiopia, Kenya, Mozambique and Sudan. Poverty has also increased, suggesting that 18 million new poor people were added in 2022 to half of the African population (546 million people) already living in poverty in 2021.

The impacts of the war have disproportionate effects on women. In Kenya, for instance, women-headed households in both rural and urban areas were found to be more affected than households headed by men by changes in wheat flour prices between February 2022 and May 2023. Price shocks may also have affected women more than men as women spend a larger proportion of their income on food. Increased prices may also have reversed progress on women's access to modern energy and caused a return to unhealthy biomass for fuel for cooking and heating.

The economic and social impacts of COVID-19 and the Russia–Ukraine war may result in persistent output losses or 'scarring' effects. Simulations of the long-term effects of COVID-19 in Africa suggest that GDP reductions relative to a no-COVID-19 scenario will still be felt across countries by 2030 and 2050, as economic losses will erode gains in human development in the past decades. The effects of the Russia–Ukraine war are likely to compound the scarring from Covid-19 in Africa.

Policy implications

The six studies underlying this synthesis, as well as roundtable and public discussions of the studies' key findings,¹ highlight general observations and a range of country-specific policy suggestions for governments.

- 1 Tailored policy approaches to shocks, given the heterogeneous nature of the effects of the war on African countries.** Both the size and the nature of the effects vary. Evidence shows that impacts go from zero to 6% of the total value of food consumption. While several resource-intensive countries

¹ The findings of the six studies were discussed during an ODI–IMF closed door roundtable on 12 May 2023, AERC–ERF–PEP meetings held on 27 June and 19 September 2023 and an ODI event at the sidelines of the IMF–World Bank Annual Meetings on 11 October 2023.

have benefited from global commodity price shocks in the short run they will be affected negatively in the long run, while non-resource-intensive countries are expected to grow faster in the medium term. In addition, countries with higher government capacity may exhibit stronger recovery. Deeper and more persistent output contractions are expected in African countries with pre-existing vulnerabilities, such as susceptibility to climate change effects and political instability. Such heterogeneity means some countries (e.g. importers) need more actions than others, and that approaches will need to be tailored to enable short-term macroeconomic stabilisation but also long-term resilience-building. For instance, resource-intensive economies may need to support transformative sectors with large-scale employment (e.g. manufacturing, services) and invest in upskilling of human capital and climate-resilient infrastructure.

- 2 **Safeguarding of targeted social safety nets during shocks.** It is not possible to neutralise shocks so there will be impacts from changes in prices and economic activity. Some countries have responded to the Russia–Ukraine war in social protection terms, mostly through cash transfers and subsidies, but such interventions are not enough. Given the distributional impacts of increases in prices and poverty incidence induced by the war, there is a need for more proactive and targeted social support for women, vulnerable groups and poor households; the extension of credit facilities to marginalised smallholder farmers; and the scaling-up of social security for workers.
- 3 **Proactive monetary policies to arrest the financial spillovers of shocks.** The case studies show that, while some central banks (e.g. Egypt and South Africa) responded fast at the onset of the Russia–Ukraine war, others responded later. African central banks may need to have proactive measures in place to counter inflationary pressures (and exchange rate pass-through to inflation) stemming from external shocks. Such measures may include interest rate adjustments and macroprudential tools. However, central banks should also be cautious about the implications of deploying such tools; for instance, higher policy rates can lead to higher borrowing costs and a slowdown in domestic investment. In addition, there may be a need to establish sustainable exchange rate regimes that better absorb shocks and improve the competitiveness of exports.
- 4 **Trade creation and diversification of food, fertilisers and energy sources.** Initial trade policy responses to the war in the form of export bans were not the optimal intervention to secure domestic food supply. Instead, the studies highlight the importance of enhancing regional and bilateral trade to reduce susceptibility to commodity shocks and their impact on food security in Africa. This applies to the trading of staple foods and inputs for agricultural production and distribution (e.g. fertiliser, fuel) necessary for food security. One approach would be

investing in trade corridors, to reduce trade transportation costs and enhance efficiency. This can be supplemented by bilateral strategic engagements to cover the areas of trade and investment facilitation, trade infrastructure and capacity-building.

Strengthening intra-African trade through the African Continental Free Trade Area market can also promote, expand and diversify regional trade and investment in agriculture and energy, and help raise real per capita income to lift millions out of extreme poverty.

- 5 Boosting efficient domestic agricultural and fertiliser production.** Implementing measures to improve agricultural productivity can help reduce dependency on imports and susceptibility to global commodity price shocks. Measures could involve increasing investment in agricultural and fertiliser research and development, improving access to modern and environmentally sustainable farming techniques and technologies, supporting smallholder farmers or adopting a comprehensive agricultural sector development strategy.

Meanwhile, there is room to enhance the role of international financing institutions in shock management and economic recovery. Fiscal resources have been squeezed by the overlapping shocks of Covid-19 and the Russia–Ukraine war. In addition, the recent global financial tightening is increasing the cost of borrowing and debt servicing. As of August 2023, 21 African countries are at high risk of, or already in, debt distress, and progress on securing debt treatment has been slow. High debt servicing lowers resources for spending on social services and public investment. There is a need to consider how international financing institutions can provide speedier, more flexible and higher financing that is commensurate with the magnitude of the shocks. But it is not just the level of financing: the direction also matters. An area of policy debate thus relates to how the IMF and World Bank (and other global financial institutions and creditors) can do more to finance targeted growth, through policies to help save Africa’s growth and development trajectory from scarring effects.

1 Introduction

Africa was still dealing with the lingering effects of COVID-19 when the outbreak of the Russia–Ukraine war in 2022 caused global economic disruptions that hampered its economic recovery. The trade disruptions from the war led to higher global commodity prices, especially in food, fuel and fertilisers, during the first half of 2022. The increase in commodity prices triggered inflationary pressures in many African countries and globally. To arrest inflation, central banks tightened their interest rates, which led to capital outflows, higher borrowing costs and currency depreciations for many African countries. Higher debt service and expensive borrowing costs further squeezed limited fiscal space, meaning that, as of August 2023, 21 of 53 African countries were at high risk of or already in debt distress.

The overlapping global shocks, combined with domestic macro-fiscal imbalances and vulnerabilities (e.g. conflict and climate change effects), are derailing Africa’s growth and development progress. Between 2020 and 2023, sub-Saharan Africa is estimated to have lost 4.2 percentage points (pp) of growth compared with its trajectory before the pandemic.² In 2022, the number of Africans experiencing acute food insecurity increased by 35 million, to reach a total of about 180 million (World Bank, 2023a). Meanwhile, 18 million new poor were added in 2022 to half of the African population (546 million) already living in poverty in 2021 (UNECA, 2023a). Progress on the provision of quality education and promoting gender equality has been slow (UNECA, 2023b) and may be halted, given limited fiscal space for development spending as a result of the rising debt service burden (UNDP, 2023).

This paper develops an analytical framework to understand the transmission channels of the impact of the Russia–Ukraine war in Africa and presents evidence on the impact in Africa at the country level. The evidence is drawn from six studies covering both Africa and selected countries (i.e. Egypt, Ethiopia, Kenya, Morocco, Mozambique, Senegal, South Africa and Sudan), secondary data and the wider literature. The six studies are research outputs from an ongoing project led by the African Economic Research Consortium (AERC), the Economic Research Forum (ERF) and the Partnership for Economic Policy (PEP) under a project supported by Canada’s International Development Research Centre (IDRC).

² Authors’ computations based on International Monetary Fund (IMF) World Economic Outlook October 2019 and April 2023 databases (IMF, 2019, 2023a).

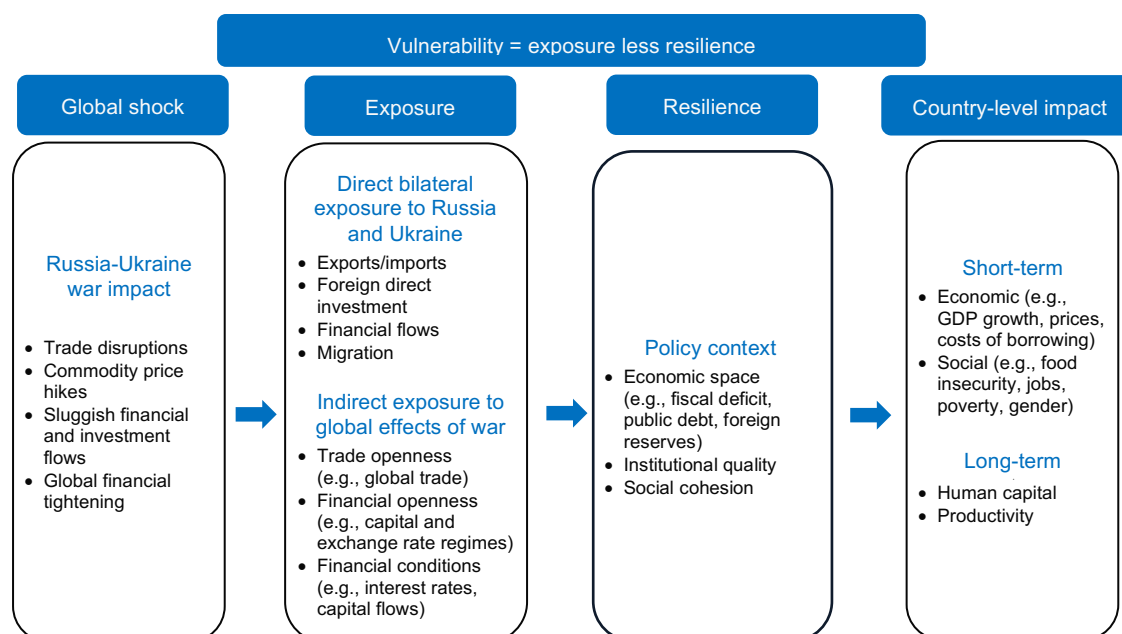
The paper is structured as follows. Section 2 provides an analytical framework for understanding the transmission channels of the impact of the war on African countries. The framework guides the presentation of evidence on the size of the shock of the Russia–Ukraine war (Section 3), channels of direct and indirect exposure of Africa to the war and its global effects (Section 4), Africa’s resilience in coping with the war’s impact (Section 5) and evidence on the impact of the war in Africa (Section 6). Section 7 provides an overview of policy implications and Section 8 concludes.

2 Analytical framework

This section presents the analytical framework used, showing transmission channels of the impact of the Russia–Ukraine war on Africa. Country-level vulnerability to a shock can be defined as a combination of direct and indirect economic exposure to the shock and resilience (e.g. of policies and institutions) to mitigate the impact of the shock (Figure 1).

This framework is aligned with the literature, including the UN and Commonwealth Secretariat’s approaches in developing a vulnerability index to economic, environmental and social shocks (ODI, 2010; Commonwealth Secretariat, 2021; Guillaumont and Wagner, 2021; UN 2022, 2023).³ Similar frameworks have been utilised by other organisations, such as the International Monetary Fund (IMF), the European Commission, the Asian Development Bank and the Intergovernmental Panel on Climate Change, assessing vulnerability to economic shocks and disaster risk management.⁴

Figure 1 Vulnerability to the economic and social impacts of the Russia-Ukraine war



Source: Authors

³ Also see Diop et al. (2021), Raga and te Velde (2020), Raga and Pettinotti (2022) and www.preventionweb.net/ (accessed November 2022).

⁴ See ADB et al. (2010), Briguglio (2016), Cardona et al. (2012) and DRMK (2023).

2.1 Economic exposure

The war has disrupted the domestic and external economic activities of Russia and Ukraine. African countries with more extensive bilateral economic links to the two countries will be affected more. Direct effects of the war can be examined through bilateral economic exposure, which depends on:

- exports to and imports from Russia and Ukraine (especially food, fuel and fertiliser) as a percentage share of total exports and imports
- foreign direct investment (FDI) from Russia and Ukraine as a percentage share of total FDI
- portfolio investment from Russia and Ukraine as a percentage share of total portfolio investment
- remittances from Russia and Ukraine as a percentage share of total remittances
- migrant stock in Russia and Ukraine as a percentage of total migrants abroad.

The Russia–Ukraine war is also having global effects that may indirectly affect African economies. First, global commodity price rises have effects on domestic inflation. For instance, global inflation increased to 8.7% in 2022 from 4.7% in 2021, the fastest since 1997.⁵ If inflation reduces real global income, global demand for imports of goods from Africa may decline. Second, the inflationary environment in high-income countries (HICs) has induced central banks to increase their interest rates, leading to capital outflows, exchange rate depreciation and higher borrowing costs for many low- and middle-income countries (L&MICs) in Africa. Third, the prolonged war is creating uncertainties regarding investment decisions, which may slow flows of investment to the continent. Africa’s indirect economic exposure can be observed through the following indicators:

- trade openness (exports and imports as a percentage share of gross domestic product – GDP)
- Financial openness
 - FDI as a percentage share of GDP
 - exchange rate movements and exchange rate regime
 - current account balance as a percentage share of GDP
- Financial conditions
 - capital flow movements
 - cost of borrowing (e.g. sovereign spreads).

⁵ Based on IMF World Economic Outlook database as of October 2023.

2.2 Resilience

Resilience is the ability of a country to cope with shocks or to implement policies to mitigate the impact of a shock. Policy response is an aspect of resilience and can be influenced by policy context.

Policy context describes the pre-existing economic policy space that enables the country to implement specific interventions, such as level of fiscal deficit, public debt, foreign reserves and market access. For instance, countries with a pre-existing high fiscal deficit and debt may have limited resources to implement a fiscal stimulus in times of successive shocks. Economic policy space – covering fiscal, monetary and trade policies – can be observed through the following indicators:

- fiscal balance as a percentage share of GDP
- public debt
 - gross public debt as a percentage share of GDP
 - domestic and external debt as a percentage share of total public debt
 - access to concessional and non-concessional finance
- foreign reserves in months of imports
- level of central bank policy interest rate
- exchange rate regimes (e.g. flexible/managed/floating).

Policy context can also be influenced by institutional quality. In many sub-Saharan African LICs, for example, the fiscal multiplier (broadly defined as the dollar movement in GDP per \$1 change in fiscal policy) becomes less effective if institutional efficiency is factored in (Kimaro et al., 2017).

The political and social contexts also matter for policy response and resilience to the adverse impacts of crises. Countries with high levels of fragility and conflict often display low levels of administrative capacity, limited provision of rule of law and basic services to the population, and high levels of social polarisation, which prevent these countries from mitigating economic, political, security and environmental risks (OECD, 2020; IMF, 2022a).

The policy responses that can be deployed in a given policy context may mitigate the impact of the crisis. Fiscal and monetary policy instruments are often used to address short-term macro stabilisation, whereas policies related to trade, human capital and productivity are targeted at long-term growth (te Velde, 2009). In the context of reduced fiscal space present in many African countries, a combination or prioritisation of policy responses will shape the impact of the crisis in the near and long term.

2.3 Country-level impact

Country-level impact will be observed through economic and social indicators. While it may be difficult to disentangle the particular impact of the Russia–Ukraine war from other domestic, regional and global factors affecting economic and social outcomes, we present evidence based on studies that attempted to do this empirically by creating counterfactuals. Data analysis on how some of the latest indicators of impact have (or are estimated to have) worsened compared with pre-Russia–Ukraine war performance is also presented but such analysis may be limited as it will likely reflect a combined or compounding effect of the war and Covid-19 (rather than an isolated effect of the war).

The following indicators will be observed:

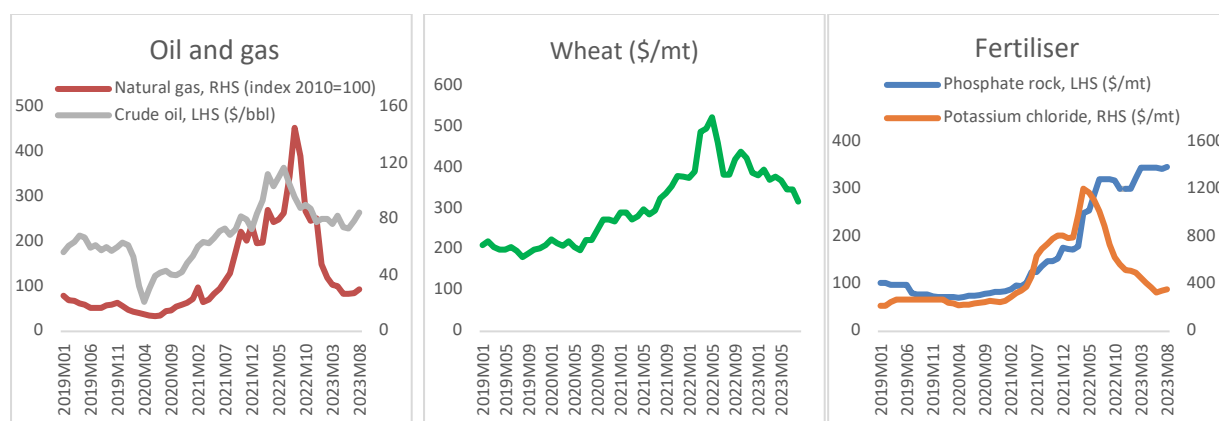
- economic indicators
 - output growth losses (i.e. the difference between the actual growth rate and the pre-Covid growth rate forecast)
 - change in the inflation rate
 - change in the cost of borrowing
- Social indicators
 - change in the share of population living in poverty
 - change in the employment rate
 - change in the share of population that is food-insecure
 - gender impacts.

3 Size of the Russia–Ukraine shock

The global shock from the war has been evident through the channels of trade, commodity prices and financial conditions. It is relatively straightforward to consider the direct trade effects but a key lesson from this synthesis is that other effects are just as important, if not more.

Direct impacts through the **trade channel** are a result of Russia and Ukraine’s roles as major global exporters of oil, wheat and fertiliser. Disrupted exports from Russia and Ukraine have induced uncertainty in global supply chains and triggered increases in the global prices of these commodities (Figure 2).

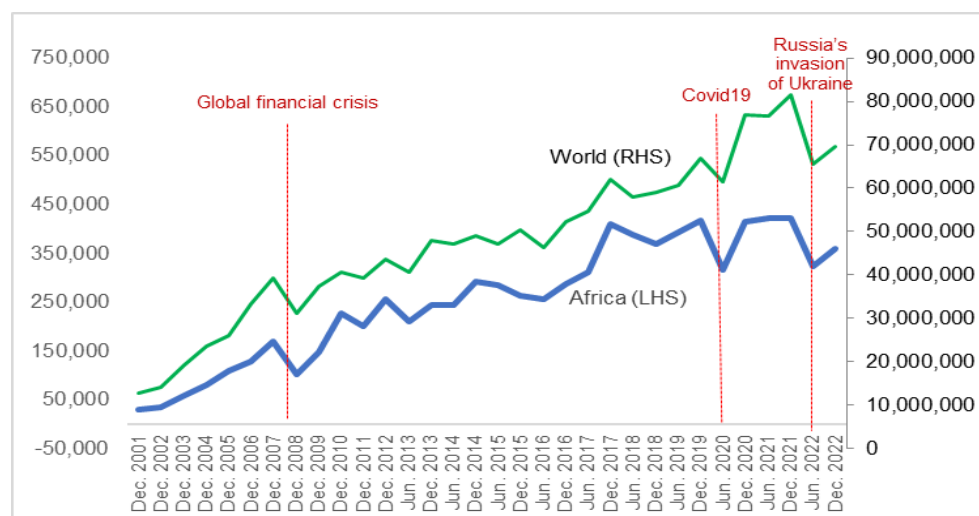
Figure 2 Global commodity prices



Source: World Bank (2023b)

Higher global commodity prices **put upward pressure on domestic prices**, especially for countries that rely significantly on food and energy imports. The inflationary environment and monetary policy interest rate increases in HICs, combined with a weak global outlook, have triggered **capital outflows** from L&MICs, including African countries. Figure 3 shows that portfolio investment has declined globally, including in Africa, during heightened uncertainty and crises, such as during the global financial crisis in 2008, the Covid-19 pandemic and the Russia–Ukraine war. FDI flows to Africa have also fallen, from 3% of GDP in 2021 to 1.9% of GDP in 2022.⁶

⁶ Authors’ computations based on UNCTAD data.

Figure 3 Portfolio Investment (liabilities) (\$ million)

Source: Authors' compilation based on data from IMF CPIS

The shock from the war is also manifested in **exchange rate effects**. The appreciation of the US dollar in 2022 constituted a shock in Africa and elsewhere, coming as it did at the expense of a depreciation in currencies deemed to be of higher risk, including those of Africa. Currency depreciation may lead to persistent inflationary pressures, through asymmetric pass-through effects (i.e. depreciation pass-through is estimated to be eight times stronger than appreciation pass-through) (IMF, 2023d).

The likelihood of continued risk aversion and higher US interest rates for a prolonged period of time suggest further US dollar strengthening, given that the US dollar benefits from 'safe-haven' flows. In this context, African currencies may continue to weaken and, in some cases, reach new lows. Widespread depreciations reduce purchasing power for economies that have large import shares. Broadly, the foreign exchange impact on trade will largely support export revenues for commodity and fuel exporters but will have opposing effects on importer countries, particularly at lower income levels and given Africa's resource dependence (UNDP, 2015; Wang et al., 2023).

4 Exposure to the Russia–Ukraine war shock

This section presents the transmission channels of the impact of the Russia–Ukraine war through the exposure of selected study countries (i.e. Egypt, Ethiopia, Kenya, Morocco, Mozambique, Senegal, South Africa and Sudan) to the bilateral and global effects of the war.

4.1 Direct bilateral exposure to Russia and Ukraine

4.1.1 Food trade

Africa has relatively low exposure to Russia and Ukraine in terms of its share in total food trade, compared with higher shares in food trade within Africa and with the rest of the world (Table 1). However, Africa’s food imports are more exposed to Russia and Ukraine than its food exports. Between 2010 and 2021, Africa sourced 8% of its food imports from Russia and Ukraine; this share is higher in some countries, such as Egypt (20%) and Sudan (23%) (Table 1).

Most African countries are exposed through their imports of wheat from Russia and Ukraine. For example, in Kenya, imports from Russia and Ukraine account for only 2.1% and 5.1% of imports, respectively, but wheat made up 85% of these imports in 2018–2021 (Geda and Musyoka, 2023). Such exposure is driven by the role of wheat as a staple food in the eight country cases, contributing between 8% and 40% of dietary requirements (Figure 4), such that disruptions in local and imported supply will have price and food security implications (to be discussed in Section 6). Russia and/or Ukraine have been an important source of imported wheat in these countries – ranging from 15% of total imports in Mozambique up to 92% in Sudan (Figure 5).

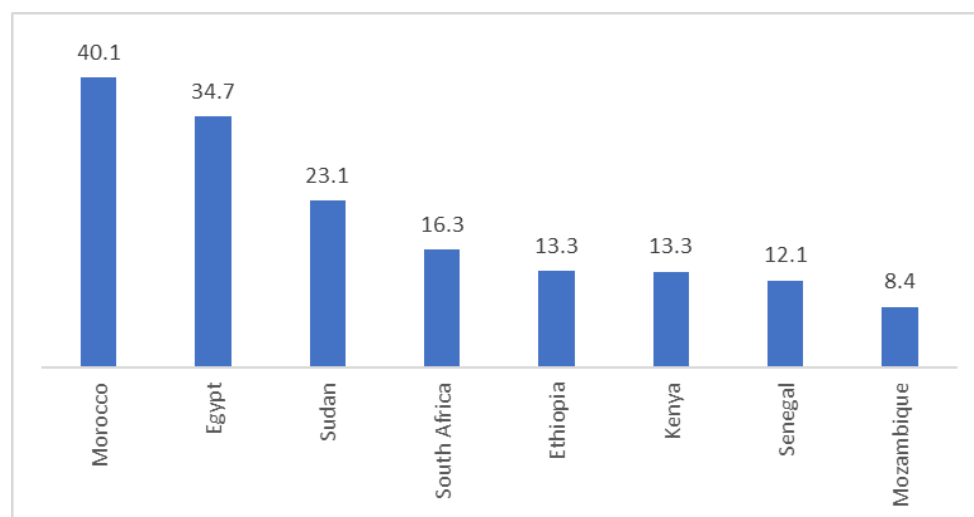
In summary, Africa as a whole may be less exposed to the war in terms of its share in total food trade. However, of the eight case study countries, Egypt and Sudan are more exposed through the high contribution of Russia and Ukraine as sources of wheat, which constitutes a large share of the diet in these countries.

Table 1 Food exports and imports, annual average 2010–2021

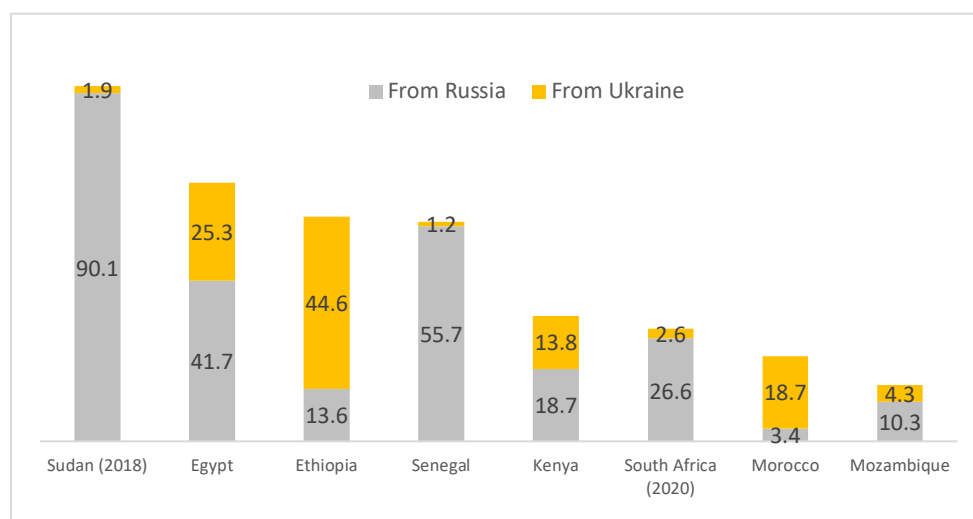
	Egypt	Ethiopia	Kenya	Morocco	Mozambique	Senegal	South Africa	Sudan	Africa
Food exports									
Food as % of goods exports	17.5	81.4	56.2	21.6	9.7	28.4	9.6	32.6	11.7
Food export destination (% of food exports)									
Russia	5.8	0.7	2.3	3.5	0.1	0.0	2.0	0.0	1.6
Ukraine	0.8	0.0	0.2	0.1	0.0	0.1	0.1	0.0	0.2
Africa	19.8	11.5	21.0	11.0	29.7	44.5	39.4	23.5	26.2
Rest of world	72.6	87.2	76.2	85.0	70.1	55.0	57.6	76.3	71.1
Food imports									
Food as % of goods imports	20.5	13.8	14.0	12.2	15.0	22.1	7.2	24.9	14.7
Food import sources (% of food imports)									
Russia	10.4	3.2	5.7	2.1	2.8	3.3	1.8	19.9	4.5
Ukraine	9.8	4.6	3.2	5.4	0.9	0.6	0.9	2.8	3.6
Africa	3.1	4.7	25.3	6.6	38.8	11.5	16.5	11.3	13.9
Rest of world	75.7	87.4	65.7	85.8	57.4	84.7	80.5	66.0	77.4

Note: Data cover 2010–2021 for all countries except for Kenya (all years except 2011–2012, 2014), Morocco (2015–2021), Mozambique (2012–2021) and Sudan (2015–2021 for exports, 2012–2018 for imports).

Source: Authors' compilation based on data from WITS, using HS2002 nomenclature and HS codes 01–23

Figure 4 Contribution of wheat to dietary requirement, 2020 (% of kilocalories per capita per day)

Source: Authors' computations based on data from FAO

Figure 5 Share of wheat imports from Russia and Ukraine, 2021 (or latest) (%)

Source: Authors' computations based on data from WITS

4.1.2 Fuel trade

Africa's fuel exports to Russia and Ukraine are relatively low: most African countries export their fuel elsewhere within and outside the continent. There is some exposure in terms of fuel imports for some countries, with Russia providing 12% and 5% of the fuel imports of Morocco and Senegal, respectively, in 2010–2021 (Table 2).

Table 2 Fuel exports and imports, annual average, 2010–2021

	Egypt	Ethiopia	Kenya	Morocco	Mozambique	Senegal	South Africa	Sudan	Africa
Fuel exports									
Fuel as % of goods exports	24.2	0.0	4.5	1.1	37.0	15.8	10.7	21.0	41.6
Fuel export destination (% of fuel exports)									
Russia	0.3		0.0	0.0	0.0	0.6	0.0		0.0
Ukraine	0.1		0.0				0.2		0.0
Africa	4.7	54.3	62.1	20.9	46.6	55.4	28.6	37.0	10.3
Rest of world	93.6	64.6	37.7	14.5	53.4	44.4	65.6	58.0	87.4
Fuel imports									
Fuel as % of goods imports	15.1	14.3	18.2	15.1	20.1	26.4	18.1	10.5	15.6
Fuel import sources (% of fuel imports)									
Russia	3.1	0.2	0.0	12.2	0.1	5.3	0.2	0.9	2.9
Ukraine	0.4	0.0	0.0	0.0		0.2	0.0		0.1
Africa	5.7	7.2	3.5	9.9	21.6	37.4	34.8	12.0	23.2
Rest of world	89.0	92.6	96.3	76.2	78.3	57.5	64.6	86.9	72.9

Note: Data cover 2010–2021 for all countries except Kenya (all years except 2011–2012, 2014), Morocco (2015–2021), Mozambique (2012–2021) and Sudan (2015–2021 for exports, 2012–2018 for imports).

Source: Authors' compilation based on data from WITS, using HS2002 nomenclature and HS code 27

4.1.3 Fertiliser trade

Africa's imports of fertiliser comprised only 1% of total imports in 2010–2021. However, exposure to the war has arisen because almost 14% of Africa's fertiliser imports come from Russia and Ukraine (Table 3). Imports of fertiliser from Russia and Ukraine ranged between 11% and 41% of average fertiliser imports in 2010–2021 in Egypt, Ethiopia, Morocco, Senegal and South Africa.

Table 3 Fertiliser exports and imports, annual average, 2010–2021

	Egypt	Ethiopia	Kenya	Morocco	Mozambique	Senegal	South Africa	Sudan	Africa
Fertiliser exports									
Fertiliser as % of goods exports	3.9	0.0	0.4	10.9	0.5	0.8	0.4	0.0	1.1
Fertiliser export destination (% of fertiliser exports)									
Russia	0.0						0.0		0.0
Ukraine	0.2			1.2			0.1		0.3
Africa	4.4	5.7	99.9	20.2	99.5	87.8	90.0		23.8
Rest of world	94.8	97.6	0.1	79.4	1.1	14.6	8.9	100.0	75.6
Fertiliser imports									
Fertiliser as % of goods imports	0.2	3.1	1.6	0.6	0.9	0.7	0.7	1.0	0.9
Fertiliser import sources (% of fertiliser imports)									
Russia	7.8	12.1		26.0		29.2	10.0		10.9
Ukraine	4.6	17.0		1.7		12.1	0.5		2.7
Africa	0.7	44.3	7.3	5.5	39.2	14.1	3.1	19.4	33.0
Rest of world	83.2	41.0	72.7	66.7	48.6	48.3	86.2	78.5	53.2

Note: Data cover 2010–2021 for all countries except Kenya (all years except 2011–2012, 2014), Morocco (2015–2021), Mozambique (2012–2021) and Sudan (2015–2021 for exports, 2012–2018 for imports).

Source: Authors' compilation based on data from WITS, using HS2002 nomenclature and HS code 31

4.1.4 Bilateral goods trade

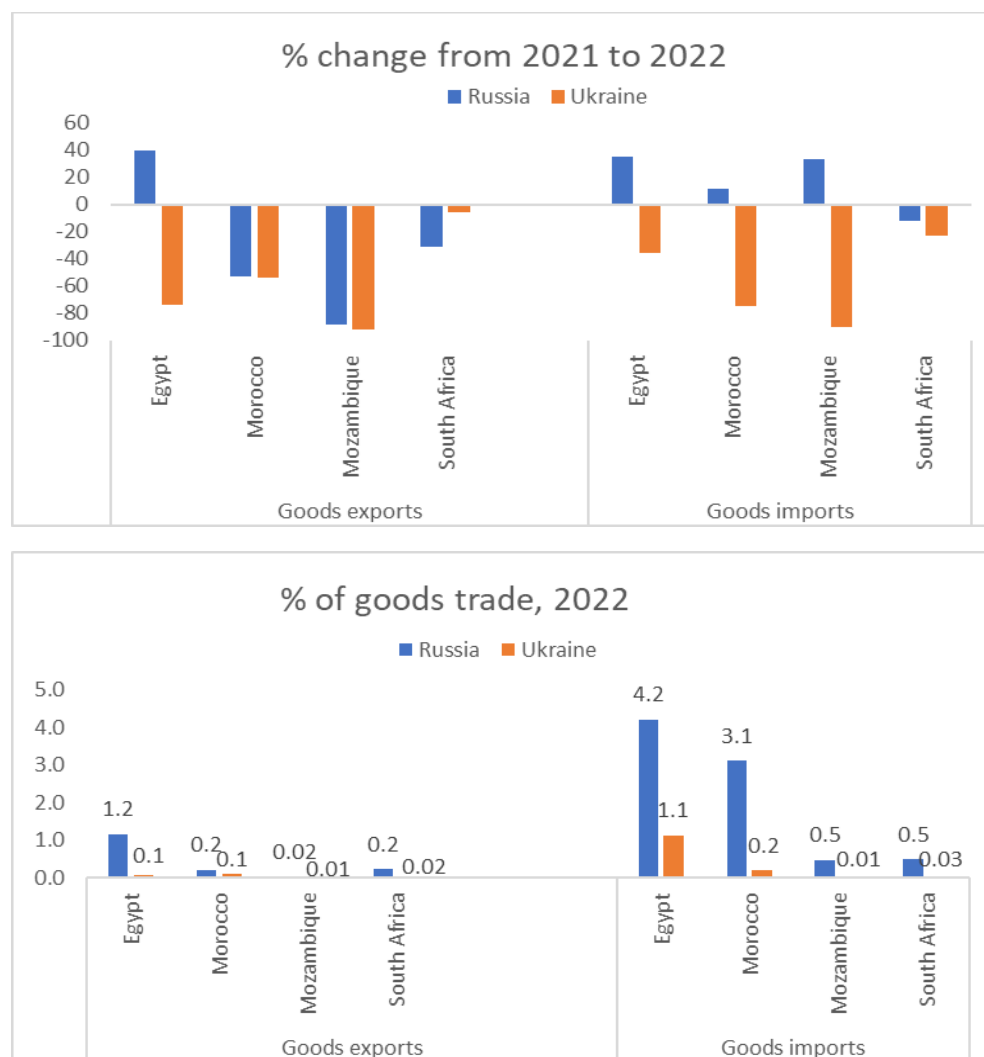
Between 2010 and 2021, Africa's total trade in goods (exports plus imports) with Russia and Ukraine was equivalent to 1.6% of total trade.⁷ At the country level, available data indicate a reduction in total exports of goods to Russia and Ukraine and a decline in total imports from Ukraine between 2021 and 2022 following the war (Figure 6). Among the eight country cases, Egypt and Morocco's imports may be vulnerable to a prolonged war, with 4% and 3% of their goods imports, respectively, coming from Russia.

As data becomes more available, it will be interesting to learn how African countries engaged in trade substitution to lower their exposure to the impact of the war. Ethiopia, which used to rely on

⁷ Authors' computations based on data from WITS.

Russia and Ukraine for 45% of its wheat imports, has reacted to the loss of most of this by increasing purchases from other producers, including the US (shipments increased by 20% in volume terms) and Argentina, which supplied 21% of Ethiopia's imported wheat in 2022, up from zero in 2021 (WTO, 2023).

Figure 6 Bilateral goods trade with Russia and Ukraine, US\$ value



Source: Authors' computations based on data from WITS

4.1.5 Bilateral direct investment

African countries may also have been affected by financial flows if the Russian and Ukrainian economies have slowed down and reduced their investment in and transfers to Africa. However, the latest data on FDI (Table 4) show very minimal exposure of African countries through this channel.

Table 4 Bilateral direct investment, 2021

Destination (across)	Egypt*	Ethiopia	Kenya	Morocco	Mozambique	Senegal	South Africa	Sudan	Africa
Source (down)									
US\$ million									
Russia	60.7	0.0	1.7	C	0.0	0.0	5.3	0.0	137
Ukraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Africa	2,259	458	5,081	361	40,403	1,160	4,983	44	
Rest of world	49,260	4,041	7,608	35,315	38,195	4,414	169,873	54	
% of total direct investment									
Russia	0.1	0.0	0.0	C	0.0	0.0	0.0	0.0	0.01
Ukraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Africa	4.4	10.2	40.0	1.0	51.4	20.8	2.8	44.5	
Rest of world	95.5	89.8	59.9	99.0	48.6	79.2	97.1	55.5	

Source: Authors' computations. All data are based on data from the IMF's CDIS, except for total direct investment for Africa, which is based on UNCTAD statistics. CDIS data are based on inward investment reported by country or outward investment reported by counterpart economy. When country and counterparty data are available, data are based on the former. Blank indicates no data and 'C' reflects data suppressed by the reporting economy to preserve confidentiality.

4.1.6 Bilateral migration and remittances

Disruptions in economic activities within Russia and Ukraine may adversely affect the incomes of migrants in these countries, and hence their capacity to send remittances to their home country. However, African migrants in Russia and Ukraine are too few and remittances from these countries to Africa are too small to see any effect. African migrants in Russia and Ukraine number only 12,000, compared with the total number of African migrants within the continent and in the rest of the world (40.8 million) as of 2021 (Table 5). Similarly, the share of remittances received by African countries from Russia and Ukraine is negligible (0.04%) in proportion to all remittances from abroad (Table 6).

Table 5 Bilateral migrant stocks, 2021

Destination (across)	Russia	Ukraine	Africa	Rest of world	Russia	Ukraine	Africa	Rest of world
Source (down)								
	Number				% of migrants			
Egypt	1,058		56,615	3,600,642	0.03		1.5	98.4
Ethiopia	270		215,523	764,003	0.03		22.0	78.0
Kenya	449		126,637	412,902	0.08		23.5	76.5
Morocco	1,099	1,765	20,334	3,204,177	0.03	0.05	0.6	99.3
Mozambique	109		540,892	101,415	0.02		84.2	15.8
Senegal	71		281,706	446,212	0.01		38.7	61.3
South Africa	238		92,769	832,857	0.03		10.0	90.0
Sudan	256		1,184,472	944,919	0.01		55.6	44.4
Africa	10,248	1,765	20,533,311	20,251,898	0.03	0.004	50.3	49.6

Source: Authors' computations based on data from Knomad/World Bank database

Table 6 Bilateral remittances, 2021

Destination (across)	Egypt	Ethiopia	Kenya	Morocco	Mozambique	Senegal	South Africa	Sudan	Africa
Source (down)									
US\$ million									
Russia	8	0.1	3	3	0.1	0.3	0.2	0.2	30
Ukraine				5					5
Africa	413	54	592	53	337	700	79	467	19,378
Rest of world	31,065	382	3,176	10,644	116	1,958	848	658	76,745
% of total remittances									
Russia	0.03	0.02	0.08	0.03	0.03	0.01	0.02	0.01	0.03
Ukraine				0.04					0.005
Africa	1.3	12.4	15.7	0.5	74.3	26.3	8.5	41.5	20.2
Rest of world	98.7	87.6	84.2	99.4	25.6	73.7	91.5	58.5	79.8

Source: Authors' computations based on data from Knomad/World Bank database

4.2 Indirect exposure to global effects

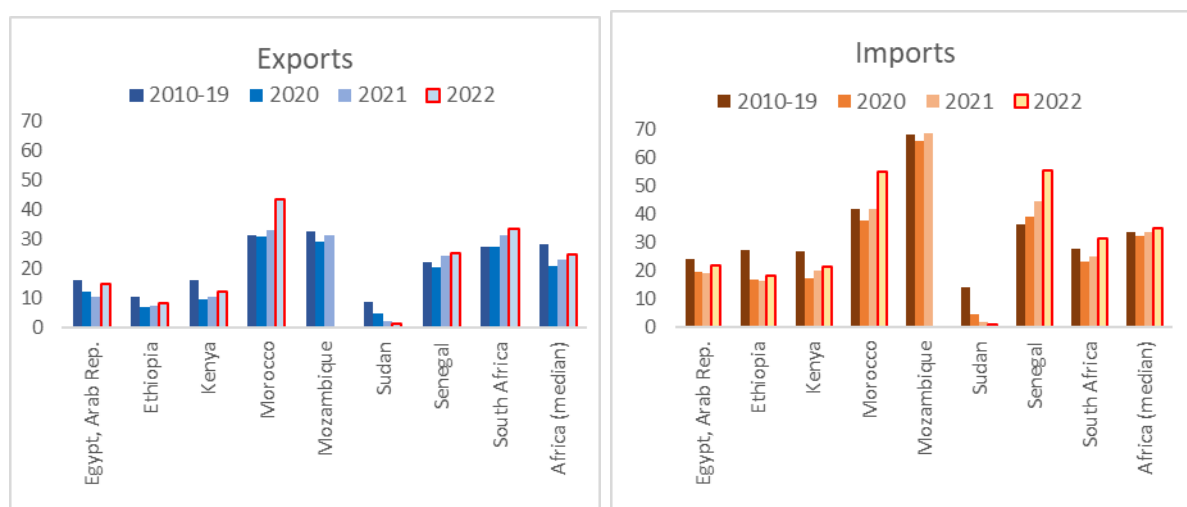
4.2.1 Trade openness

African countries' trade will be more affected by the indirect global effects of the war than the direct ones. This is corroborated by the Bayesian GVAR simulations by M'bouke et al. (2023), wherein oil-exporting countries' gain from the commodity price shock from the war is expected to be outweighed by negative growth spillovers (e.g. reduced demand) from the global economy. Hence, the higher the level of exports of an African country, the more exposed it becomes in the event that the war weakens global demand.

The impact may be worse for importers, who face higher import costs (even if they import heavily from outside Russia and Ukraine) while also dealing with negative global growth spillovers (M'bouke et al., 2023).

In the decade before the recent crises (2010–2019), total trade (exports+imports) of goods and services of a median African country accounted for 62% of GDP. From this level, the equivalent value of total trade as a percentage of GDP lowered by 8.6 pp during the peak of COVID-19 (2020) and remained lower by 2.2 pp in the first year of the Russia–Ukraine war (2022). This significance of total trade varies greatly across countries, from 4% of GDP (of which 2.2% exports, 1.9% imports) in Sudan to 100% of GDP (of which 31% exports, 69% imports) in Mozambique as of 2021 (Figure 7).

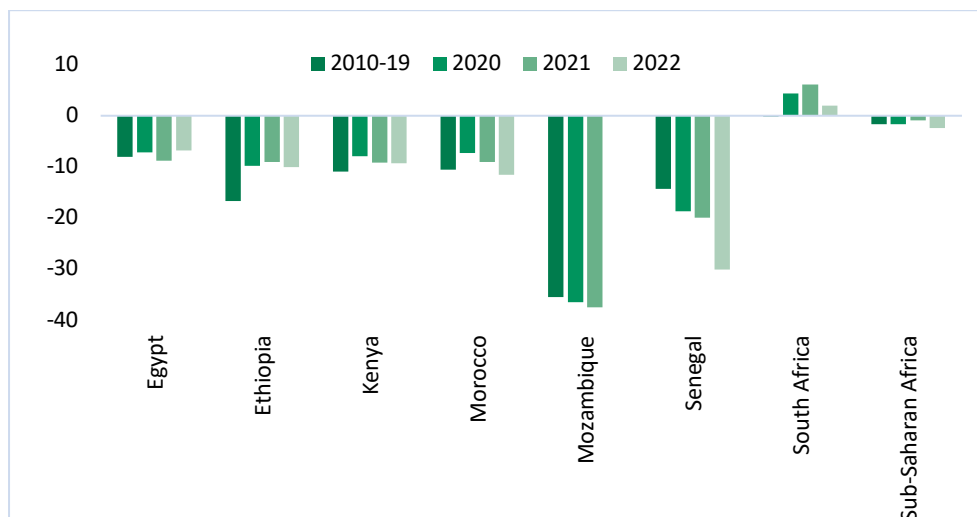
Figure 7 Trade in goods and services (% of GDP)



Source: Authors' computations/compilation based on data from WDI

In 2022, total trade as a percentage of GDP increased, mostly driven by higher imports in five out of seven countries. All countries except South Africa are net importers. In the year when the Russia–Ukraine war began, the trade deficit worsened in most countries, with the largest deterioration, of 10 pp, in Senegal (Figure 8).

Figure 8 Trade balance (% of GDP)



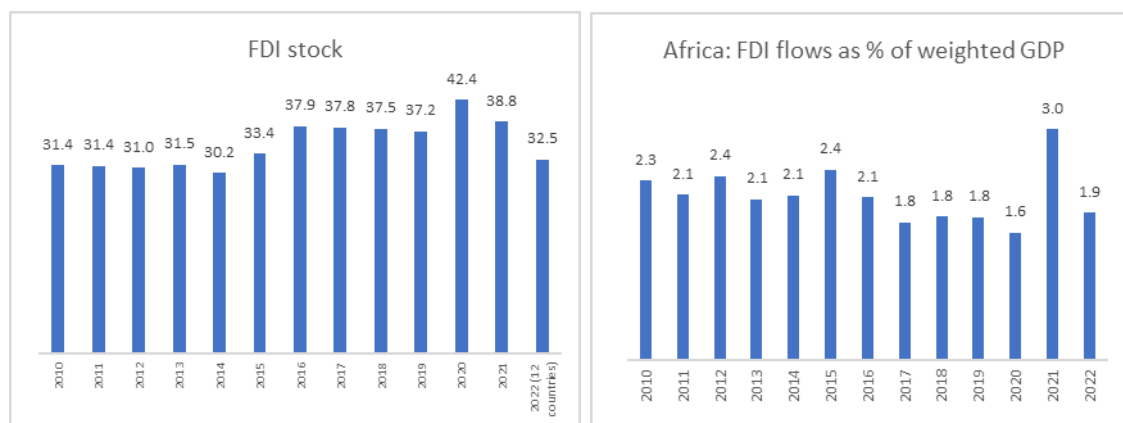
Source: Authors' computations/compilation based on data from WDI

4.2.2 Financial openness

African countries may be exposed to the indirect effects of the Russia–Ukraine war through global financial flows. African countries that are deeply integrated into global financial markets (e.g. investment, banking, debt) may be more vulnerable to investor responses to heightened global uncertainty and their search for safe havens during crises.

Inward FDI stock in Africa has hovered around 35% of GDP in the past decade (Figure 9). However, it varies across countries, from 10% of GDP in Kenya up to more than 300% of GDP in Mozambique. Available evidence suggests that FDI flows recovered from COVID-19 in Africa and selected countries but had slowed again by 2022. In Mozambique, FDI inflows have fallen by 21 pp, from 32% of GDP in 2021 to 11% of GDP in 2022. FDI inflows likewise fell by nearly 8 pp of GDP in South Africa in 2022 (Table 7).

Figure 9 FDI in Africa (% of GDP)



Note: The aggregate for Africa is based on a simple summation of FDI and GDP of countries with available data.

Source: Authors’ computations based on data from UNCTAD statistics

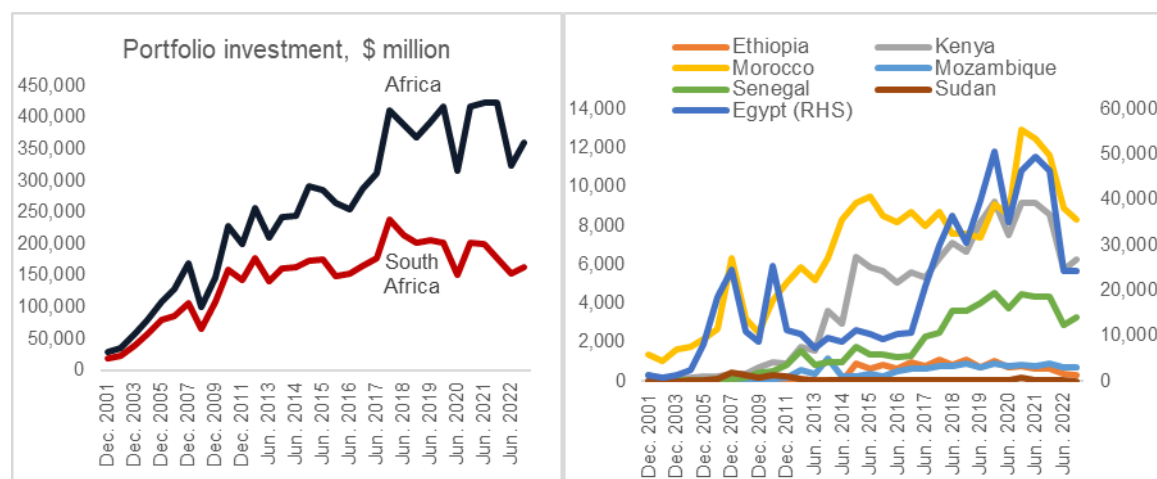
Table 7 FDI in selected African countries (% of GDP)

	FDI stock			FDI inflow			
	2019	2020	2021	2019	2020	2021	2022
Egypt	41.7	37.0	35.0	2.8	1.6	1.2	2.9
Ethiopia	29.5	32.7	35.5	2.8	2.5	4.3	3.2
Kenya	10.0	10.4	10.2	1.1	0.7	0.4	0.7
Morocco	55.8	60.2	44.3	1.3	1.2	1.6	1.6
Mozambique	300.7	353.7	343.0	14.4	21.4	32.3	11.0
Senegal	38.7	39.5	42.5	4.6	7.5	9.4	9.4
South Africa	34.3	51.8	41.4	1.3	0.9	9.8	2.2
Sudan	83.2	86.7	84.5	2.4	2.1	1.5	1.2

Source: Authors’ computations based on data from UNCTAD statistics

Portfolio investment flows have also been volatile, with particularly marked declines during shock periods (e.g. the global financial crisis in 2009, Covid-19 in 2020 and the Russia–Ukraine war in 2022) (Figure 10).

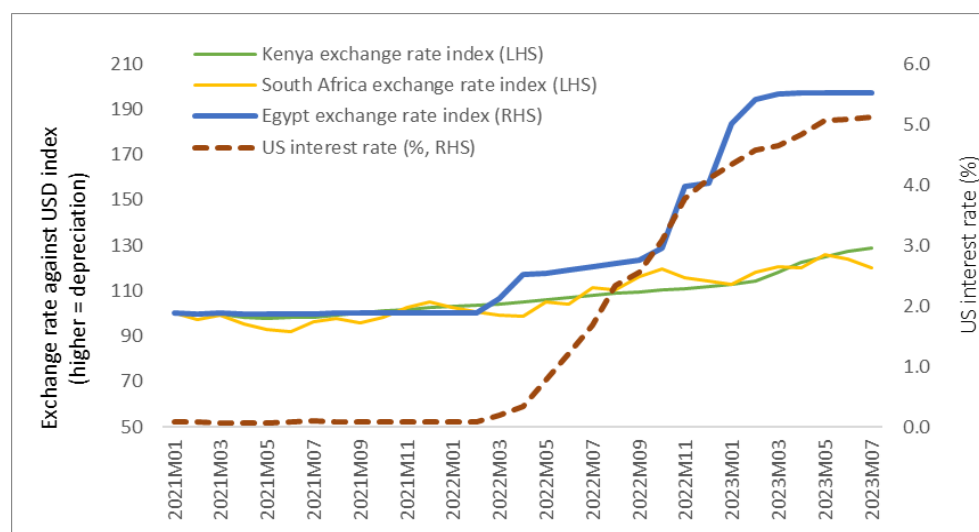
Figure 10 Portfolio investment (liabilities) (\$ million)



Source: Authors' compilation based on data from IMF CPIS

Capital outflows and policy interest rate increases in HICs have put depreciation pressures on many African currencies with relatively open exchange rate regimes (Figure 11, Table 8).

Figure 11 Depreciation of exchange rates in selected African countries vis-à-vis increasing US interest rates



Note: Exchange rate against the US dollar indexed at January 2021 = 100. The US policy rate refers to the US Federal Fund effective interest rate.

Sources: Authors' computations/compilation based on data from IMF IFS and Federal Reserve Bank of St. Louis website

Table 8 Exchange rate movement and exchange rate regime

	Exchange rate (local currency per US dollar, period average)			Exchange rate arrangement
	Jan. 2022	August 2023 or latest	% change (depreciation)	
Egypt	15.66	30.8	96.9	Stabilised arrangement
Ethiopia	49.51	55.2	11.5	Crawl-like arrangement
Kenya	113.38	141.4	24.8	Crawl-like arrangement
Morocco	9.29	9.7	5.0	Pegged exchange rate within horizontal bands
Mozambique	63.83	63.9	0.1	Stabilised arrangement
Senegal	579.75	601.3	3.7	Conventional peg
South Africa	15.49	18.8	21.1	Floating
Sudan	437.31	586.3	34.1	Stabilised arrangement

Note: Latest data for Egypt, Kenya, Morocco and Mozambique as of July 2023; Sudan as of February 2023; Ethiopia as of September 2023.

Source: IMF IFS, National Bank of Ethiopia website (for latest exchange rate data in Ethiopia), IMF Annual Report on Exchange Arrangements and Exchange Restrictions 2022

For instance, from the outset of capital outflows in February to March 2022, Egypt's central bank intervened heavily in the foreign exchange market to stabilise the exchange rate (IMF, 2023f). The global effects of the Russia–Ukraine war put depreciation pressures on the Egyptian pound. Between January 2022 and August 2023, the Egyptian pound depreciated by nearly 100% against the US dollar (Table 8), owing to multiple factors, including external shocks as well as the Central Bank of Egypt's devaluation and its move towards a flexible exchange rate regime in the context of negotiations for IMF financing (Zaki et al., 2023).

With global financial tightening, borrowing costs for Africa soared significantly higher than did rates in emerging market economies (Figure 12), such that no country in sub-Saharan Africa has issued Eurobonds since early 2022 (IMF, 2023b).

Figure 12 Sovereign spreads, average, basis points

Note: SVB = Silicon Valley Bank; sub-Saharan Africa includes Angola, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Kenya, Mozambique, Namibia, Nigeria, Senegal and South Africa. EMBIG = Emerging Market Bond Index Global.

Source: IMF (2023b)

5 Resilience to the shock

This section aims to present the presence (lack) of resilience to mitigate (exacerbate) the impact of the shock at the country level.

5.1 Economic policy space

Most African countries were still recovering from Covid-19 limiting their policy space when the Russia–Ukraine war hit in early 2022. This is evident through sub-Saharan Africa’s widened fiscal deficit from 3.9% of GDP in 2019 to 6.4% of GDP in 2020, while gross public debt increased by nearly 10 pp to 57% of GDP during the same period (Table 9). While fiscal deficit and public debt eased in 2021–2022, they remained worse than pre-pandemic levels in 2019, reflecting continued pressures from the overlapping crises. As of August 2023, about 40%, or 21 of 53 African countries, are classified to be at high risk of or in debt distress (IMF, 2023c).

Table 9 Fiscal deficit and public debt (% of GDP)

	Fiscal balance (negative = deficit)			External public debt			Gross public debt			Latest IMF/World Bank debt sustainability assessment
	2020	2021	2022	2019	2020	2021	2020	2021	2022	
Egypt	-7.5	-7.0	-5.8	18.9	17.5	16.6	86.2	89.9	88.5	Sustainable debt but not with high probability, January 2023
Ethiopia	-2.8	-2.8	-4.2	17.4	17.4	17.0	53.9	53.8	46.4	High risk of debt distress, May 2020
Kenya	-8.1	-7.1	-6.0	29.1	31.8	30.8	67.8	67.0	67.9	High risk of debt distress, July 2023
Morocco	-7.1	-5.9	-5.1	18.3	24.7	20.1	72.2	68.9	68.8	Sustainable debt with high probability, April 2023
Mozambique	-5.4	-3.6	-5.2	61.3	68.1	60.4	120.0	107.2	76.1	High risk of debt distress, July 2023
Senegal	-6.4	-6.3	-6.1	52.4	57.2	52.4	69.2	73.2	75.0	Moderate risk of debt distress, July 2023
South Africa	-9.6	-5.6	-4.5	20.0	22.2	17.6	69.0	69.0	71.0	Moderate risk of sovereign stress, June 2023
Sudan	-5.9	-0.3	-2.1	50.8	61.7	44.7	275.0	187.9	127.6	In debt distress, July 2021
Sub-Saharan Africa	-6.4	-5.0	-4.4	20.4*	23.3*	21.8*	57.0	56.6	56.3	

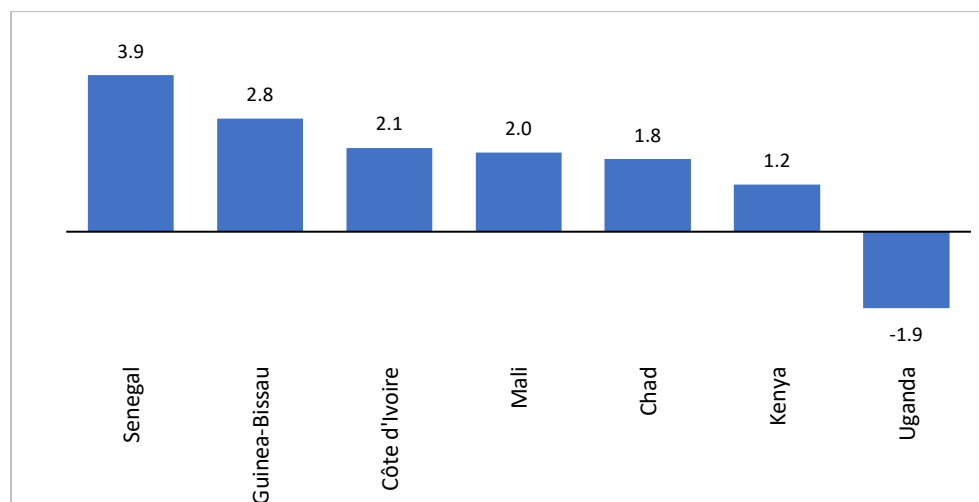
Note: * External debt for sub-Saharan African countries excluding HICs.

Sources: Authors’ computations/compilation based on data and information from World Bank IDS database, WDI, IMF (2023a) and IMF country reports

The recent exchange rate depreciation has contributed to changes in the public debt ratio (as a percentage of GDP) of some African

countries, adding up to 4% of GDP in Senegal’s case (Figure 13). In sub-Saharan Africa, external public debt is equivalent to 21.8% of GDP as of 2021 (Table 9). Of this, nearly 75% is debt in US dollars (Figure 14).

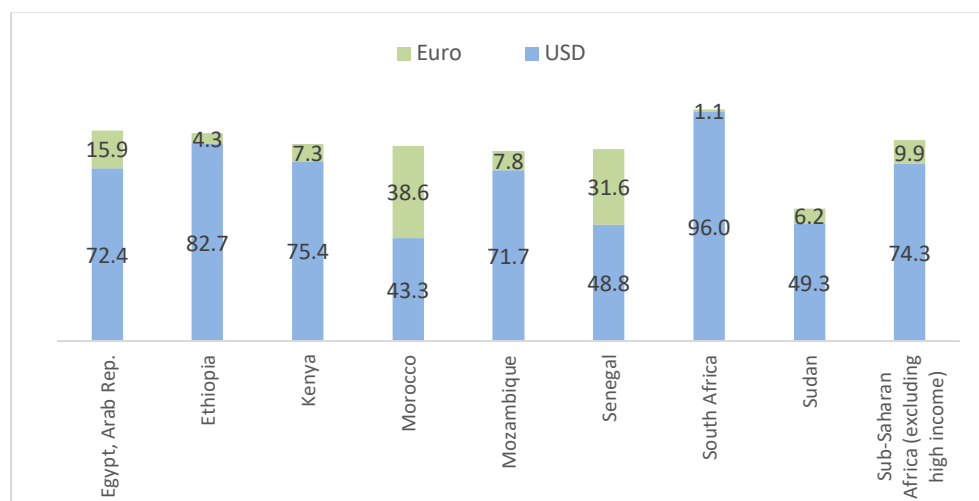
Figure 13 Contribution of exchange rate depreciation to debt increase, 2021–2022 (% of GDP)



Note: The figure shows the impact of exchange rate depreciation in 2022 in terms of changes in the debt ratio between the end of 2021 and the end of 2022.

Source: IMF Fiscal Monitor April 2023

Figure 14 Currency composition of external debt, 2021 (% of total)



Source: Authors compilation using data from World Bank IDS

Meanwhile, in the face of exchange rate pressures, foreign reserves give room for central banks to manage sharp capital outflows and exchange rate volatility. Maintaining at least three months’ worth of foreign reserves is considered the ‘rule of thumb’ level of reserve adequacy (IMF, 2011). On average, sub-Saharan Africa had foreign

reserves worth five months of imports in 2021, which fell to four months in 2022. Similarly, foreign reserves fell in four out of five case studies in 2022, with the highest declines in Egypt and Mozambique (Table 10). Low levels of reserves give little room for African countries to intervene in future shocks, which may result in bigger unanticipated effects.

Table 10 Foreign reserves excluding gold

	\$ million			% change (Jan–Dec 2022)	As months of imports	
	2021	Jan 2022	Dec 2022		2021	2022
Egypt	35,090	35,104	24,824	-41.4	5.1	2.9
Kenya	9,490	8,912	7,968	-11.8	5.2	3.9
Morocco	34,354	33,796	31,026	-8.9	6.9	5.0
Mozambique	3,551	3,453	2,709	-27.4	4.6	3.0
South Africa	50,262	49,978	53,248	6.1	5.8	5.0
Sub-Saharan Africa	191,066	187,747	183,063	-2.6	5.0	4.1

Source: Authors' computations based on data from IMF IFS and WDI

5.2 Policy responses

Given their limited economic policy space, African countries' policy responses to the war have been modest in the areas of trade; social protection; monetary policy and exchange rate management; and support to the agriculture sector.

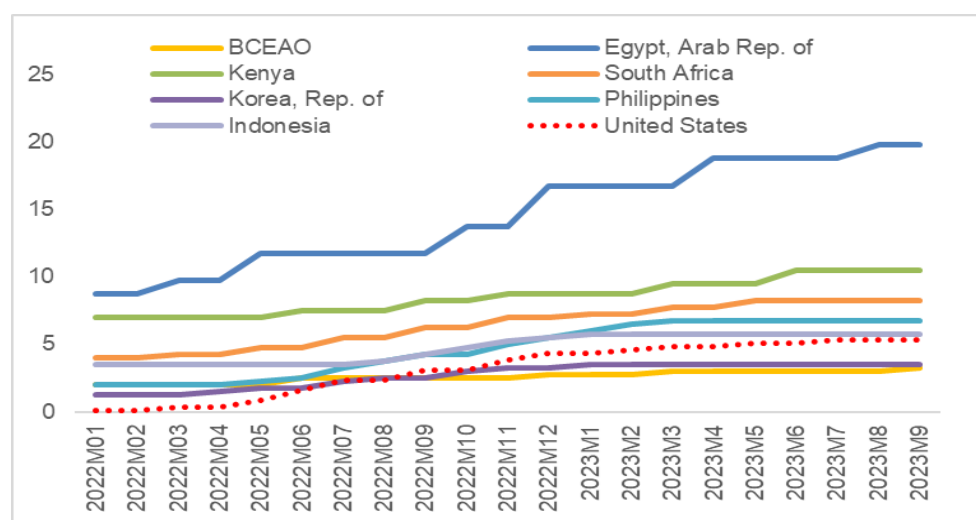
Trade policy in the form of temporary export bans for food, fertiliser and oil products was one of the early policy responses during the onset of the Russia–Ukraine war. The number of countries imposing food export restrictions rose from four in January 2022 to 12 in the first week of March, peaking at 25 countries in June before gradually easing towards the end of the year (Laborde, 2023). Among these countries, seven were in Africa. Algeria, Burkina Faso, Cameroon, Egypt, Ghana and Tunisia imposed export bans on selected food products and oils whereas Morocco implemented export licensing for tomatoes (ibid.). Most of these restrictions had been lifted by the end of 2022.

As higher prices for imported commodities induced by the war put pressure on domestic prices, **trade policies in the form of subsidies and suspended import duties were activated in Morocco**. Specifically, Morocco extended its subsidy on soft wheat imports initiated in November 2021 from the original end date of December 2022 up to April 2023 and suspended import duties for cattle and crude oils (Benayad, 2023).

With the increasing inflation and exchange rate pressures, combined with increased monetary policy rates in the US, central banks in Africa **tightened interest rates** (Figure 15). Egypt and South Africa increased their interest rates by 100 basis points (to 9.75%) and 25 basis points (to 4.25%) in March 2023, respectively, coinciding with the first increase in the US Effective Federal Funds Rate during the

same month. **Egypt and South Africa’s monetary policy rate adjustment was faster and larger than those of others** in Africa (e.g. Kenya, Central Bank of West African States – BCEAO) and Asian countries (e.g. Indonesia, Korea, Philippines) (Figure 15). For instance, between January 2022 and September 2023, rates in Egypt and South Africa increased by 11 pp and 4.25 pp, respectively, compared with 1.25 pp and 2.25 pp by BCEAO and Korea, respectively.

Figure 15 Central bank interest rates, January–September 2023



Note: US policy rates refer to the Effective Federal Funds Rate.

Sources: IMF IFS, BCEAO and Federal Reserve Fund of New York websites, and CEIC Data

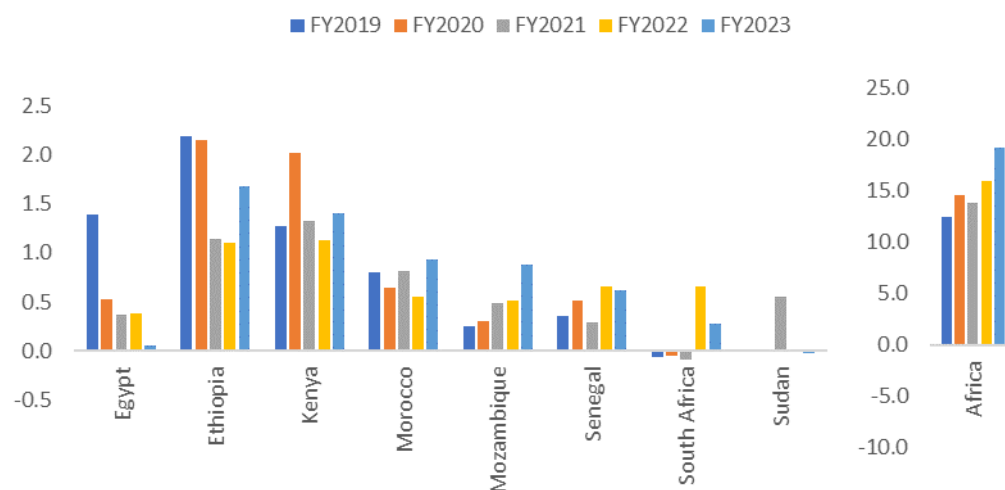
With persistent exchange rate pressures, the Central Bank of Egypt implemented a series of devaluations (Zaki et al., 2023). In addition, some countries **imposed foreign exchange controls and measures** (Egypt, Ethiopia, Ghana, Nigeria) to manage foreign currency flows (IMF, 2023b).

With fiscal space squeezed, **only some countries were able to deploy modest social safety nets** to help those most vulnerable to food insecurity risks owing to price pressures induced by the war. Egypt expanded its conditional cash transfer programme and Mozambique and South Africa maintained social safety nets and school feeding programmes initiated during the Covid-19 pandemic (Ngepah, 2023; Zaki et al., 2023). Sudan introduced the Sudan Family Support Programme cash transfers (Elbadawi, 2023). In Senegal, the government helped local producers cope with increasing fertiliser prices by continuing its 50% fertiliser subsidy (Benayad, 2023).

African countries have also sought to augment their resources by **accessing multilateral financing**, often with concessional terms (Figure 16). Net disbursements in FY2023 (i.e. July 2022–June 2023)

overlapping with the Russia–Ukraine war were higher compared with disbursements during FY2020 at the peak of the pandemic in Africa as a whole and in specific case countries (i.e. Morocco, Mozambique, Senegal, South Africa). A few African countries (Chad, Ethiopia, Ghana, Zambia) have also **applied for debt treatment** under the G20 Common Framework and started some form of debt restructuring/negotiations with creditors.

Figure 16 World Bank net disbursements (\$ billion)



Source: Authors’ compilation based on data from World Bank Group Finances database

The Russia–Ukraine war has activated policy initiatives **to improve longer-term agricultural production and trade**. The Ethiopian government initiated efforts in 2022 to improve wheat production to replace wheat imports and to explore opportunities to export wheat within the region (Geda and Musyoka, 2023). In Senegal, the government is planning to develop the rice value chain, to strengthen the production, processing and marketing of locally produced rice and in the process reduce dependency on rice imports (Benayad, 2023).

6 Impact of the Russia–Ukraine shock

This section aims to present evidence on the economic and social impact of the Russia–Ukraine war at the country level. While it is not easy to isolate the impact of the Russia–Ukraine war, some studies have attempted to construct counterfactuals to make estimates.

Simulations using a GVAR by M'bouke et al. (2023) suggest that a 10% shock in oil, food and fertiliser prices lasting one quarter will lead to a decline in Africa's GDP by 0.1%, 0.1% and 0.04%, respectively. **The combined annual impact in Africa through these price shocks translates to roughly \$7 billion.** Actual impacts are likely to be higher since oil, food and fertiliser prices increased by larger shares, at 40%, 18% and 55%, respectively, in 2022 (World Bank, 2023b) and other prices increased as well; also other effects, such as those through financial channels, have not been fully considered yet.

Nevertheless, **there is a significant variation with regard to the impact of the war across African countries, depending on their economic structures and domestic vulnerabilities.** For instance, simulations suggest the war may result in lower food consumption compared with the baseline, showing zero in some Southern and East African countries but down by up to 6% in some North African countries (Nguï, 2023). Commodity trade structures also affect countries differently. Net oil-exporting countries may initially benefit from a positive oil price shock from the war (of 0.3% to 4.4% on impact); there will be an opposite effect on net oil importers (of -0.1% to -0.7% on impact); 22 countries that are food importers were simulated to experience a deterioration in commodity terms of trade of between 0.1% to 1.4% on impact; and the impact of fertiliser price shocks will have insignificant effects on most African countries' terms of trade (M'bouke et al., 2023).

This is consistent with analysis by the IMF (2023b), which highlights variations in growth across Africa, with some oil-intensive countries (e.g. Niger, Democratic Republic of Congo and Senegal) at the top end of the growth distribution in 2023. Nevertheless, economic recovery is expected by 2024, with non-resource countries growing faster than resource-intensive ones, the former supported by their more diversified economies (IMF, 2023e).

In addition, **pre-existing domestic vulnerabilities, such as susceptibility to climate change and political instability, could compound the impact of the Russia–Ukraine war.** In simulations by Cororaton (2023) using a dynamic global computable general equilibrium (CGE) model incorporating the global effects of the war on productivity and trade restrictions as well as drought scenarios, the reduction in GDP relative to the baseline in the first three years will be highest in countries in the Horn of Africa that are more exposed to droughts than the rest of Africa: Ethiopia, Kenya and Sudan's real GDP growth was simulated to be lower by 3–3.8% than the baseline in the first three years, compared with a decline of only 0.1% in Mozambique, 0.4% in Morocco, 1.4% in Nigeria and 0.2% in the rest of Africa during the same period. In addition, a contraction of GDP in Sudan since 2018 has been driven by multiple factors, including economic crises, political instability and structural issues (Zaki et al., 2023).

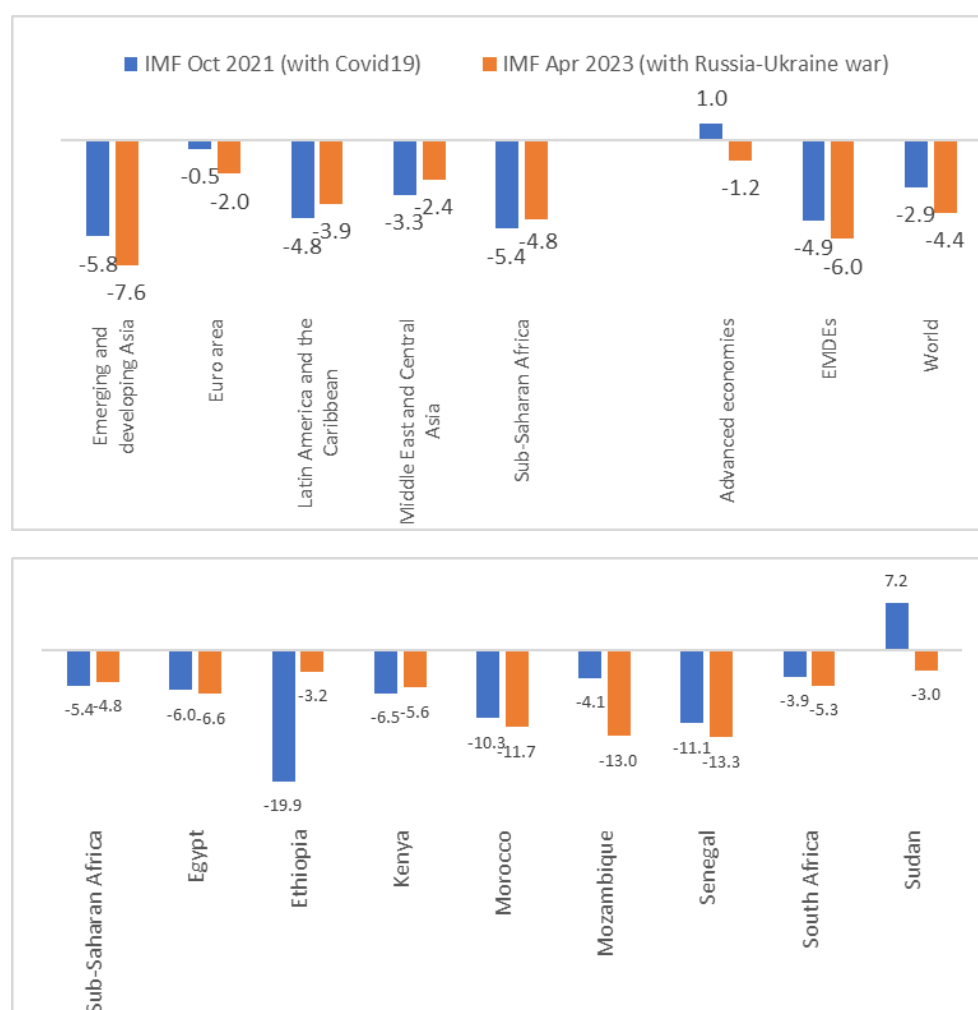
The contribution of the war to economic and social performance in 2022 is difficult to disentangle, as multiple factors drive growth, prices, employment, food insecurity and poverty. However, the war seems to have exacerbated the impact of the pandemic with regard to the deterioration of macroeconomic and social performance in Africa.

The differences between actual growth and the IMF's pre-Covid growth forecasts for 2020–2023 suggest that Africa lost 4.8 pp of growth in the period. In some countries, the Russia–Ukraine war has deepened the output losses from Covid-19 (Figure 17).

African countries' exposure through imports of food and fertiliser and financial openness has led to inflationary effects. Simulations suggest that the war-induced oil (food) price shock has led to an increase in inflation of 0.1–0.2 pp (0.14 pp) in most (half of) African countries (M'bouke et al., 2023). In Cororaton (2023), the Russia–Ukraine shock is expected to increase inflation in Africa by 3.4% in the first year but the highest increases are observed in Sudan (6.5%) and Kenya (3.7%).

However, these simulations have limitations, especially with regard to accounting for the exchange rate pass-through to inflation. For instance, M'bouke et al.'s (2023) model assumes that the inflationary impact of price shocks induced by the war will be higher in the US than in African countries, leading to real exchange rate appreciation in the latter, and assumes no policy intervention from the US. However, in reality, the US responded with interest rate increases to arrest inflation, which in turn led to a strengthening of the dollar.

Figure 17 Cumulative GDP growth losses, 2020–2023 (pp)



Note: Output losses are computed based on the difference between the pre-Covid forecast (October 2019) and respective IMF estimates/forecasts as of October 2021 and April 2023.

Source: Authors' computations based on data from IMF (2019, 2021, 2023a)

Thus, the case studies highlight the inflationary effects of the war via trade and financial channels. For instance, in Ethiopia, the war-induced increase in global fertiliser prices has driven higher domestic fertiliser prices, which in turn have increased the costs of agricultural production and then put pressure on inflation (Geda and Musyoka, 2023). Meanwhile, Egypt and Sudan's currencies depreciated by 97% and 34%, respectively, against the US dollar between January 2022 and August 2023 (Table 8). Using an error correction model, Zaki et al. (2023) show that the high exchange rate pass-through can have long-term implications for inflation in these countries.

In sub-Saharan Africa as a whole, inflation increases in 2020–2022 have been found to be driven mainly by external factors such as global commodity prices and supply chain disruptions (IMF, 2022b). In 2022, overlapping the first year of the Russia–Ukraine war, the region's inflation is estimated to have reached 14.5%, the highest

since 2001 (IMF, 2023a). Many African countries' inflation reached double-digit record highs in 2022 (Table 11).

Table 11 Inflation (end year-on-end year % change in Consumer Price Index, base year 2015)

	Egypt	Ethiopia	Kenya	Morocco	Mozambique	Senegal	South Africa	Sudan
General prices								
Dec 2019	1.8	22.7	10.0	0.6	0.0	0.2	3.9	63.3
Dec 2020	2.8	21.3	8.6	-1.7	8.4	3.8	5.9	206.5
Dec 2021	8.4	41.6	8.9	4.5	10.5	5.3	5.4	191.6
Dec 2022	37.3	32.9	13.9	15.5	14.4	18.8	12.5	65.4
Food prices								
Dec 2019	7.1	19.5	7.2	1.2	3.8	0.6	4.0	57.0
Dec 2020	5.4	18.2	5.6	-0.2	4.2	2.4	3.1	269.3
Dec 2021	5.9	35.1	5.7	3.2	7.2	3.8	5.9	318.2
Dec 2022	21.3	36.0	9.1	8.3	10.9	12.8	7.5	87.3

Source: Authors' computations based on Consumer Price Indices (base year 2015) from FAO statistics for December 2019–2022

Beyond output and inflation, **the overlapping shocks of COVID-19 and the Russia–Ukraine war have slowed progress in achieving Africa's development goals.** The International Labour Organization (ILO) estimates that the number of unemployed Africans was 1.8 million higher in 2022 than pre-Covid forecasts,⁸ partly driven by the lack of productive employment opportunities and employment not growing as fast as population growth (ILO, 2023). As of August 2023, 21 African countries have been classified as at high risk of or in debt distress. A higher debt service burden lowers development financing in Africa, with interest rate payment outpacing education, health and investment spending in 2019–2021 (UNCTAD, nd). In addition, more Africans have been pushed into food insecurity and poverty in the past three years since the onset of COVID-19.

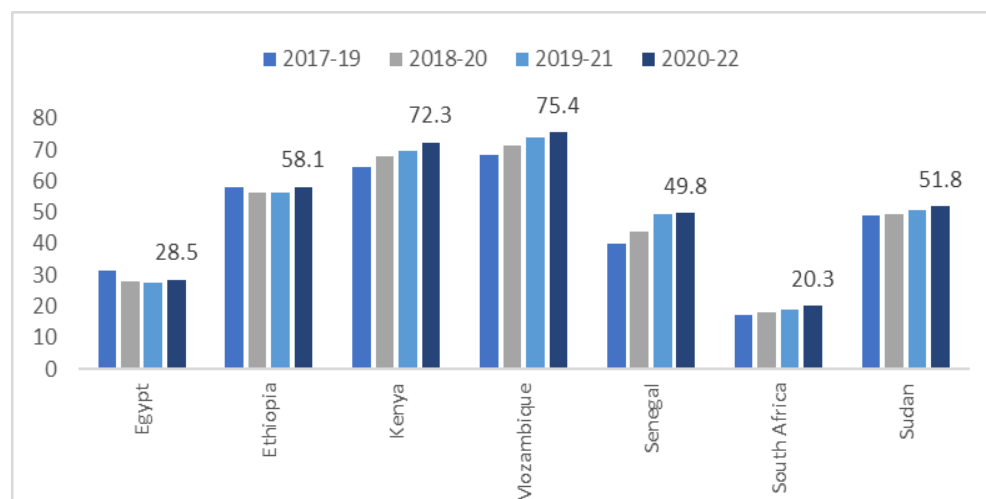
Food insecurity is driven by many factors, such as conflict/insecurity, economic and household shocks, natural disasters and climate change effects. In recent years, however, people in food insecurity have increasingly cited the role of economic shocks as a primary driver (cited by 18% in 2019 and 33% in 2022, see FSIN and GNAFC, 2023). In Mozambique and South Africa, for example, food insecurity is found to be propagated through the war's impact in terms of disruptions in imports of inputs (e.g. fertiliser, fuel) to food production and distribution (Ngepah, 2023).

In general, estimates suggest that around 22% of the population, or one out of five Africans, are facing high levels of food insecurity in 2022 (FSIN and GNAFC, 2023). The Food and Agriculture

⁸ Based on the difference between the latest ILO estimates of the number of unemployed in sub-Saharan Africa (2023) and ILO's pre-Covid forecast for 2022 (2019).

Organization of the UN (FAO) suggests this ratio is higher and has been increasing since the pandemic at the country level, reaching between 50% and 75% of the population in Ethiopia, Kenya, Mozambique and Sudan as of 2022 (Figure 18).

Figure 18 Prevalence of moderate or severe food insecurity in the total population (% , three-year average)



Source: FAO statistics

With the increase in food prices and the reduction in household incomes induced by the war, the demand for food is expected to decline in Africa in the next three years (Cororaton, 2023).

Women have probably been disproportionately affected by the effects of the Russia–Ukraine war. In Kenya, for instance, women-headed households in both rural and urban areas were found to be more affected than households headed by men by changes in wheat flour prices between February 2022 and May 2023 (Geda and Musyoka, 2023). This is likely because men-headed households have higher incomes than women-headed households, allowing men to adjust their income allocation towards wheat and wheat products more easily.

More in-depth studies using updated data are needed to establish robust evidence across African studies in the context of the Russia–Ukraine war. Meanwhile, cross-country/global analyses have offered insights on pathways through which the war may be disproportionately felt by women and be slowing down progress on addressing gender inequality (UN Women, 2022; Papadavid, 2023):

- The war-induced price shocks and the large exchange rate depreciation with pass-through effects to inflation may affect women more because they typically spend a larger proportion of their income on food for the household.

- African firms engaged in international trade typically employ more women, such that trade disruptions from the war could have affected African women's employment.
- The war may have reversed progress on women's access to modern energy and caused a return to unhealthy biomass for fuel for cooking and heating.
- The war may exacerbate the pre-existing gender gap, with more women experiencing moderate or severe food insecurity than men, and may increase the risks of women being subject to gender-based violence or trafficking, or participating in early/forced marriage in order to buy food or survive.

The social impacts of the war are expected to create higher levels of poverty. Cororaton (2023) simulates that the war may lead to declines in real incomes that could persist for at least three years as continued inflation may affect wages and returns to capital. Estimates suggest that 18 million new poor people were added in 2022 to the 546 million Africans already living in poverty in 2021 (UNECA, 2023a).

The recent overlapping global shocks are likely to result in so-called 'scarring effects' in Africa: persistent output losses after the shocks, as seen during the global financial crisis in 2008 and COVID-19.⁹ Simulations of the long-term effects of COVID-19 in Africa suggest that GDP reductions relative to a no-COVID-19 scenario will still be felt across countries by 2030 and 2050, as economic losses will erode gains made in human development in the past decades (UNDP, 2021). For countries with limited policy space following the pandemic, the scarring from COVID-19 is likely to be compounded by the effects of the Russia–Ukraine war (IMF, 2022c).

Such scarring effects are likely to be deeper in the event of protracted and escalated geopolitical tensions. Simulations suggest that economic and social welfare losses will be deeper and longer if the Russia–Ukraine war is resolved only after five years (Cororaton, 2023). In the event that a war escalates into fragmentation into two global trading blocs (one centred in the US/EU, another centred around China), sub-Saharan Africa could stand to lose the most and may experience a permanent 4% GDP decline after 10 years (Zhang and Reyes, 2023). Such persistent output losses will leave countries vulnerable to future successive shocks.

⁹ For instance, IMF (2018) shows that 60% and 85% of countries that did not and did experience banking crisis, respectively, in 2007–2008 performed below pre-2009 trends as of 2017. For Covid-19, emerging and low-income economies with limited remote work adaptability, limited policy support and slower vaccination rates during the pandemic are estimated to have larger and permanent damage than higher-income countries (see IMF, 2021).

7 Policy implications

A synthesis of the six case studies focusing on eight African countries and the wider African region leads to the following policy implications for governments with regard to fostering the resilience of African countries to external shocks.

- 1 Tailored policy approaches to shocks, given the heterogeneous effects of the war on African countries.** Both the size and the nature of the effects vary. Evidence shows that impacts vary markedly, for example by between zero and 6% on the total value of food consumption, which suggests that some countries may need to take more action than others. Also, while several resource-intensive countries benefited from global commodity price shocks in the short run, they will be affected negatively in the long run, while non-resource-intensive countries are expected to grow faster in the medium term. In addition, countries with higher government capacity may exhibit stronger recovery. Meanwhile, deeper and more persistent output contractions are expected in African countries with pre-existing vulnerabilities, such as susceptibility to climate change effects and political instability. Such heterogeneity means that some countries (e.g. importers) need more actions than others, and that tailored approaches for short-term macroeconomic stabilisation but also towards long-term resilience-building are needed. For instance, resource-intensive economies may need to support transformative sectors with large-scale employment (e.g. manufacturing, services) and invest in the upskilling of human capital and climate-resilient infrastructure.
- 2 Safeguarding of targeted social safety nets during shocks.** It is not possible to neutralise the shock so there will be some impacts from changes in prices and economic activity. Some countries have responded to the Russia–Ukraine war in social protection terms, mostly through cash transfers and subsidies, but such interventions are not enough. Given the distributional impacts of increases in prices and poverty incidence induced by the war, there is a need for more proactive and targeted social support for women, vulnerable groups and poor households (Cororaton, 2023; Benayad, 2023). Vulnerability to food insecurity may also be mitigated by providing more access to credit facilities to marginalised smallholder farmers and scaling up social security for workers (Ngepah, 2023; Zaki et al, 2023).

- 3 Proactive monetary policies to arrest financial spillovers of shocks.** The case studies show that, while some central banks (e.g. Egypt and South Africa) responded fast at the onset of the Russia–Ukraine war, others responded later. African central banks may need to have proactive measures in place to counter inflationary pressures (and exchange rate pass-through to inflation) stemming from external shocks. Such measures may include interest rate adjustments and other monetary tools (e.g. macroprudential tools). However, central banks should also be cautious about the potential domestic implications of deploying policy tools; for instance, higher policy rates can lead to higher borrowing costs and a slowdown in domestic investment (M'bouke et al., 2023).
- 4 In addition, there may be a need to establish sustainable exchange rate regimes.** With eroding foreign reserves to manage exchange rates, measures to control foreign currency flows may lead to a parallel market and devaluations, as in the case of Egypt (Zaki et al., 2023). Floating exchange rate regimes may help better absorb shocks and improve the competitiveness of exports (Benayad, 2023; Zaki et al., 2023).

Trade creation and diversification of food, fertilisers and energy sources. Initial trade policy responses to the war in the form of export bans were not the optimal intervention to secure domestic food supply. Instead, all studies highlight the importance of enhancing regional and bilateral trade to reduce susceptibility to commodity shocks and their impact on food security in Africa. This applies to the trading of staple foods and inputs for agricultural production and distribution (e.g. fertiliser, fuel) necessary for food security.

One approach would be to invest in and develop trade corridors, to reduce trade transportation costs and enhance efficiency. As demonstrated by the Maputo Corridor, trade corridors have the potential to fill the import gaps for food, fuel and fertiliser created by the Russia–Ukraine war in Mozambique and South Africa (Ngepah, 2023). This can be supplemented by bilateral strategic engagements to cover the areas of trade and investment facilitation, trade infrastructure and capacity-building (Benayad, 2023; Geda and Musyoka, 2023; Ngepah, 2023; Zaki et al., 2023).

Strengthening intra-African trade can also help cushion African countries against global price shocks (M'bouke et al., 2023). Removing administrative and unjustified non-tariff measures can encourage production and exports (Zaki et al., 2023). The African Continental Free Trade Area (AfCFTA) market could promote, expand and diversify regional trade and investment in agriculture and energy (Geda and Musyoka, 2023; Ngepah, 2023; Zaki et al., 2023). In addition, it is estimated that implementation of the AfCFTA will raise real per capita GDP of the median African

country by more than 10%, lifting an estimated 30–50 million people out of extreme poverty (Echandi, 2022; ElGanainy et al., 2023).

5 Boosting efficient domestic agricultural and fertiliser production. Implementing measures to improve agricultural productivity can help reduce dependency on imports and susceptibility to global commodity price shocks. Measures could involve targeted efforts such as increasing investment in agricultural and fertiliser research and development, improving access to modern and environmentally sustainable farming techniques and technologies (including fertiliser use), providing support to smallholder farmers (M'bouke et al., 2023), developing value chains of specific agricultural products (Benayad, 2023) or adopting a comprehensive agricultural sector development strategy (Benayad, 2023; Zaki et al., 2023).

Meanwhile, there is room to further enhance the role of the global financial architecture in shock management and economic recovery. Fiscal resources have been squeezed by the overlapping shocks of Covid-19 and the Russia–Ukraine war. In addition, the recent global financial tightening is increasing the cost of borrowing and debt servicing. As of August 2023, 21 African countries are at high risk of or already in debt distress. Four countries (Chad, Ethiopia, Ghana and Zambia) have already applied to the G20 Common Framework but progress on securing debt treatment has been slow. High debt servicing lowers spending on social services and public investment.

The recent shocks are global in nature and beyond the scope of domestic African policies but have nevertheless induced macro-fiscal imbalances in many African countries. There is a need to consider how international financing institutions can provide speedier, flexible and higher financing that is commensurate with the magnitude of the shocks. For instance, in 2020, the IMF and World Bank's net financing was worth 2.7% of LICs' GDP and 0.6% of L&MICs GDP, way below the 2020 growth losses of 6 pp and 9 pp by L&MICs and LICs, respectively, from pre-Covid forecasts (Raga, 2024 forthcoming). But it is not just the level of financing: the direction also matters. An area of policy debate thus relates to how the IMF and World Bank (and other global financial institutions and creditors) can do more to finance targeted growth, through policies to help save Africa's growth and development trajectory from scarring effects, as suggested in the above policy areas.

8 Conclusions

This synthesis of evidence highlights the heterogeneity of the impact of the Russia–Ukraine war on African countries – but for most African countries this impact is transmitted through global commodity prices and financial conditions rather than through their modest bilateral economic links with Russia and Ukraine. The six studies and wider literature examined in this paper suggest that policy rate hikes in HICs, imported commodity and fuel inflation, exchange rate depreciation pass-through to domestic prices and increases in borrowing costs are channels through which output losses, higher prevalence of food insecurity, reduced jobs and a higher number of people living in poverty in Africa are being transmitted. These effects have arisen at a time when many African economies are already weak and in debt distress, especially because of the COVID-19 crisis.

The overlapping crises call for policy measures to address the short- and long-term impacts of the compounding global shocks in Africa. Urgent and targeted social support needs to be extended to those who are experiencing the disproportionate impacts of the war in terms of income and food insecurity – including women, smallholder farmers, informal market workers and marginalised groups. Appropriate monetary policy is needed to arrest record-high inflation that is eroding purchasing power, exacerbating food insecurity and increasing borrowing costs. Sharp exchange rate depreciation, which is further accelerating inflation and pushing on the external debt service burden, also needs to be addressed in the near term through policy instruments (e.g. foreign exchange interventions, macroprudential tools) or by re-examining heavily managed exchange rate regimes.

Medium- to long-term measures to increase agriculture sector productivity, trade and trade integration, and human capital can help African countries preserve food security, growth and development to mitigate against future shocks. The international financial architecture needs to step up to support Africa in implementing such measures and growth and development objectives.

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