

The war in Ukraine and food security in the Southern African Development Community Region: impacts, policy responses and opportunities

IFAD

Monitoring and Analysing Food & Agricultural Policies

(MAFAP) Programme at FAO

BFAP



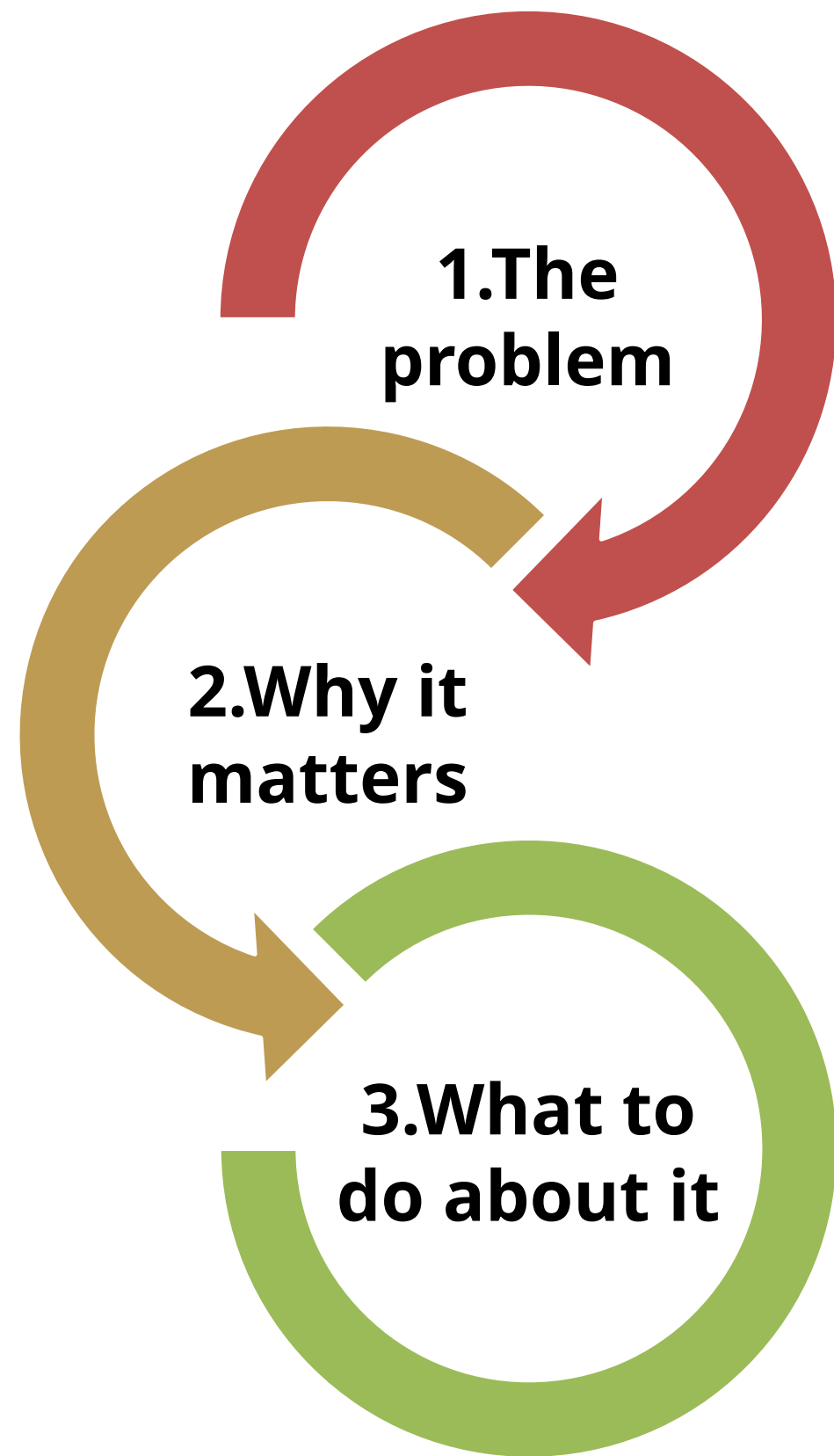
Study objectives and scope

- 1. Characterize the main shocks associated with the war in Ukraine** and their relevance for the food and agricultural sectors of the SADC region, focusing on 5 countries.
- 2. Disentangle main transmission channels of the war in Ukraine** on the food and agriculture sector in the 5 countries.
- 3. Conduct a rapid appraisal** of the exposure of the 5 countries to the war in Ukraine shocks and effects already identified through secondary data and respondent perceptions.
- 4. Draw lessons on policy responses** already implemented in response to the shocks associated with the war in Ukraine and gather policy options going forward.

Data and limitations

- 1. Data:** (i) processing of secondary descriptive statistics on trade, prices, production and production costs (ii) 30 interviews with key informants to gather perceptions on the crisis, transmission channels, effects, policy responses.
- 2. Limitations:** (i) not an in-depth assessment at country-level but a rapid comparative assessment (ii) difficult to keep results updated with rapidly moving environment (iii) difficult to identify granular and country-specific policy options due to complexity of war in Ukraine transmission channels and effects (fertilizer, food, fuel, urban/rural level, country specifics, political economy...)

Presentation outline



The war in Ukraine price shocks in food and agriculture: making a bad situation worse

- 1.1 High food prices
- 1.2 High fertilizer prices
- 1.3 High fuel prices

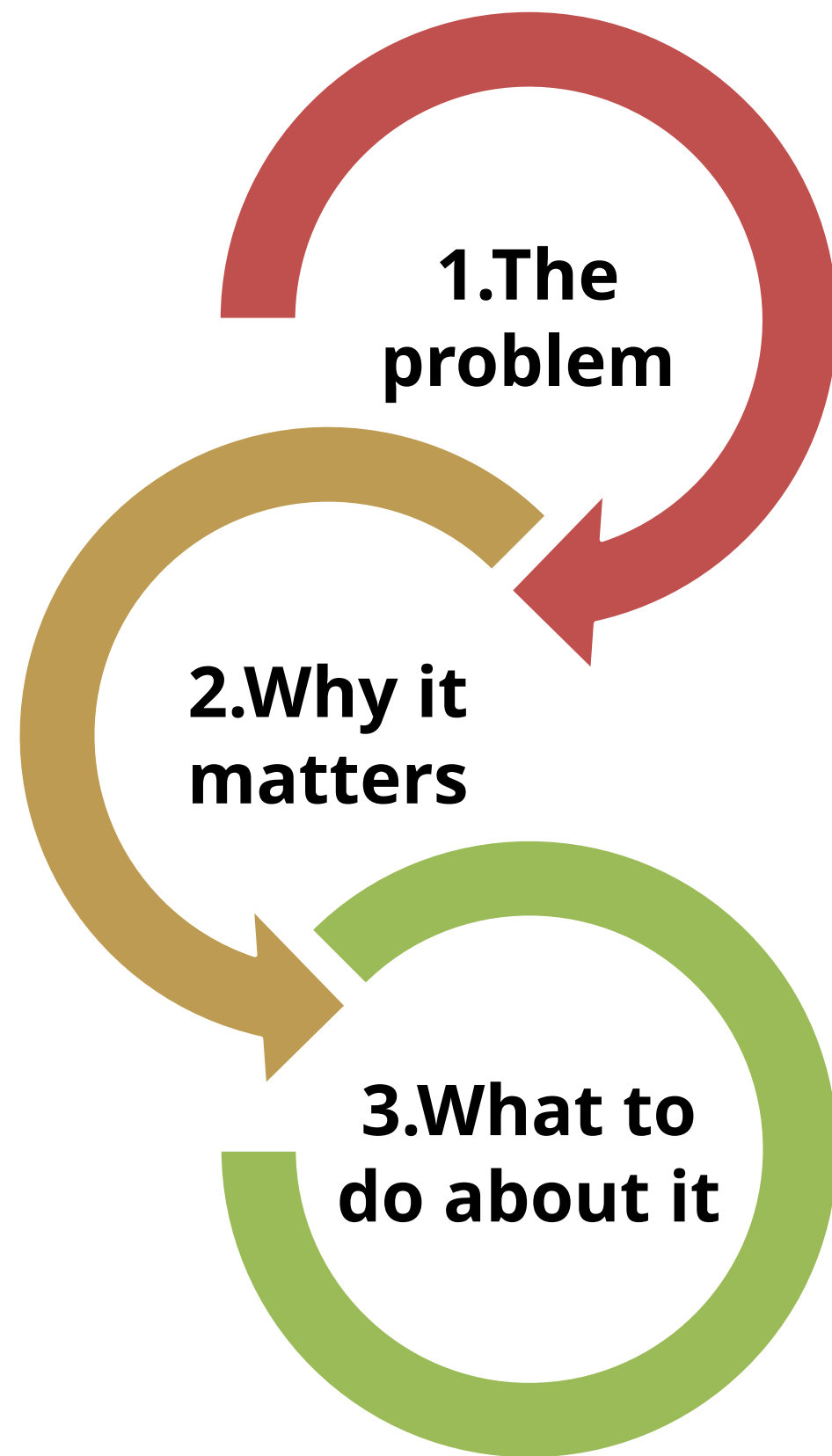
Country level impact: exposure and effects to the global price inflation

- 2.1 Exposure to “FFF” inflation
- 2.2 Effects of FFF inflation

Policy responses: reducing exposure, cushioning against effects

- 3.1 Policy responses
- 3.2 Policy options

Key messages



1. Inflation in food, fertilizer and food prices **predates the war in Ukraine, but it has made it worse.**
2. Inflation of FFF moves together: **a perfect storm for countries exposed to global FFF prices**

1. Transmission channels: wheat and edible oil are the most affected imported foods in SADC, **but they account for 5-20% of total calory intake**, mostly in urban centers.

2. **Exposure to fertilizer inflation is high:** strong import dependence and share in farm costs for smallholders. Energy prices a problem for commercial farmers. This will increase food prices and lower affordability.

1. **Support and diversify local food systems:** make ISPs more efficient, attract investment and fund research/extension in new crops, promote diet diversification.

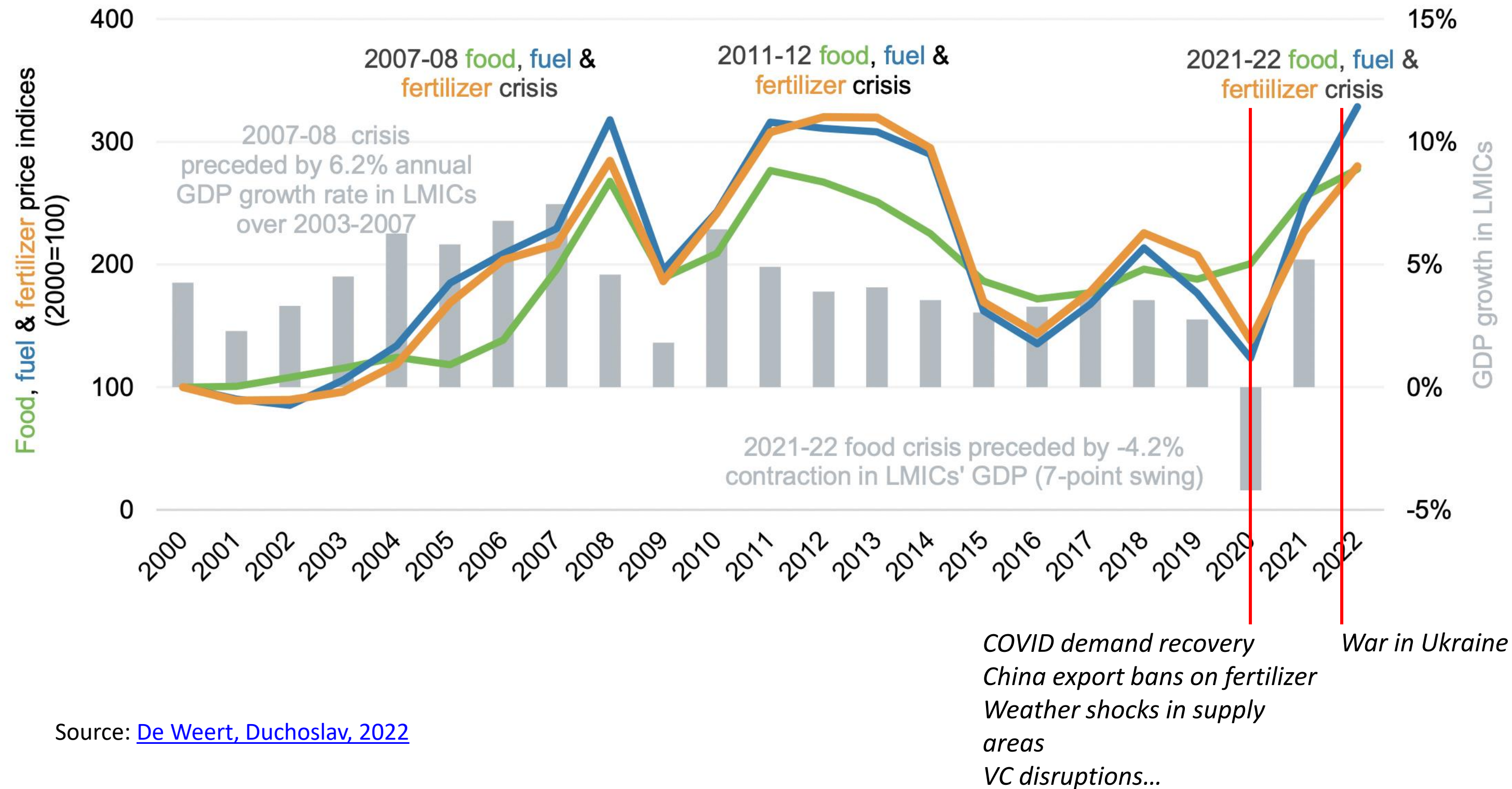
2. **Cushion vulnerable households against shock effects:** use ISP fiscal gains and donor funding for strategic food reserves, targeted safety nets and increase risk preparedness.

1. The problem

Making a bad situation worse:
the war in Ukraine and its
contribution to global price
shocks

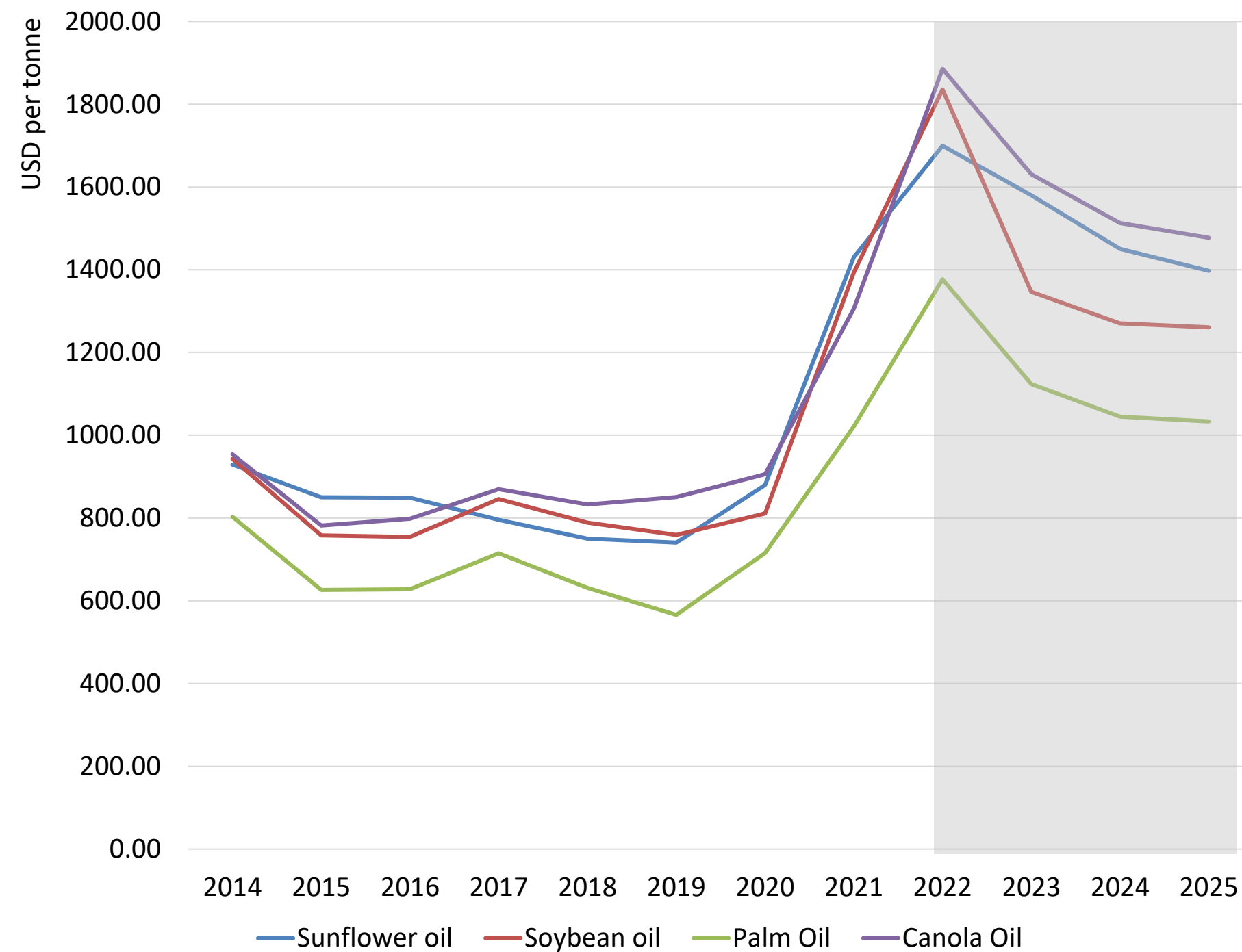
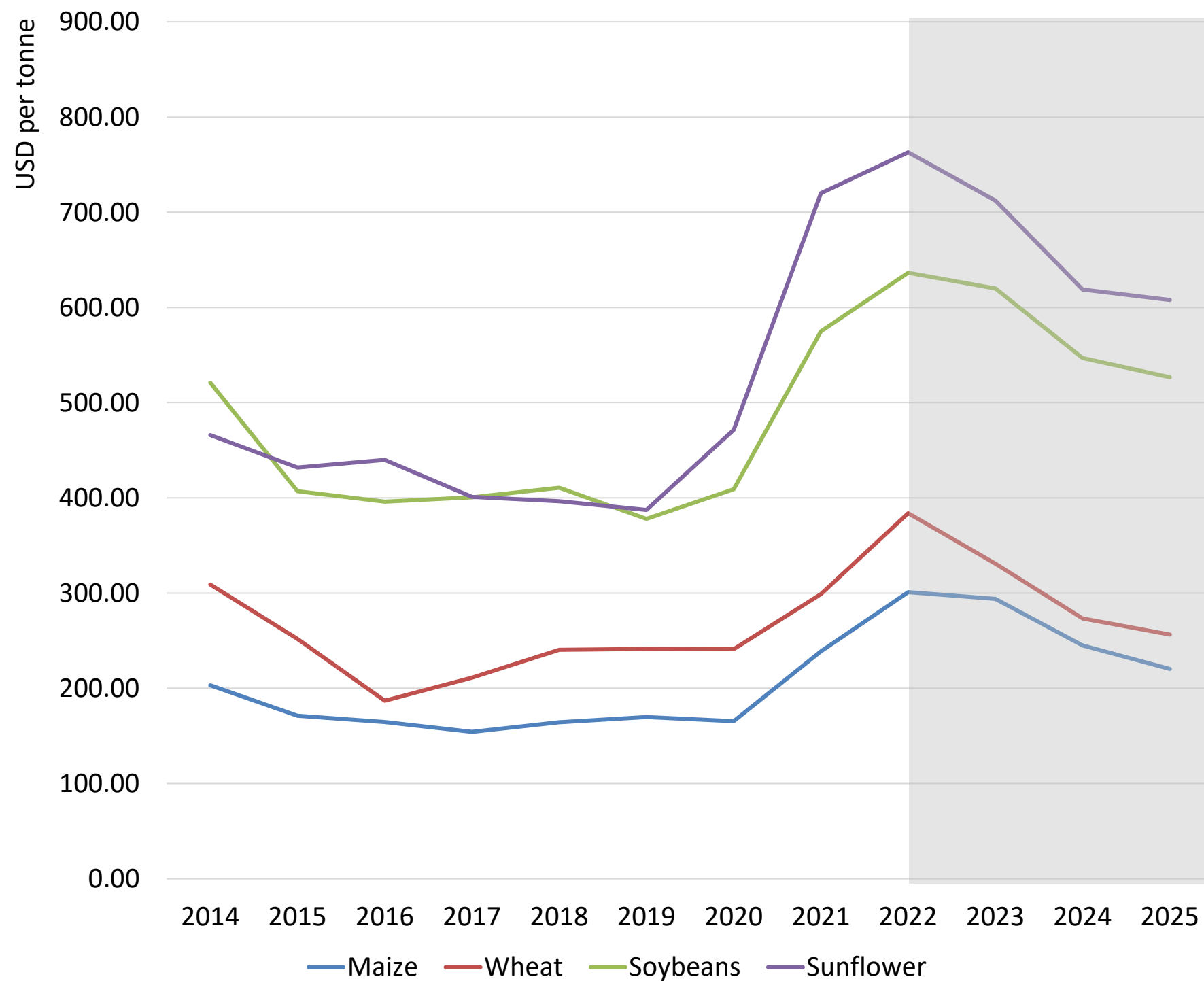


The FFF inflation is not a new phenomenon but was made worse by the war. It moves together and can hit exposed economies as a “perfect storm”.

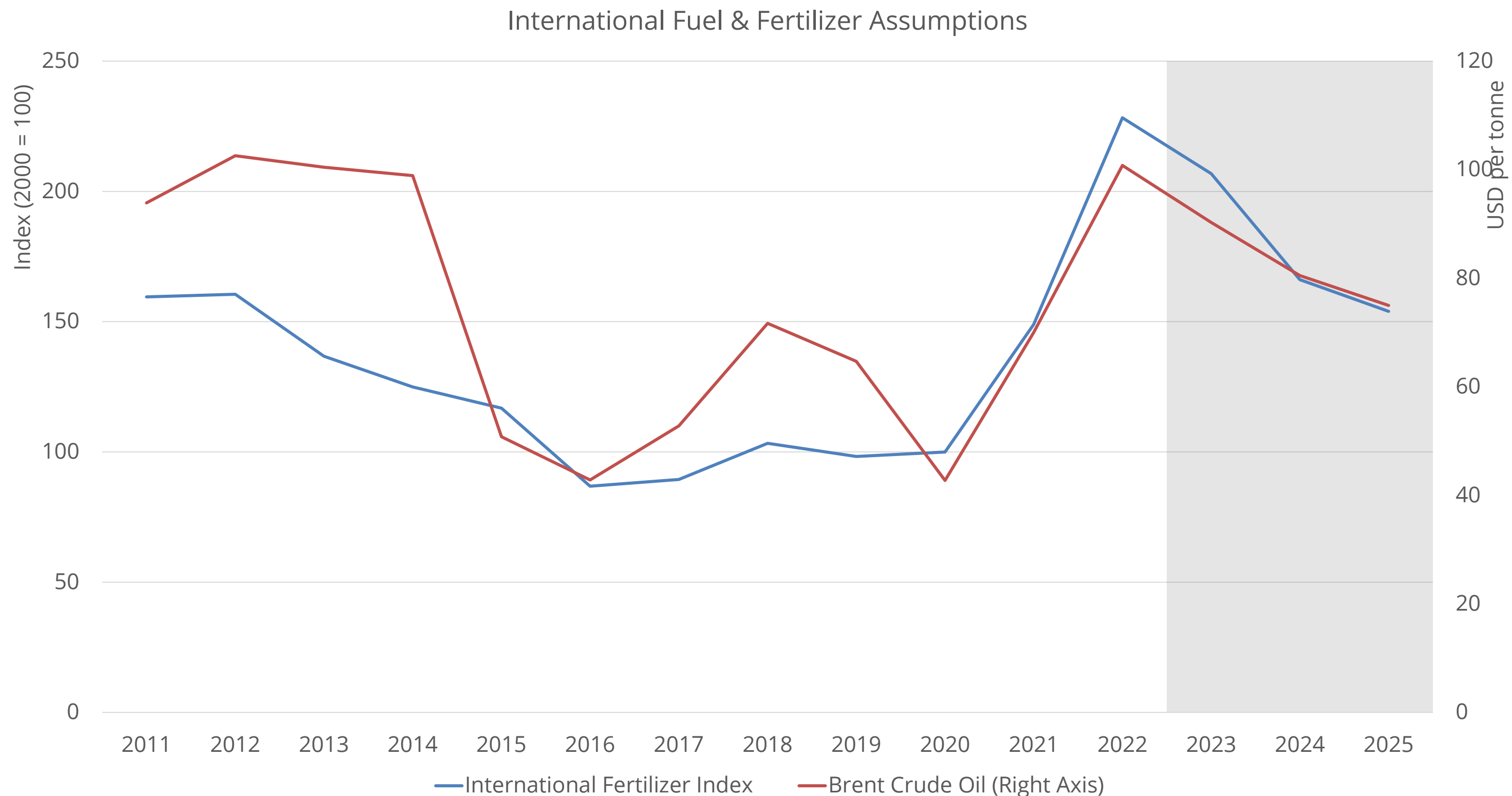


Source: [De Weert, Duchoslav, 2022](#)

The crisis is not over: prices are projected to decline slowly from peaks reached in 2022 but will remain high



Fuel and fertilizer have peaked too but remain much higher than pre-war and pre-COVID levels.



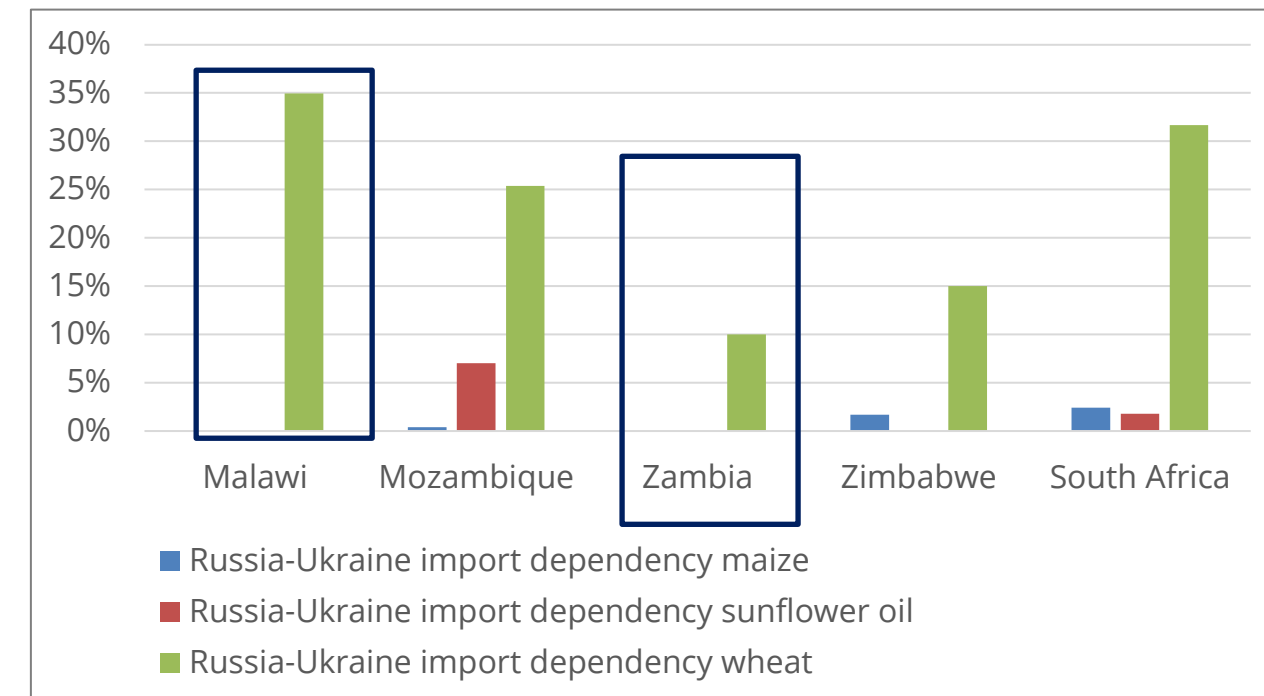
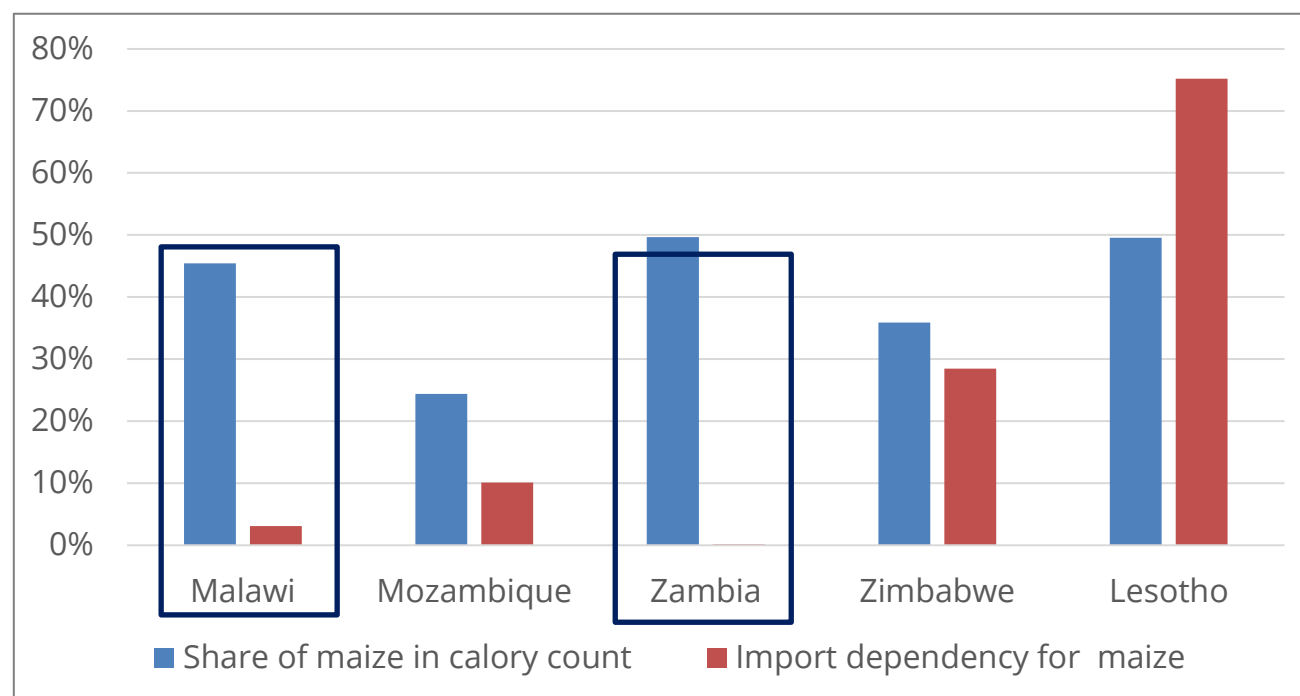
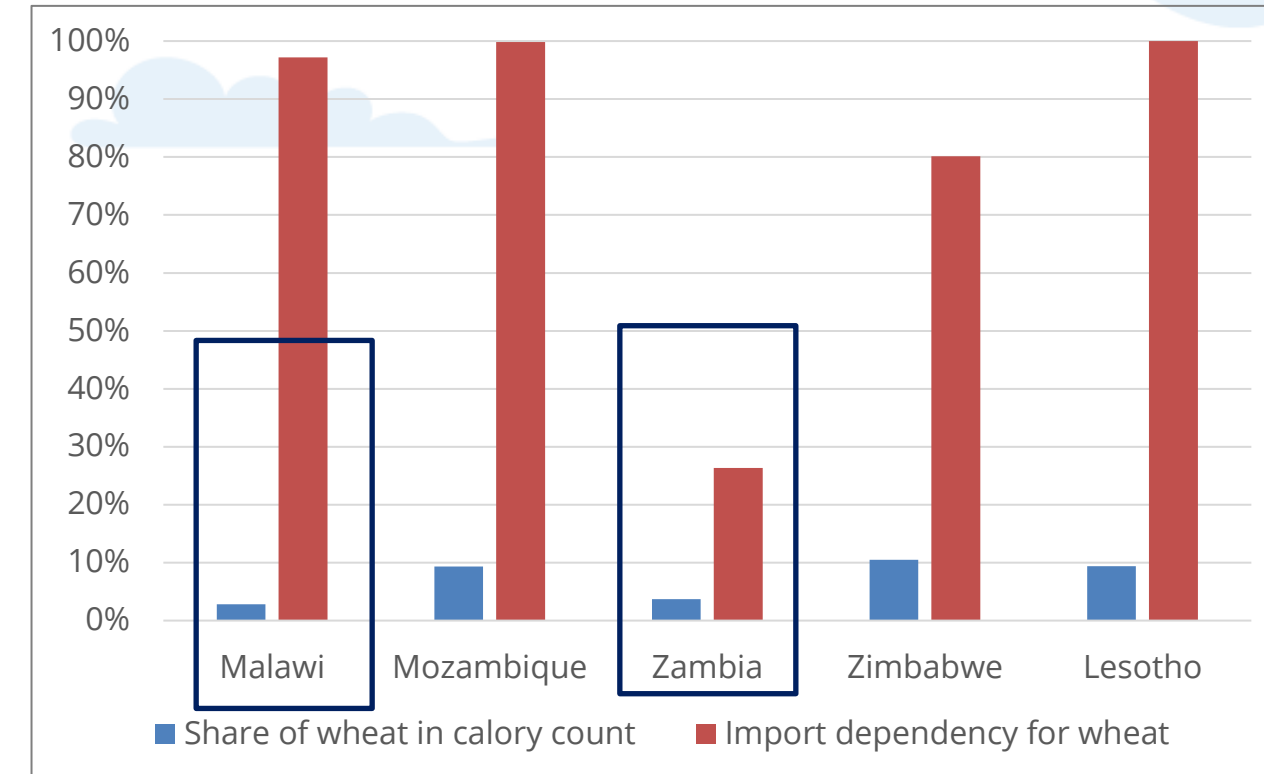
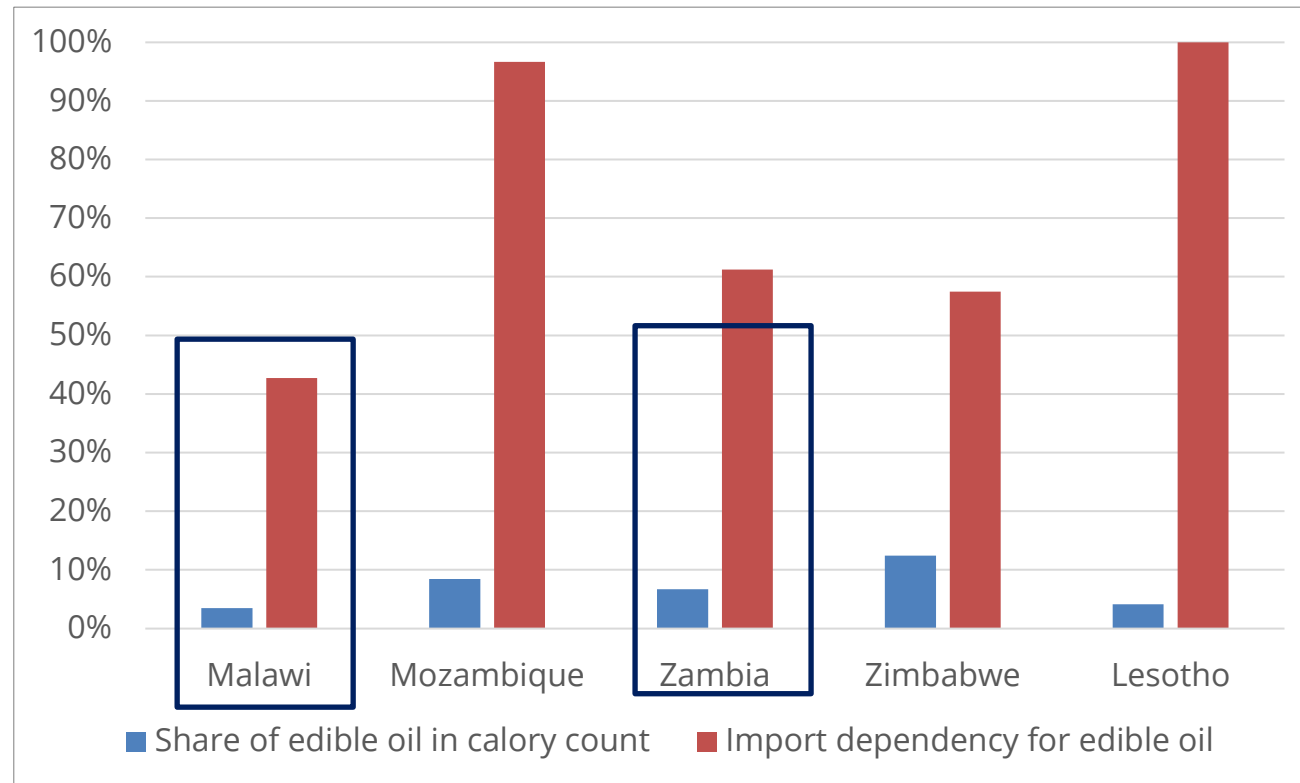
Source: OECD-FAO, World Bank and BFAP, 2022

2. Why it matters: country-level exposure and effects



EXPOSURE: FOOD

The key food prices affected by the war are those of edible oil and wheat: these foods are largely imported but are at most 10% of calory count each. Maize is much higher in calory count but limited global imports (Lesotho imports via South Africa).



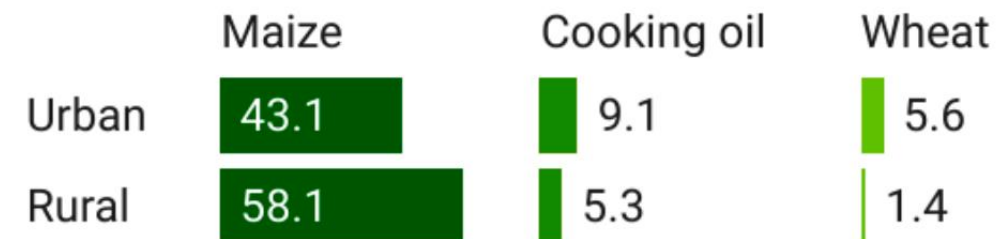
EXPOSURE:FOOD

Taking the Malawi example, wheat and cooking oil account for higher shares of diets for urban and wealthier households.

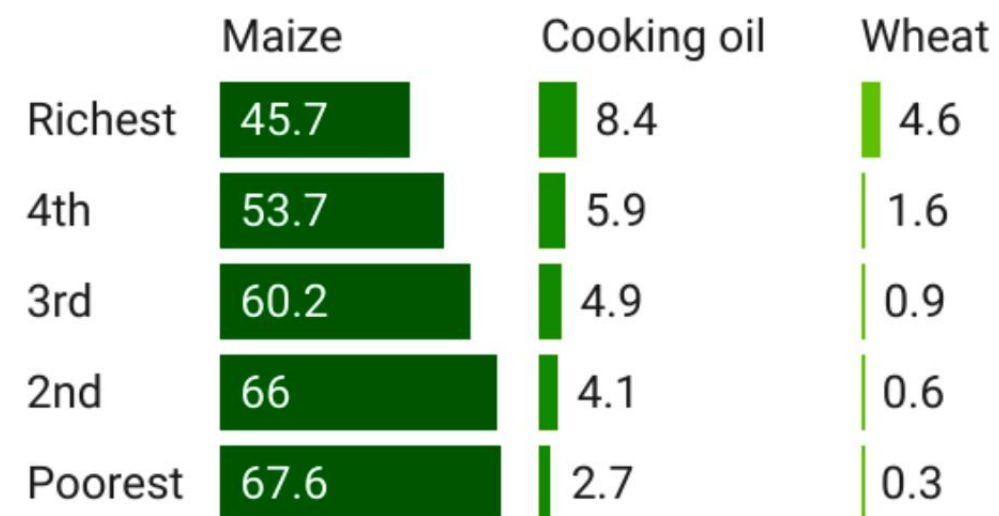
Share in diet (% kcal)



Residence



Wealth quintile



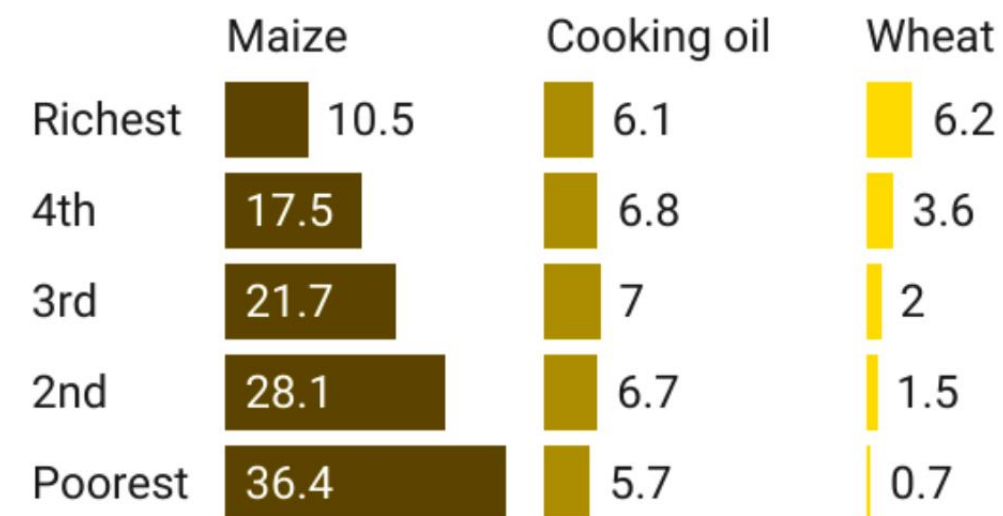
Share in food purchases (% MWK)



Residence



Wealth quintile



EXPOSURE: FERTILIZER

Regional economies are highly dependent on imports for their fertilizer needs. Even if the share of Russia and Belarus in these imports is limited, global market price shocks are affecting their capacity to procure the fertilizer

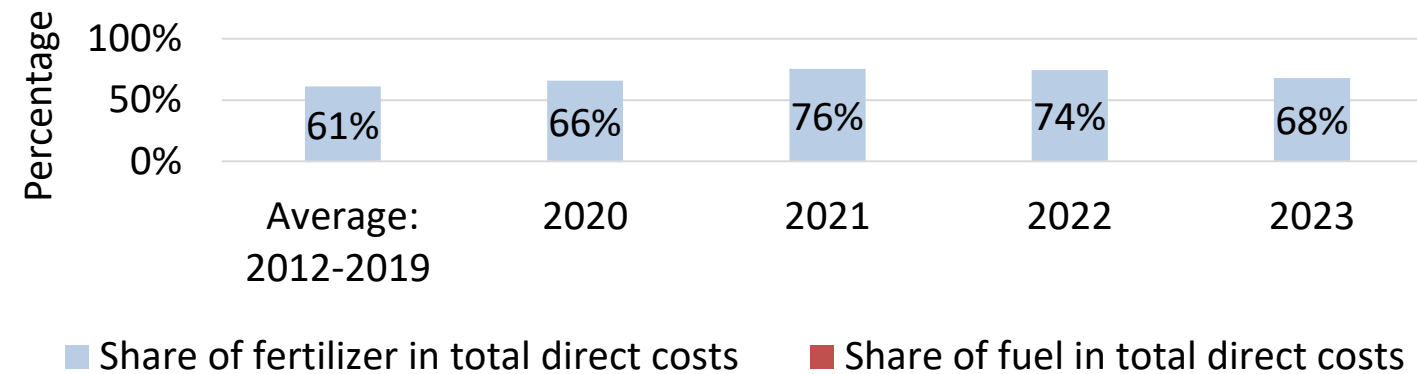
Fertilizer import dependence, share of Russia/Belarus

Country	Import dependence	Share of Russia and Belarus in imports
Lesotho (via SA)	100%	12%
Malawi	100%	6%
Mozambique	100%	9%
Zambia	100%	2%
Zimbabwe	86%	4% + 12% (via SA - 87%)

EXPOSURE: FERTILIZER

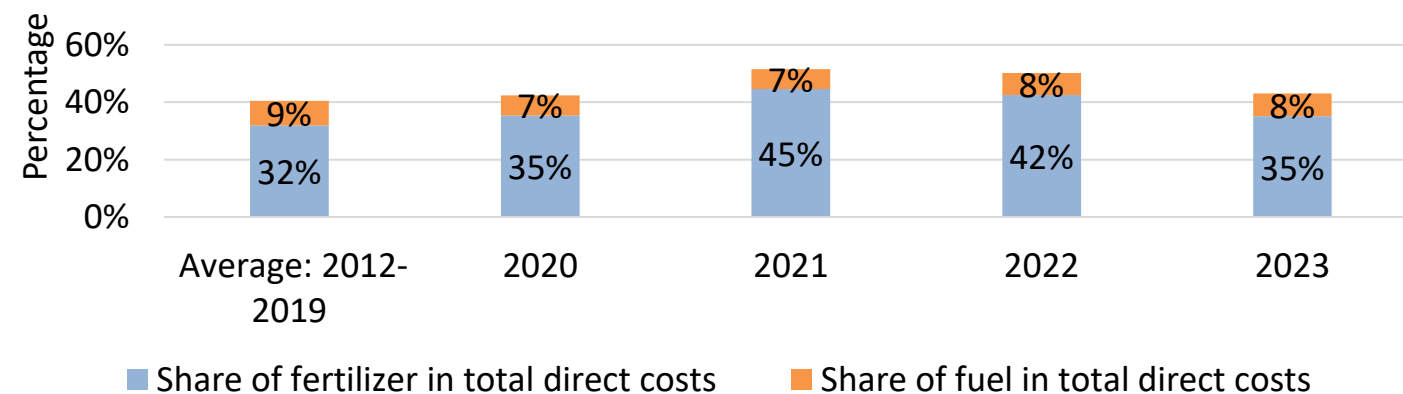
Fertilizer's share in total direct costs is high for small-scale farmers, exposing them to hikes in fertilizer costs. Exposure to fuel is lower due to labor-oriented production systems.

Share of fertilizer & fuel in direct costs
Zambia small-scale farmers



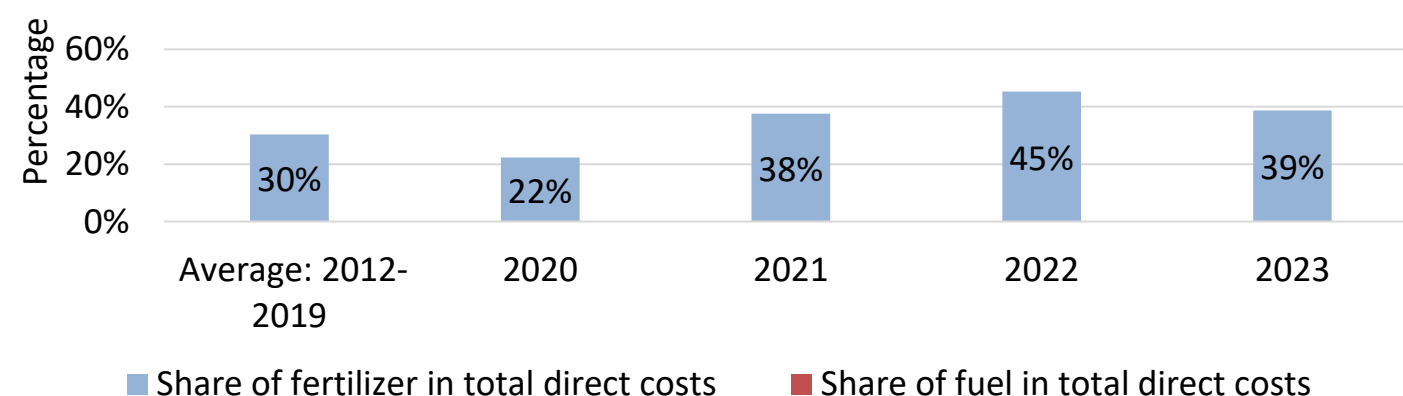
Zambia small-scale farmers: Fertilizer's share in direct costs in 2022 totaled 74% in 2022, 8% higher compared to 2020 and 13% higher compared to 2012-2019 average. Since small-scale farmers predominately use labor, exposure to fuel (up until farmgate) is zero.

Share of fertilizer & fuel in direct costs
Zambia commercial farmers



Zambia commercial farmers: Total share of fertilizer and fuel in direct costs was 50% in 2022, 10% higher compared to the 2012-2019 average while fertilizer contributed 42% to total direct costs.

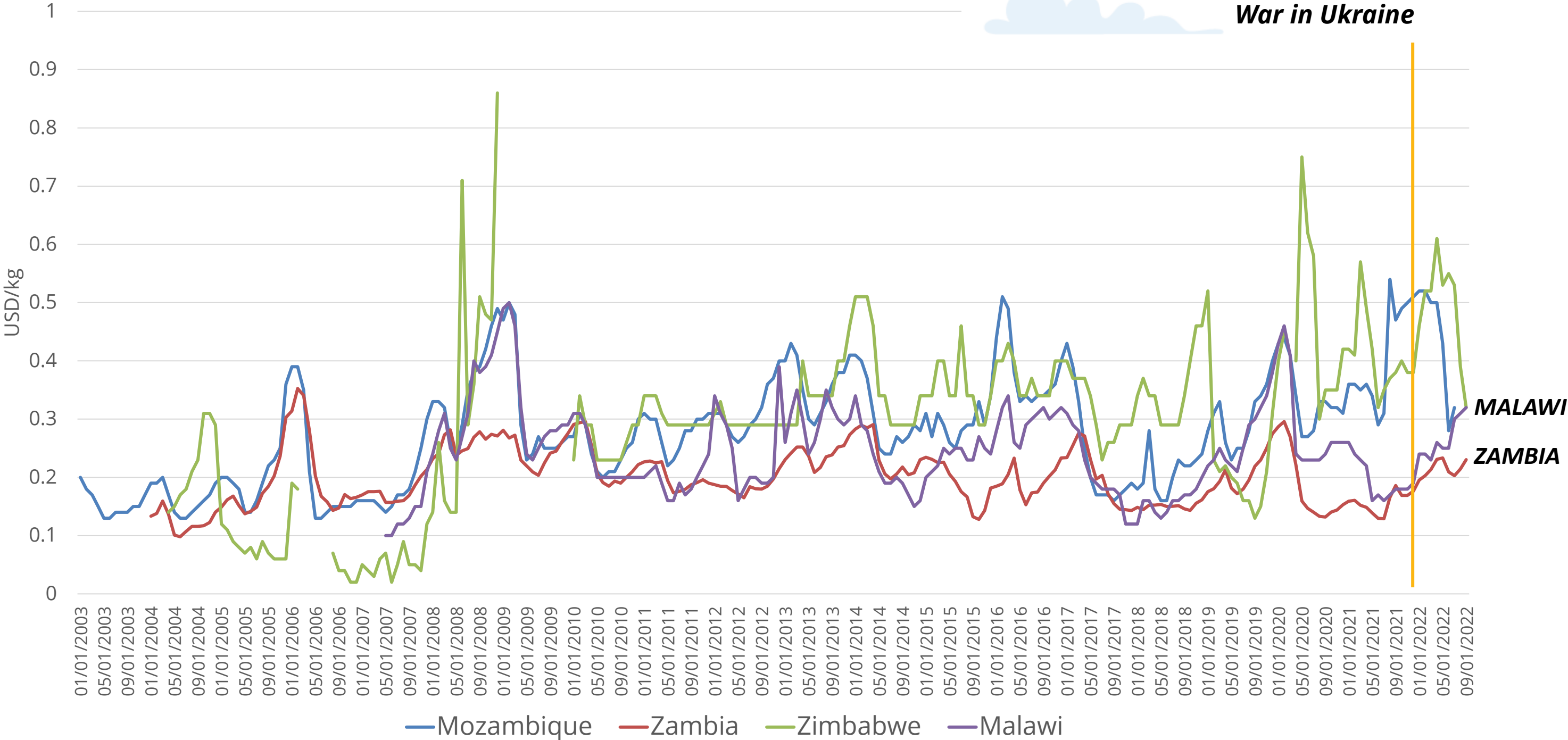
Share of fertilizer & fuel in direct costs
Malawi small-scale farmers



Malawi small-scale farmers: Fuel's share is zero due to labor-oriented production systems. Fertilizer's share in direct costs was 45% in 2022, 23% higher compared to 2020.

EFFECTS: FOOD PRICES

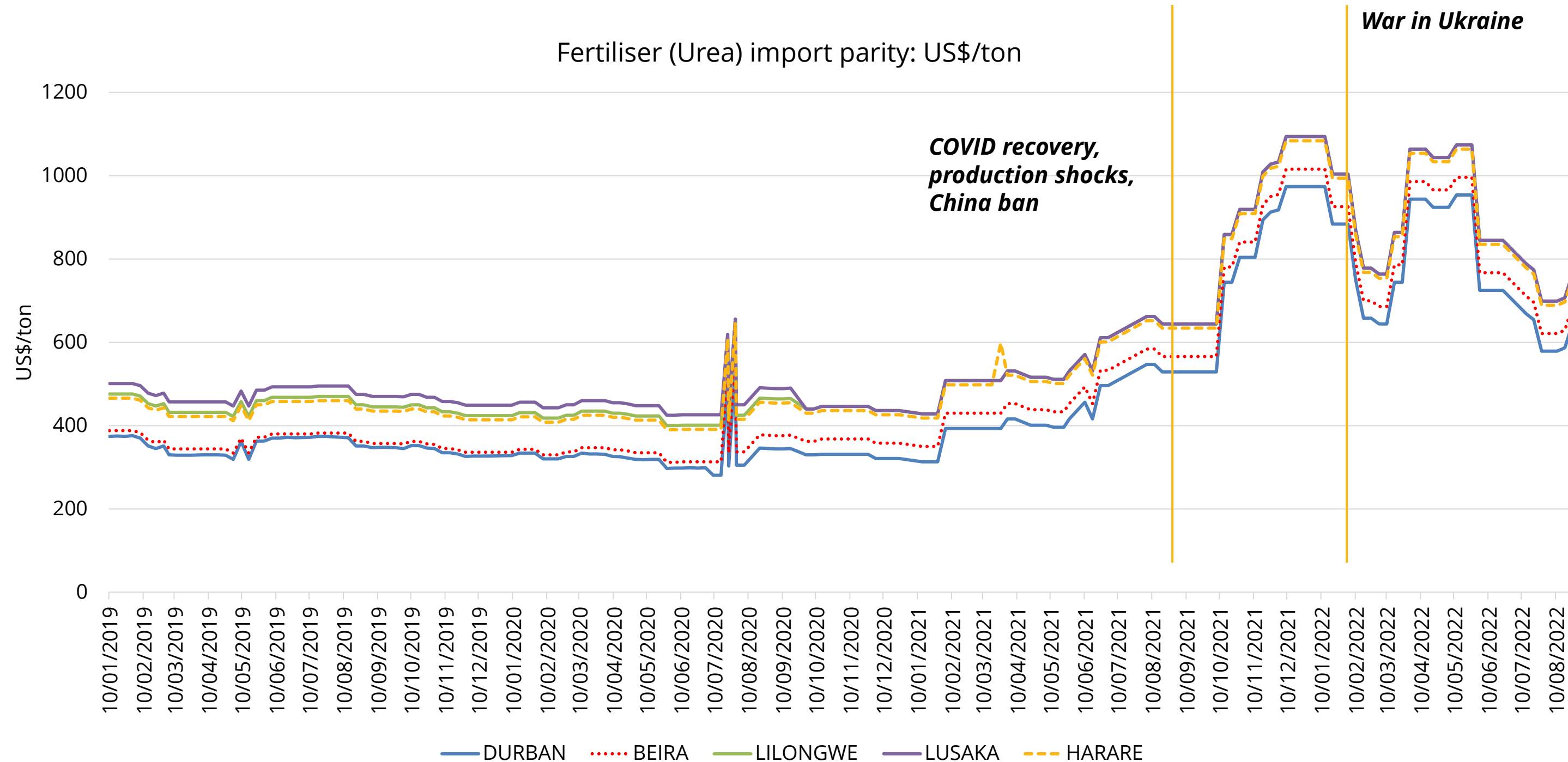
Retail maize prices have been on the rise since 2021. Still, they are below their 2008 levels in all countries – in USD/kg.



Source: FAO FPMA. Retail maize prices in capital city markets -

EFFECTS: FERTILIZER AFFORDABILITY

There is a double lock: higher prices of imported food, higher prices also of fertilizer that affect domestic production capacity

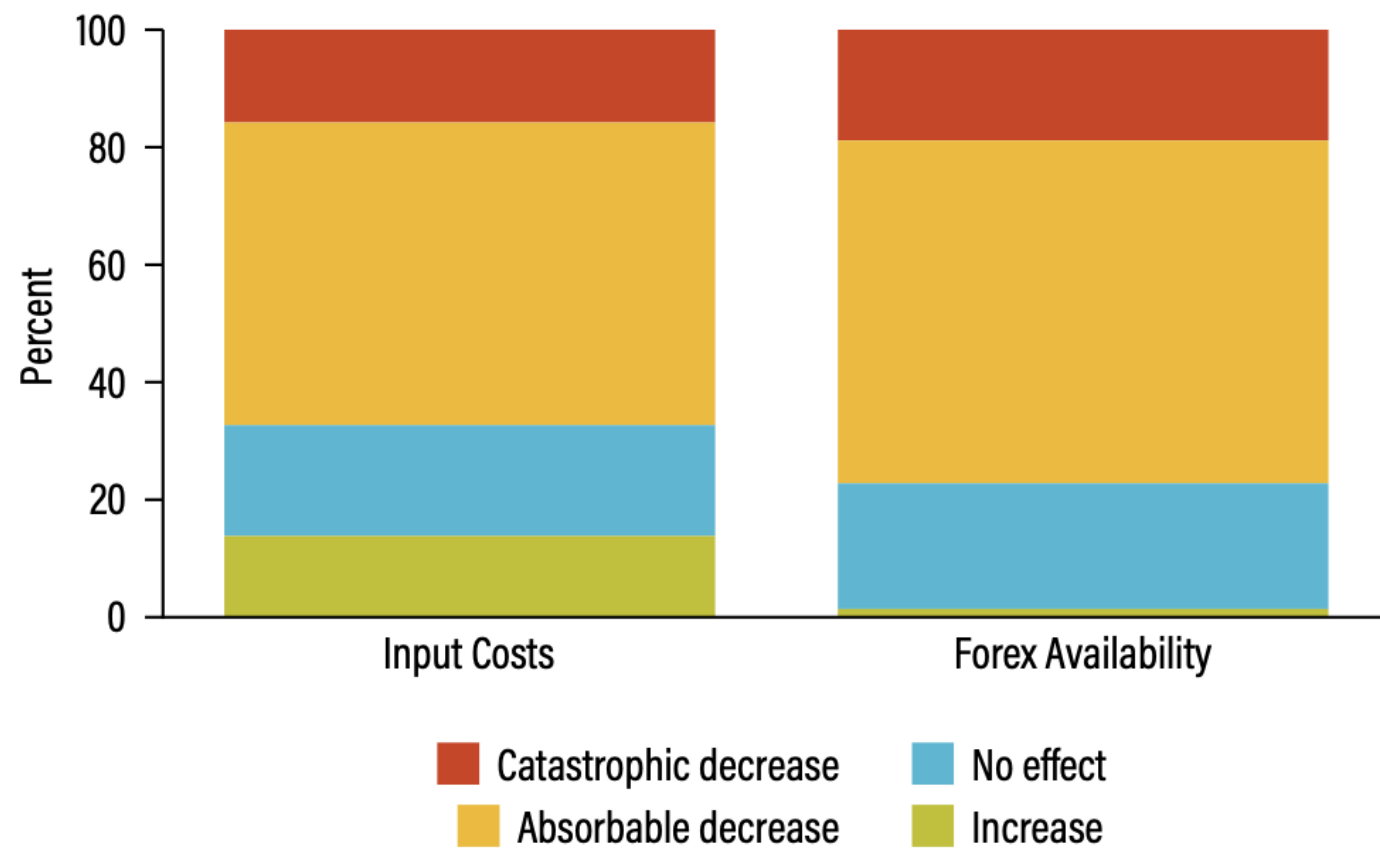


EFFECTS: FERTILIZER AFFORDABILITY – Malawi zoom

Depreciating exchange rate and foreign exchange shortages in Malawi have worsened fertilizer affordability issues, leading to availability constraints for Gvt and companies

FIGURE 1.9 Rising input costs and foreign exchange shortages are a strain for businesses

Share of BPS respondents estimating the effect of increased non-labor input costs and decreased foreign exchange availability since the beginning of 2022 on their businesses' net operating profits*



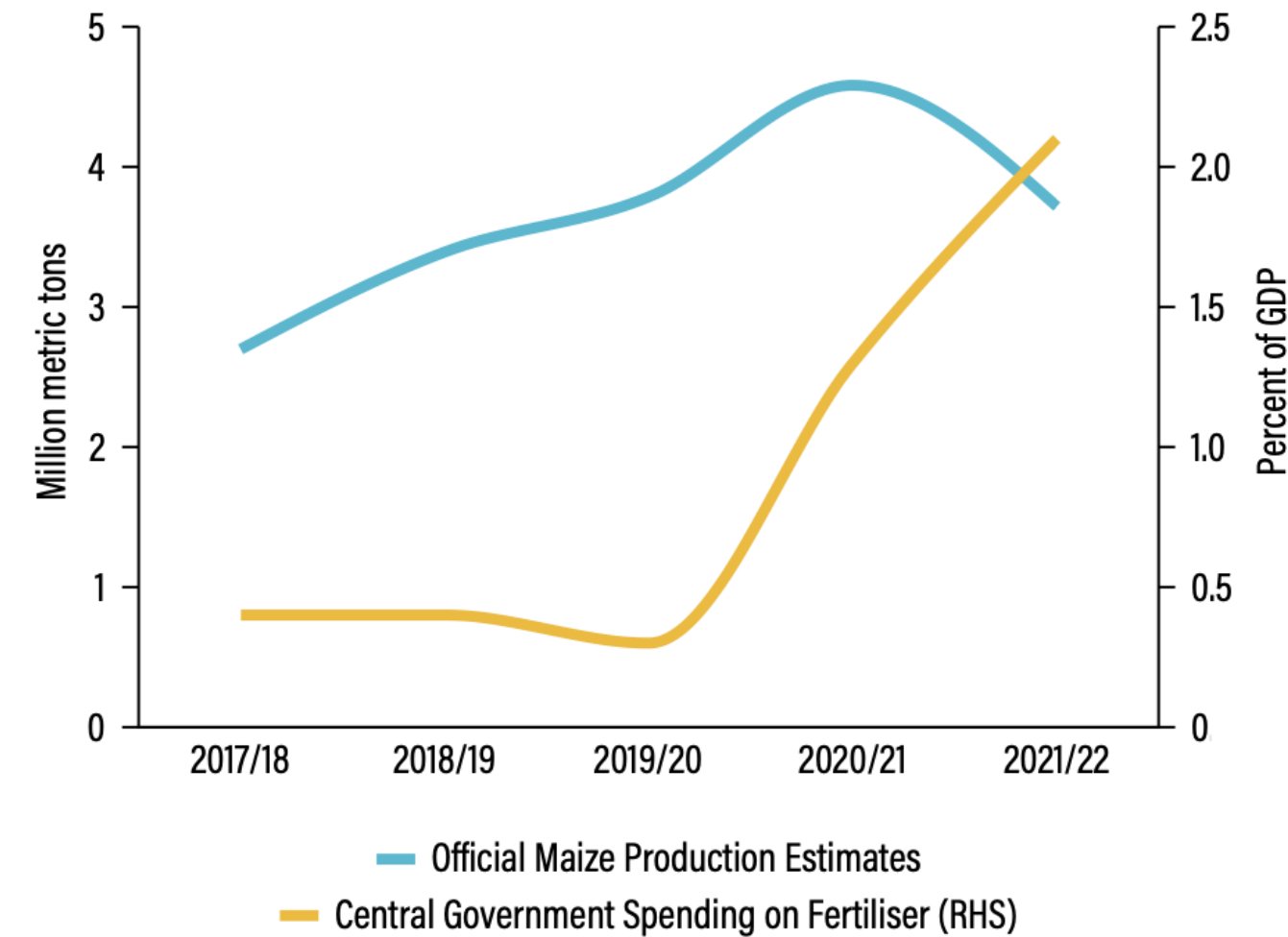
Note: * Catastrophic decrease is defined as a decrease that prompts the discontinuation of some business activity.

Source: World Bank BPS (2022a).

Source: World Bank Malawi Economic Monitor December 2022

FIGURE 1.8 The cost of fertilizer subsidies has increased significantly, but maize production has not

Central government spending on fertilizer in percent of GDP and official maize production estimates (million metric tons).



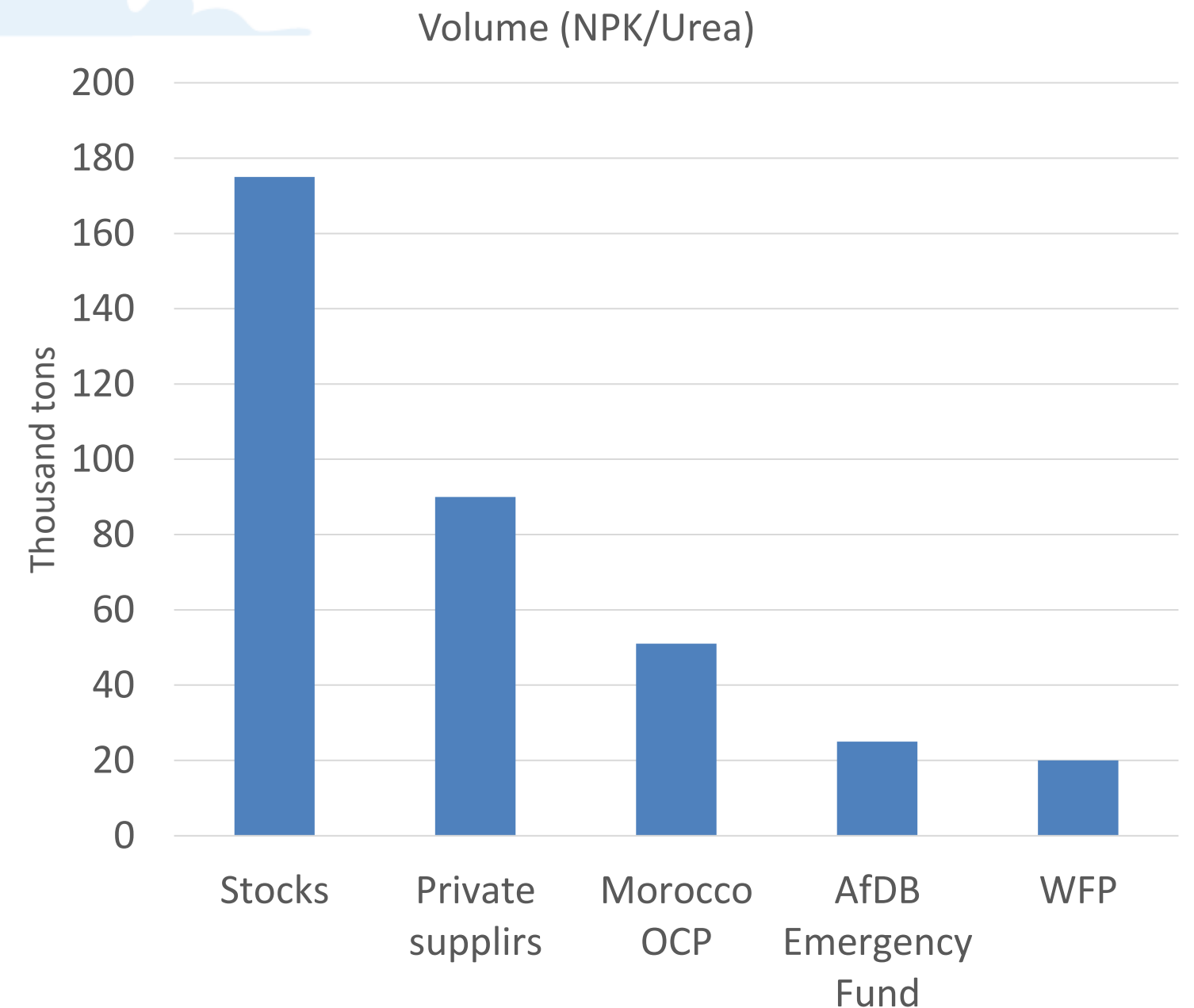
Sources: Ministry of Agriculture, Irrigation and Water Development; Ministry of Finance and Economic Development; Integrated Food Security Phase Classification.

EFFECTS: FERTILIZER AVAILABILITY – Malawi zoom

In 2022, stocks were at 35% of yearly demand (500K MT), the Government had to mobilize up to 250K MT (50% NPK/50% urea) from local suppliers and donors (AfDB, private, OCP, WFP...) – still a shortfall of 140K MT.

The IMF approved in November 2022 an 88.3 million USD disbursement under its Food Shock Window Rapid Credit Facility, which will partly be used to fund fertilizer import.

Fertilizer supply sources in Malawi, 2022

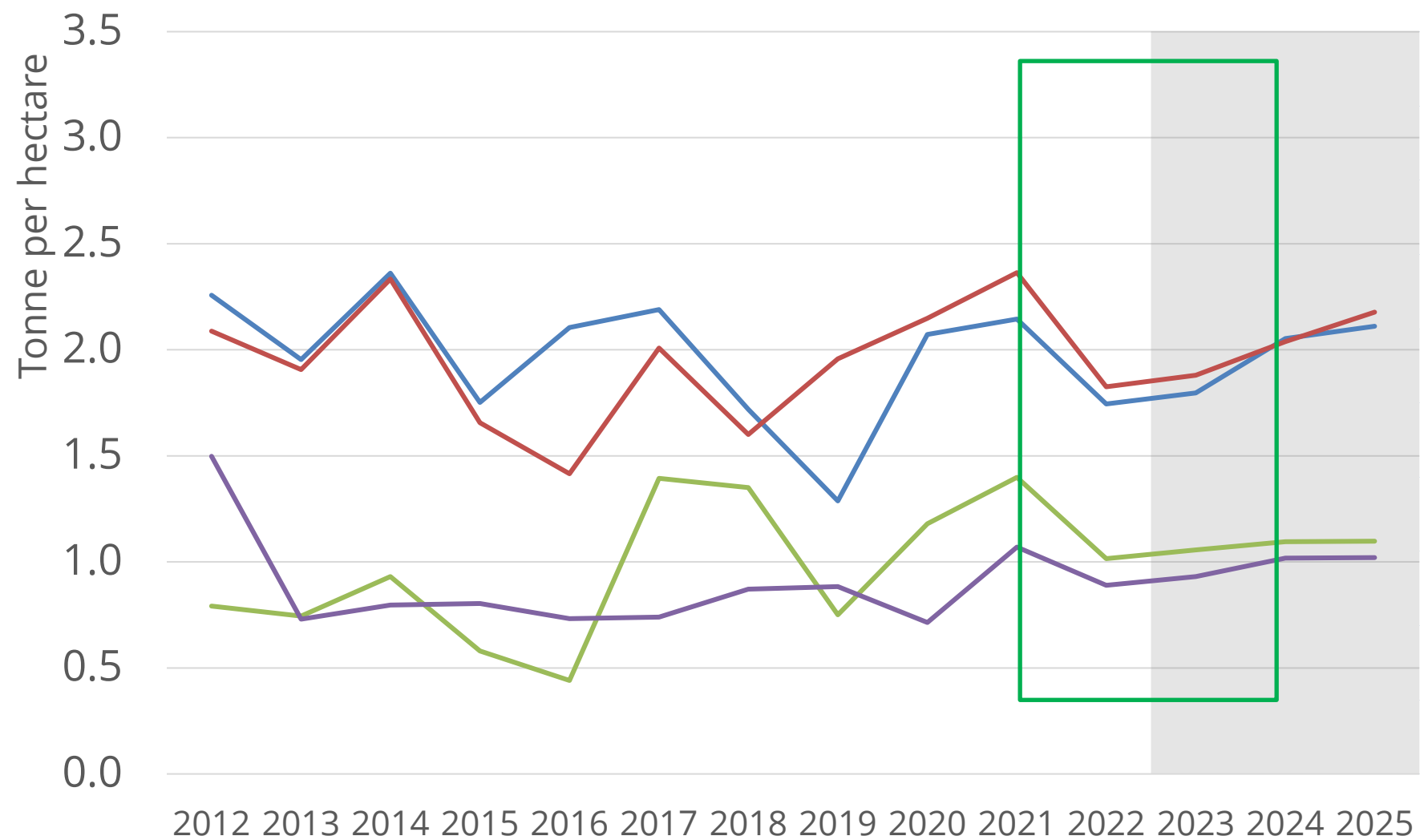


EFFECTS: FERTILIZER AVAILABILITY – Zambia zoom

- **No availability issue in Zambia due to stronger macro fundamentals (strong exchange rate)**
- Government able to procure 153K tons of urea, 106K tons of NPK for FISP – farmer contribution still K400.
- Overall demand of 450K tons for 1 million farmers should be fulfilled.
- Contribution of local plant, United Capital Fertilizer with capacity of 2.4K ton per day.

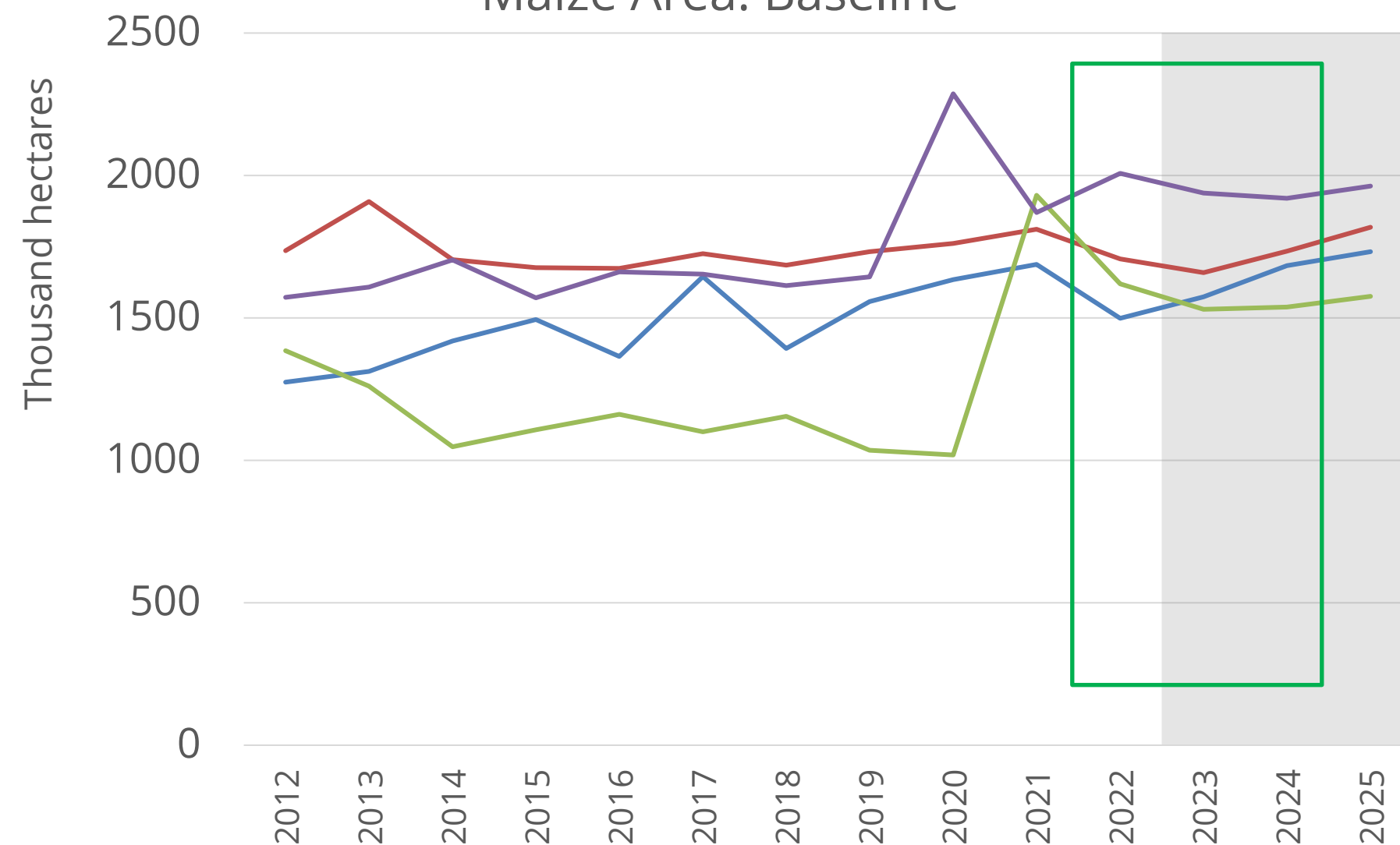
EFFECTS: Higher fertilizer price: lower maize yields and area

Maize Yield: Baseline



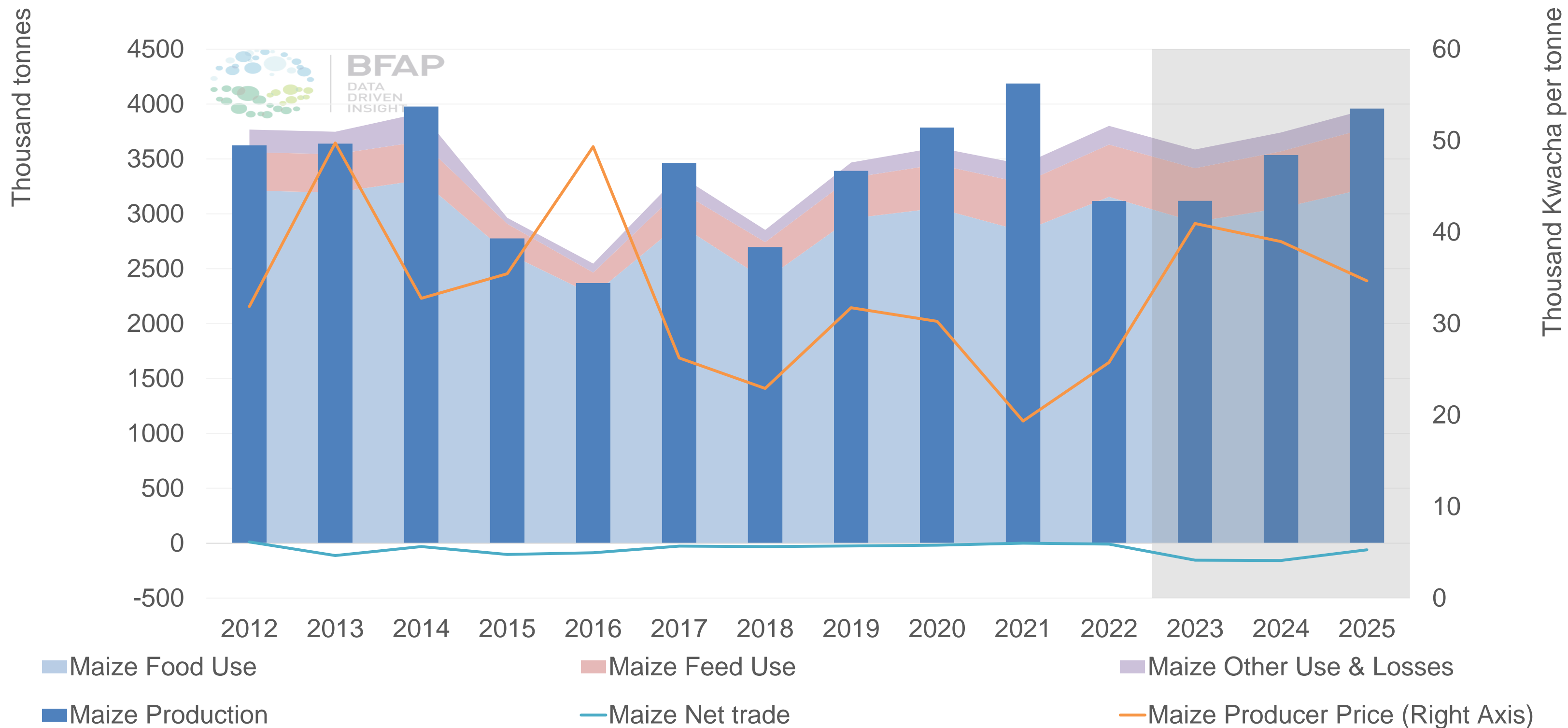
- Zambia: Maize
- Malawi: Maize
- Zimbabwe: Maize
- Mozambique: Maize

Maize Area: Baseline

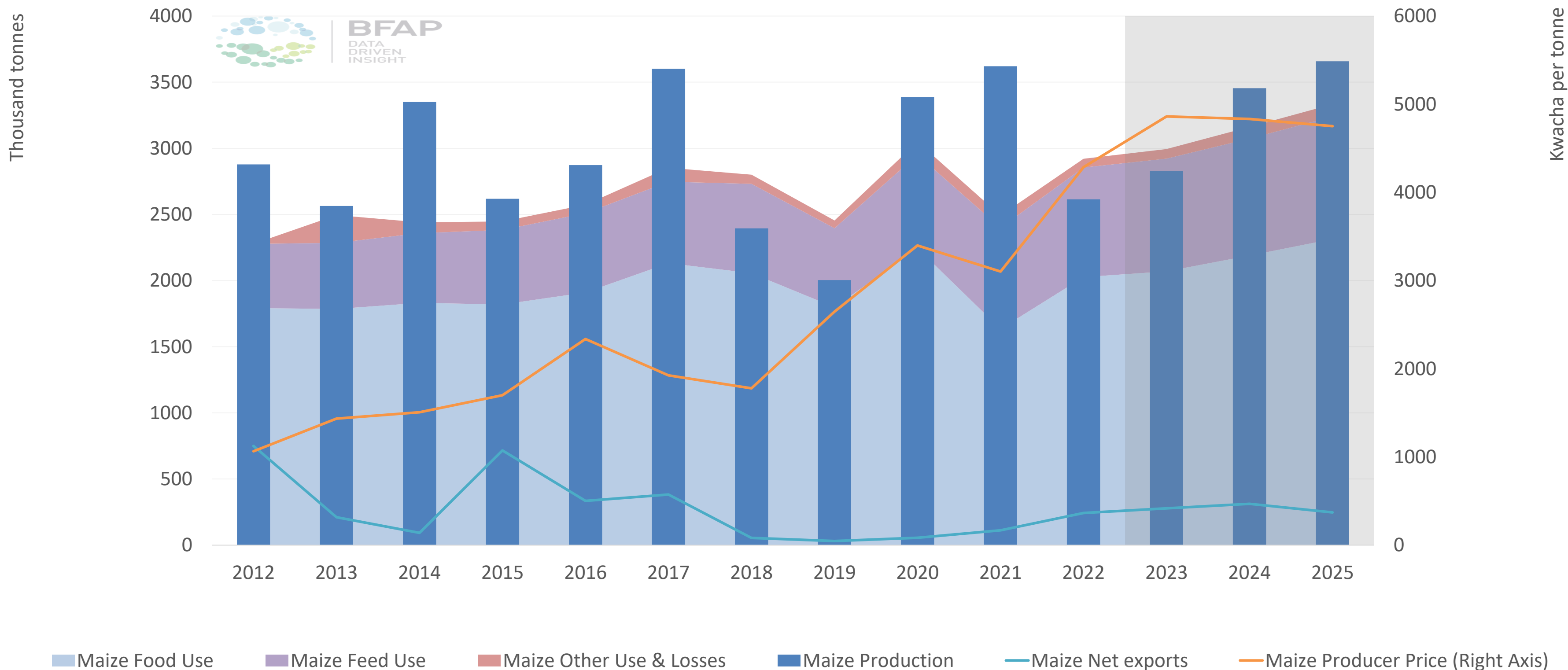


- Zambia: Maize
- Malawi: Maize
- Zimbabwe: Maize
- Mozambique: Maize

EFFECTS (Malawi zoom) : Area planted/production expected to decline in 2023, due to poor profitability in 2022, and limited availability of subsidized fertilizer



EFFECTS (Zambia zoom): Production projected to rise marginally in 2023, but remains below 2020/21 levels

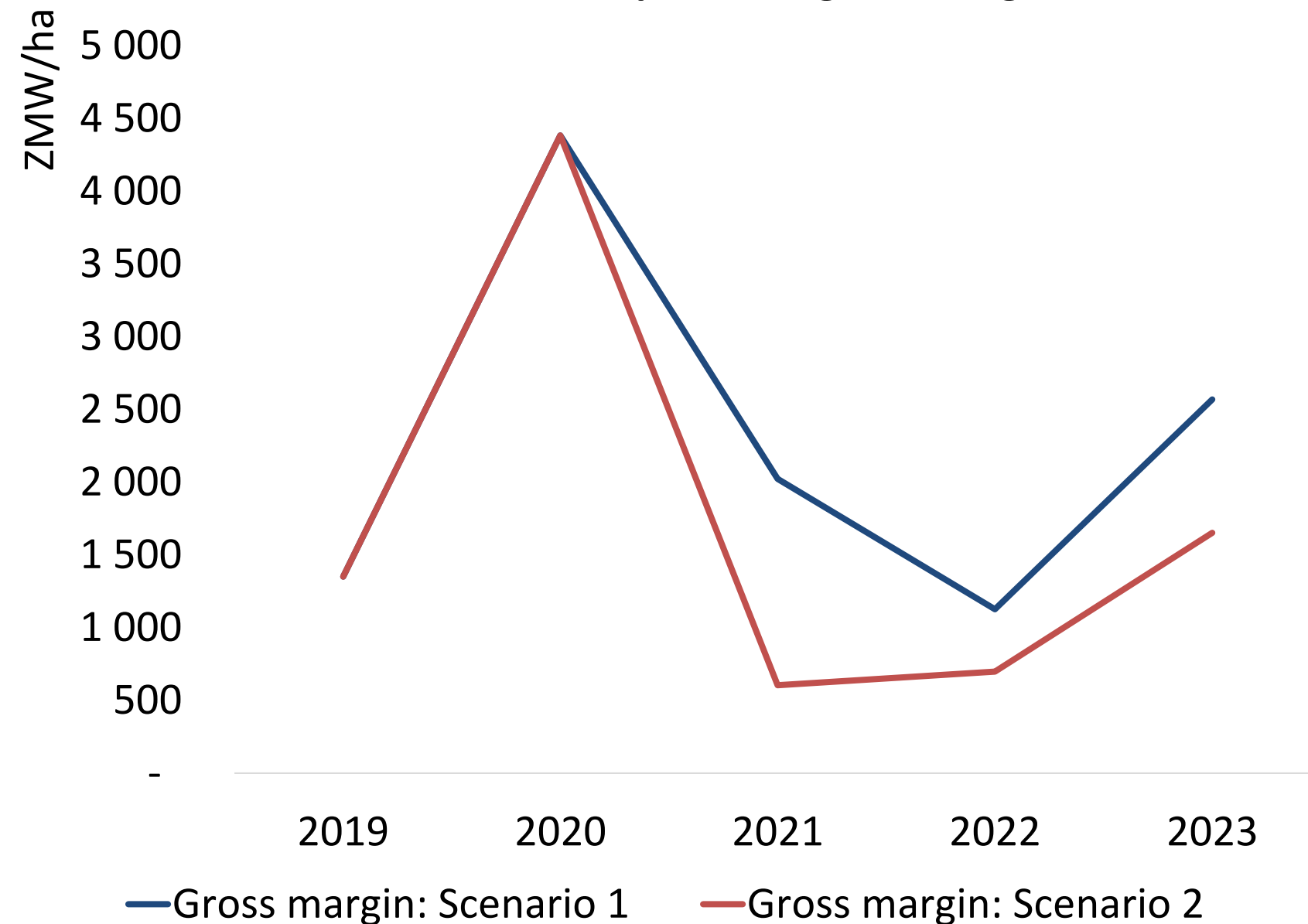


EFFECTS ZMB : Simulating producer margins based on fertilizer price increase

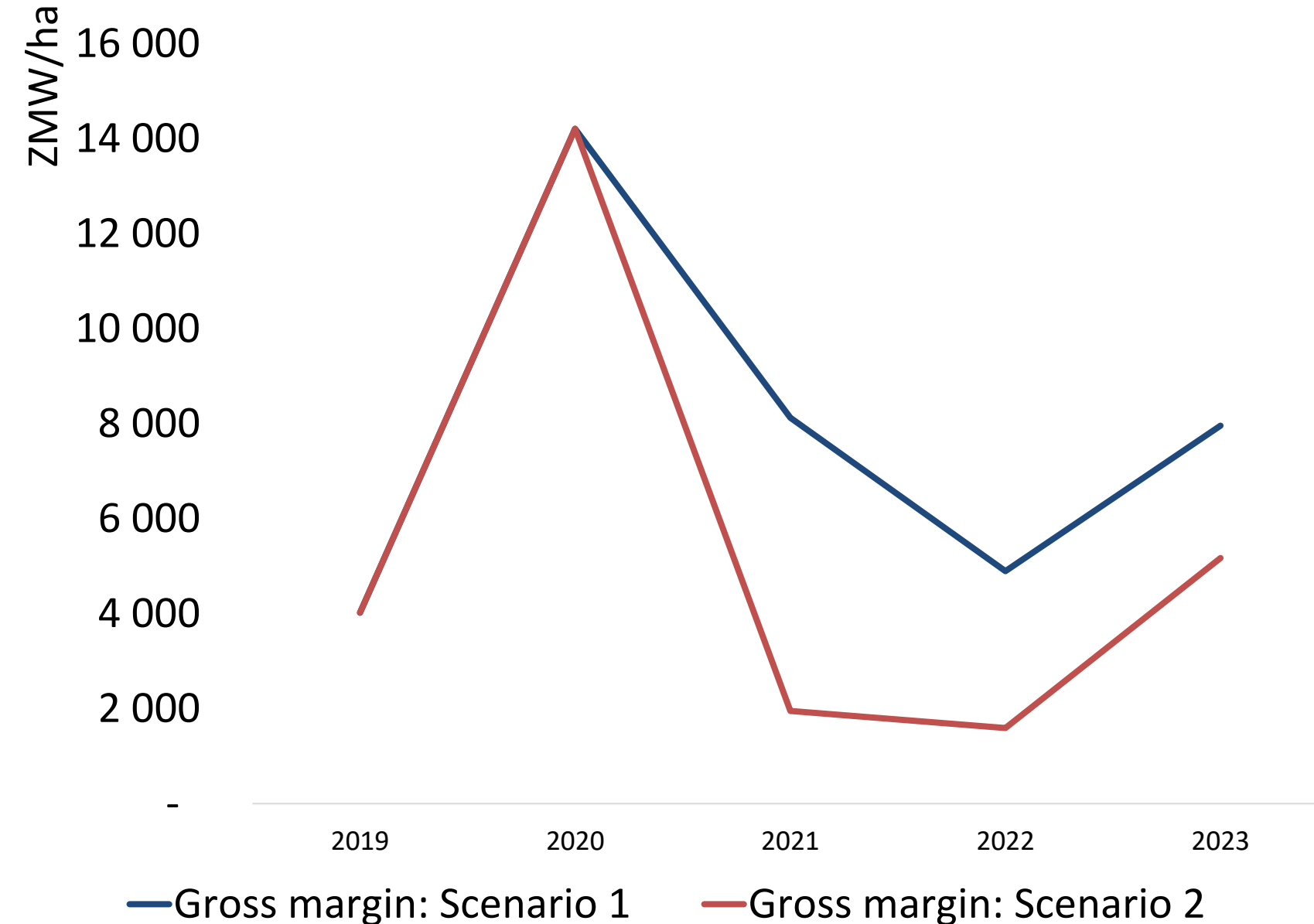
Gross margin 1: No cut in fertilizer spend & use (e.g. farmers absorb higher costs; fertilizer subsidies; cash support programmes)

Gross margin 2: Cut back on fertilizer spend & use with corresponding lower yields (e.g. no support; zero subsidies)

Zambia small-scale producer gross margin

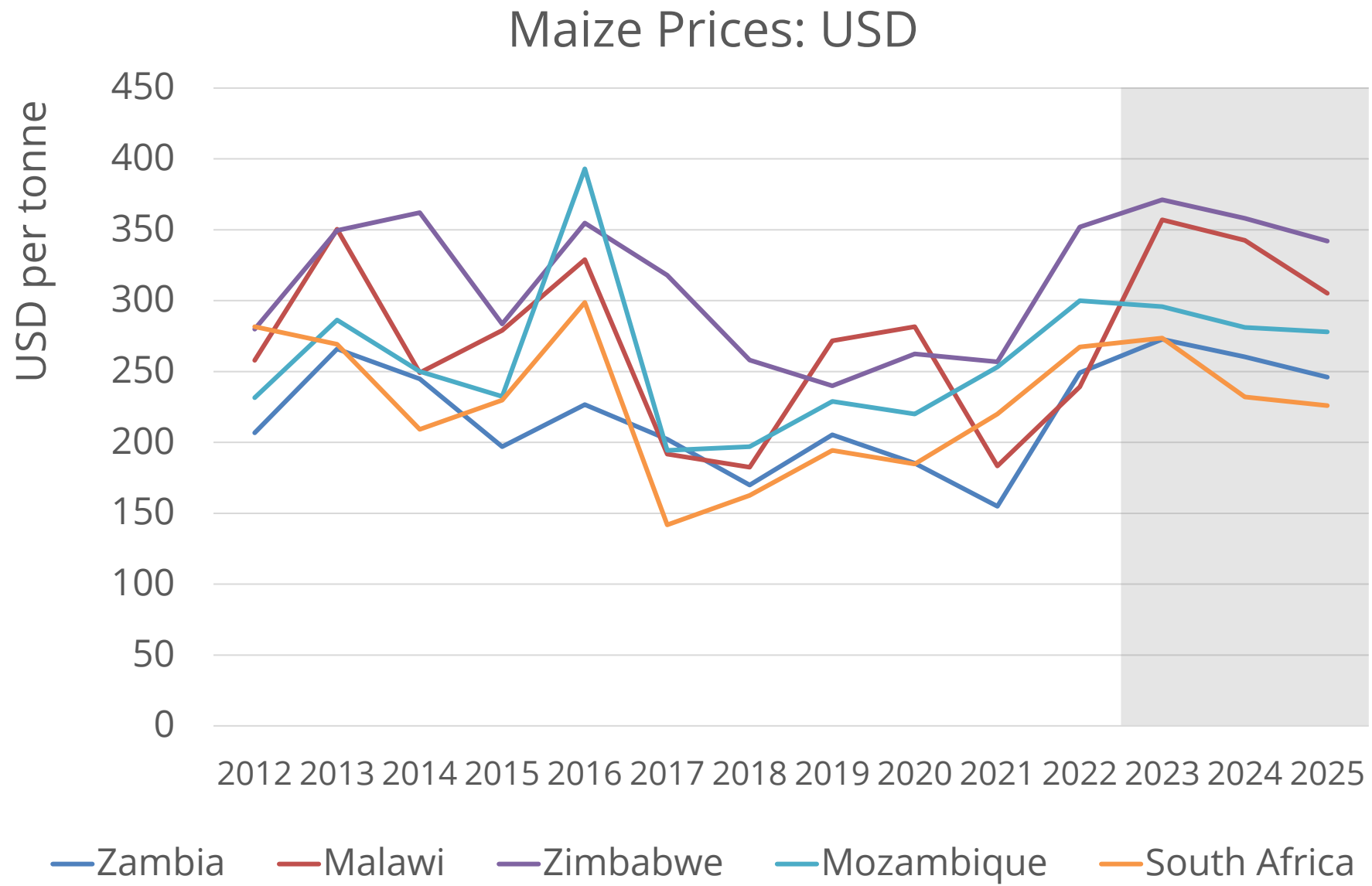


Zambia commercial producer gross margin

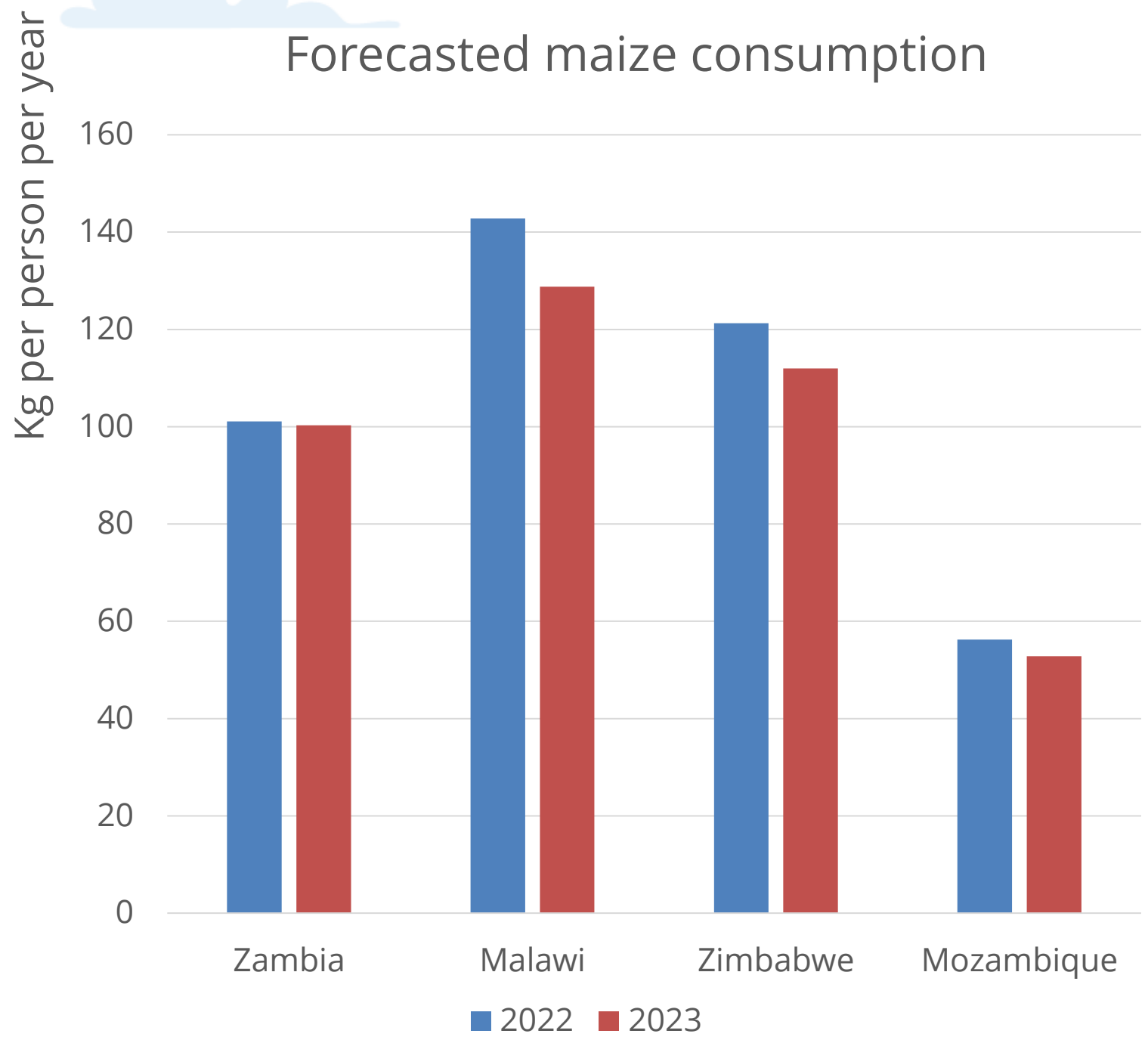


EFFECTS: Higher maize prices, lower consumption

A reduced harvest is likely to push prices upwards: as a result, maize consumption is expected to decline in most countries in 2023, with food security implications



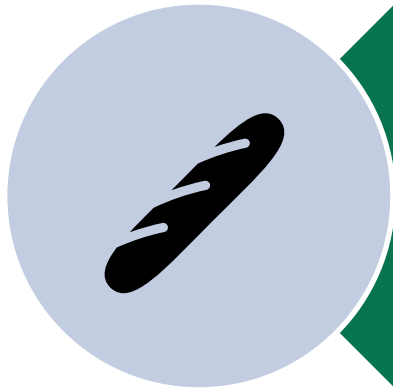
Source: BFAP estimates



EFFECTS: INSIGHTS FROM INTERVIEWS

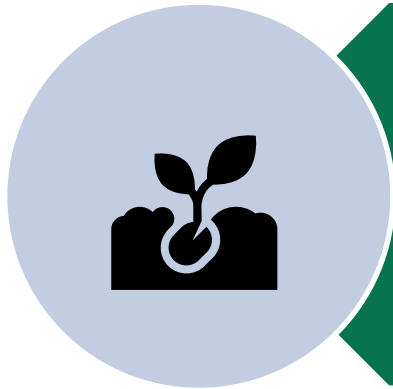
Overall: the war in Ukraine compounds covid, weather shocks (e.g. floods in Lesotho), exchange rate dynamics, international sanctions. It adds to inflationary trends already present since 2020.

FOOD



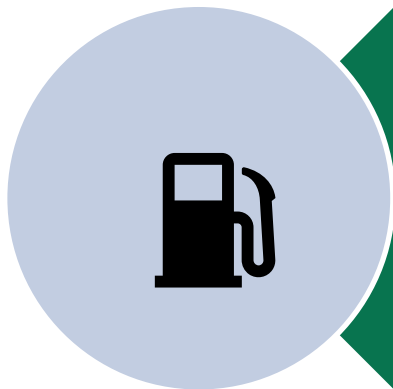
1. **Wheat:** Substituted with potato, rice. Bread size reduced (e.g. Moz). Not a major concern. Oil: initial reduction in demand, now price has stabilized.
2. **Maize:** Prices higher in urban areas (transport inflation). Will increase in rural areas next season (farming costs). Inflation will affect poultry through animal feed (**Mozambique**)
3. **FSN:** indicators are deteriorating due to overall inflation (e.g. Zim), concentration on staples.

FERTILIZER



1. **Availability and affordability a major concern (e.g. Mozambique, Malawi),**
2. **Price has increased,** consumption will decrease, many expect it will affect production next season.
3. **Farmers may switch to crops that are less fertilizer-intensive,** unpredictability in domestic supply.

FUEL



1. **Fuel inflation the major concern** in the 5 countries. Is already impacting food system through transport, farming operations, irrigation, and consumption (purchasing power).
2. No clear evidence on share of fuel costs in each stage of the food system and effects on supply and demand.

3. Current policy responses to the inflation shock



Current policy responses

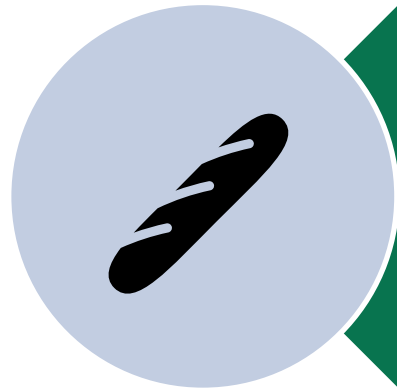
General points:

1. There is no policy specifically presented as a response to the Ukraine-Russia war. Policies are adopted in response to the price inflation crisis in food, fuel, fertilizer
2. The political economy parameters constrain/influence Government decisions: elections encourage low-risk policies, incite Government to maintain/push input subsidy programs and other direct food transfers.
3. The Government lacks fiscal space (in general + COVID effect) to adopt reforms that have a major budget price tag – they turn to donors for that.

Current policy responses

FROM INTERVIEWS CONDUCTED IN LESOTHO, MALAWI, MOZAMBIQUE, ZIMBABWE, ZAMBIA

DEMAND



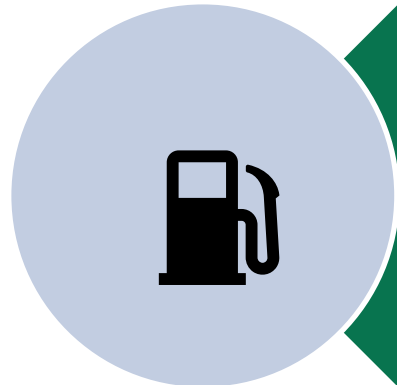
1. **Social protection: input subsidies (rural) + food reserves distribution (urban) (Moz/Zim) the main social protection combo** in all countries, adjusted upwards to respond to the crisis. Other programmes: donor-funded cash transfers, food for work, children nutrition...No major response with these.
2. **Disaster management:** response to weather shocks that were compounded by RUS-UKR (e.g. floods, droughts...)

SUPPLY



1. **ISP adjustments (hot topic):** budget increase, re-targeting, less beneficiaries, package size/composition
2. Developing **domestic production of inorganic** and **consumption of organic** fertilizer (Moz but difficult, Zim with Chinese and Indian investors in phosphate, organic compost production).
3. **Supporting local wheat production**, wheat substitutes (e.g. cassava in Moz, Zim, with IFAD support)

TRADE AND MACRO



1. **Export bans and lifting of import quotas** and tariffs (Moz chicken imports)
2. Exchange rate policy: **facilitating forex access** for grain importers/WFP (Zim).
3. Economic stimulus: **VAT abatement on imports** (17 to 16%), including agricultural (Moz, 22 measures)

4. Policy options: increasing resilience of the food system to global price shocks



A. Reducing exposure to global price shocks: Supporting and diversifying domestic food systems

SHORT-TERM: 2023

1. **ISP:** improve targeting criteria and input package composition
2. **ISP:** use this opportunity to review dysfunctions in ISP programs (e.g., late delivery, poor targeting...)
3. **Donor resourcing:** mobilize evidence on the war in Ukraine impacts and identify policy options to increase donor funding mobilization

MEDIUM/LONG-TERM: 2-5 YEARS

1. **Attract private sector investment** for inorganic fertilizer production, new crops and domestic wheat production to strengthen resilience
2. Use fiscal gains from more efficient ISP to **invest in ag research for less fertilizer-dependent/more fertilizer efficient technologies and social transfers for poorer farmers**
3. **Promote diet diversification away from maize/wheat**, e.g., through awareness and extension services campaign (cassava, sorghum, rice, potatoes)

B. Reducing effects of global price shocks: invest in cushioning policy instruments

SHORT-TERM: 2023

1. **Strategic food reserves** to distribute food to vulnerable households
2. **Safety nets**: increase coverage and rate of transfers/efficiency in targeting/distribution
3. **Relieve food taxes**: import tariffs, VAT (temporary)
4. **Review export restrictions/bans** that stifle production/farmer incomes
5. **Fuel subsidy** but not a sustainable option

MEDIUM/LONG-TERM: 2-5 YEARS

1. **Increase risk preparedness**: conduct risk and vulnerability assessments to price shocks, prepare policy responses ahead
2. **Build up food strategic reserves** and increase their efficiency: timing of buying and selling, targeting
3. **Less ad hoc safety nets management**
4. **Subsidize farmer insurance** and storage to help them hedge price shocks

Appendix: Description of modelling methodology

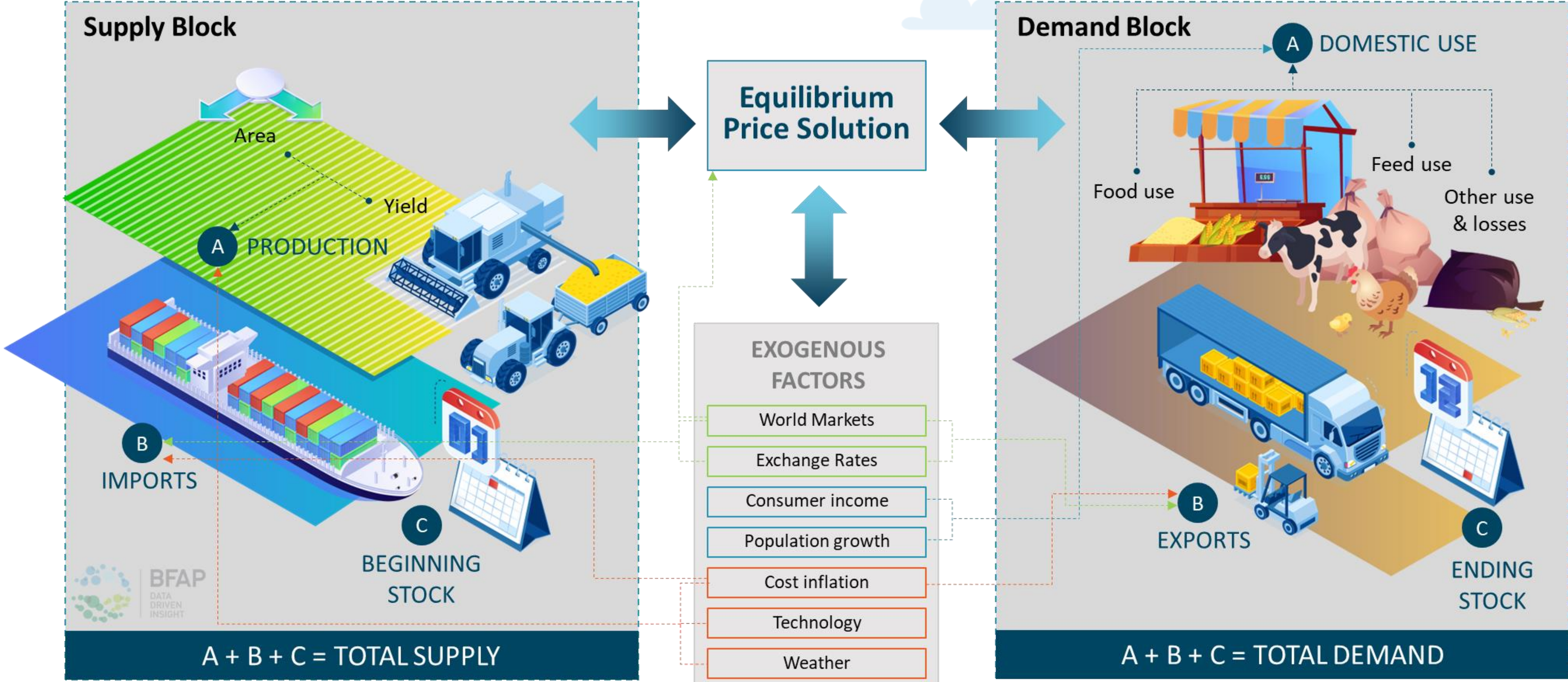
BFAP Multi-market partial equilibrium model,
combined with producer gross margin calculation



BFAP's multi-market partial equilibrium model

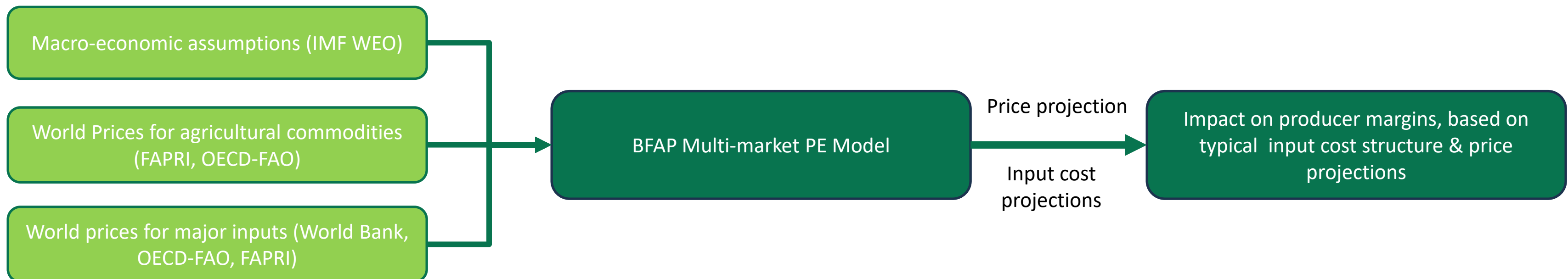
Includes 12 African countries, with varying commodity coverage by country that ranges from 1 -15 – prioritizes accurate representation of price formation dynamics in each market

Total Supply = Total Demand



Description of BFAP's multi-market partial equilibrium model

- Dynamic partial equilibrium model comprising system of equations that encompass major economic, biological and policy relationships in the market.
- Supply and demand equations based on conventional specification:
 - Demand determined as function of income and prices
 - Supply is determined by economic returns, that include revenue and typical cost drivers such as fuel & fertilizer, along with technology gains that drive yield growth over time
- Trade and pricing specification differs by commodity, in order to replicate actual pricing mechanisms in each market:
 - Wheat prices are typically determined as a function of import parity prices (Binfield et al., 2022)
 - Maize prices reflect a market equilibrium in country, where total supply is equal to total demand, with cross country linkages encapsulated in a bilateral trade specification driven by spatial arbitrage (Davids, 2018)
- Costs of fuel & fertilizer derived from world markets & exchange rate, as most countries in SSA import these products
- The model captures exogenous assumptions related to world markets, the macro-economic environment and the cost of major inputs such as fuel & fertilizer and is then used to generate a baseline outlook for major components of supply & demand, as well as international trade flows and prices. Scenarios can be evaluated relative to the baseline.
- Input costs such as fertilizer influence profitability, which drives area decisions, as well as yield prospects in each country – with the combined impact on supply then influencing price solutions in maize markets that are sensitive to supply fluctuations.



References:

Binfield, J., Boulanger, P., Davids, T., Dudu, H., Ferrari, E. & Mainar-Causape, A. 2022. Trade libéralisation in Kenya : A modeling linkage for wheat and maize. *African Journal of Agricultural and Resource Economics*. 17(1) 2022 pp 1-30

Davids, T., Meyer, F. and Westhoff, P., 2018. Quantifying the regional impact of export controls in Southern African maize markets. Paper for the 30th international conference of agricultural economists, Vancouver, July 28-August 2 2018.