These country studies are conducted by IFPRI with financial support from BMGF, FCDO, and USAID. All studies use data and models developed with ongoing support from BMGF, USAID and the CGIAR's "Foresight and Metrics" initiative. The Ethiopia case study benefitted from working with IFPRI's Ethiopia Country Strategy Support Program and national partners.

Ethiopia

Impacts of the Ukraine and Global Crisis on Food Systems and Poverty

Xinshen Diao, Paul Dorosh, Mekamu Kedir Jemal, James Thurlow

International Food Policy Research Institute, Washington DC

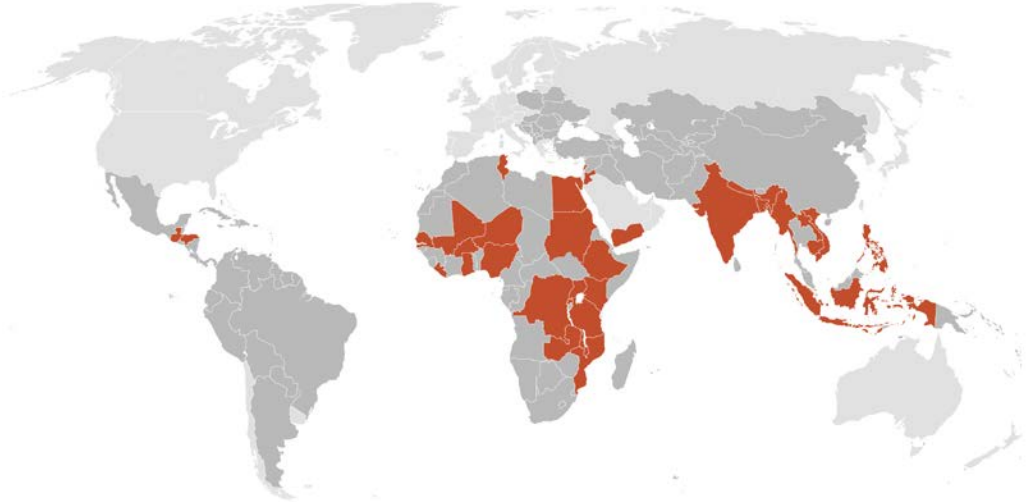
Xinshen Diao (x.diao@cgiar.org) | Paul Dorosh (p.dorosh@cgiar.org) | James Thurlow (j.thurlow@cgiar.org)

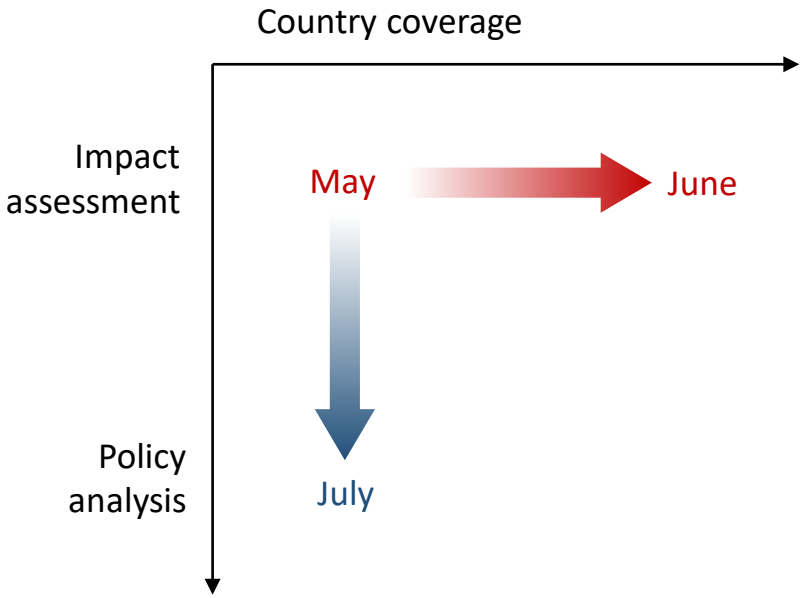
Overview

- **Series of country case studies**
  - Economywide modeling
  - Capture world market shocks
  - Estimate impacts on economy, agri-food system, poverty, food security, etc.
  - Simulate policy responses

- **Three phases of analysis:**
  1. Initial data collection and impact assessment
  2. Data revisions and analysis of broad policy options
     - Cash transfers, food aid, and fertilizer subsidies
     - Fiscal implications for national governments
  3. In-country engagement and tailored policy analysis

Countries with IFPRI RIAPA models





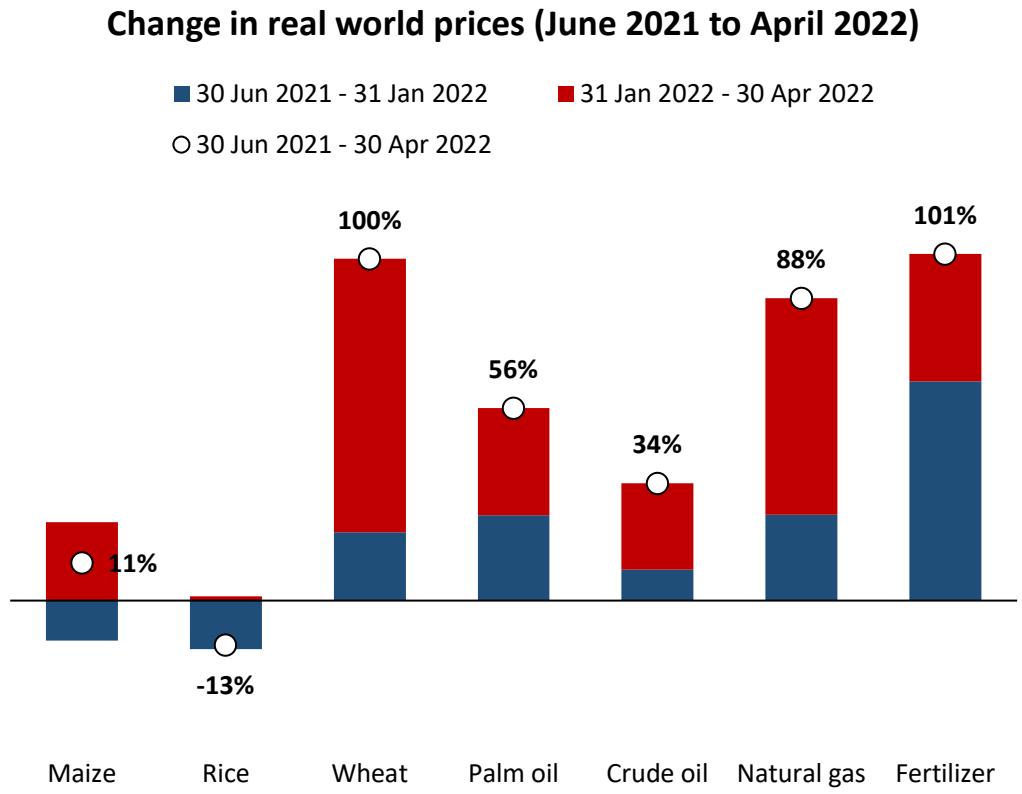
Shocks | World Food, Fuel and Fertilizer Prices

Impact Channel Considerations

- **World price** — How big is the increase in world price?
- **Trade share** — How important are imports in local market? Can local producers substitute for imports?
- **Direct use** — Which sectors use the product as an input?
- **Indirect use** — Which other sectors are affected via supply chains?
- **Incomes** — What kinds of workers and households earn incomes within the affected sectors?
- **Final use** — Which households consume the affected products?

World Price Shocks

Global data



Source: World Bank Pink Sheets

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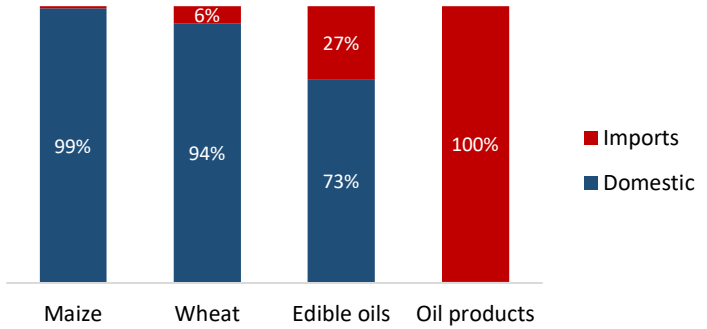
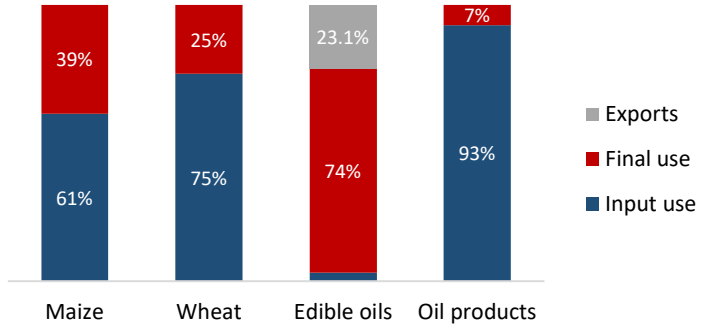
Supply and Demand

Ethiopia data

Supply
(% by source)



Demand
(% by use)



Products' share of the value of total demand throughout the economy

2.3% + 3.2% + 0.8% + 1.3% + Others = 100%

Source: IFPRI Ethiopia RIAPA Model

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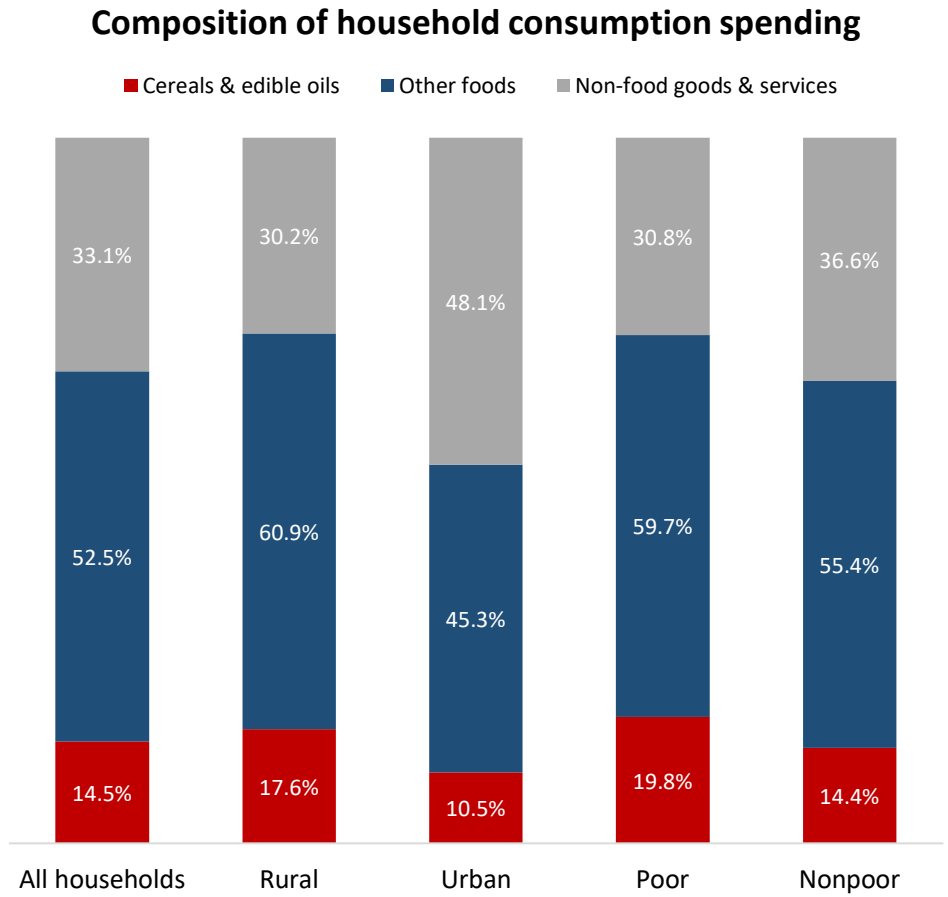
Consumption Baskets

Ethiopia data



Source: IFPRI Ethiopia RIAPA Model

Shocks | Fertilizer Response (crop productivity effect)

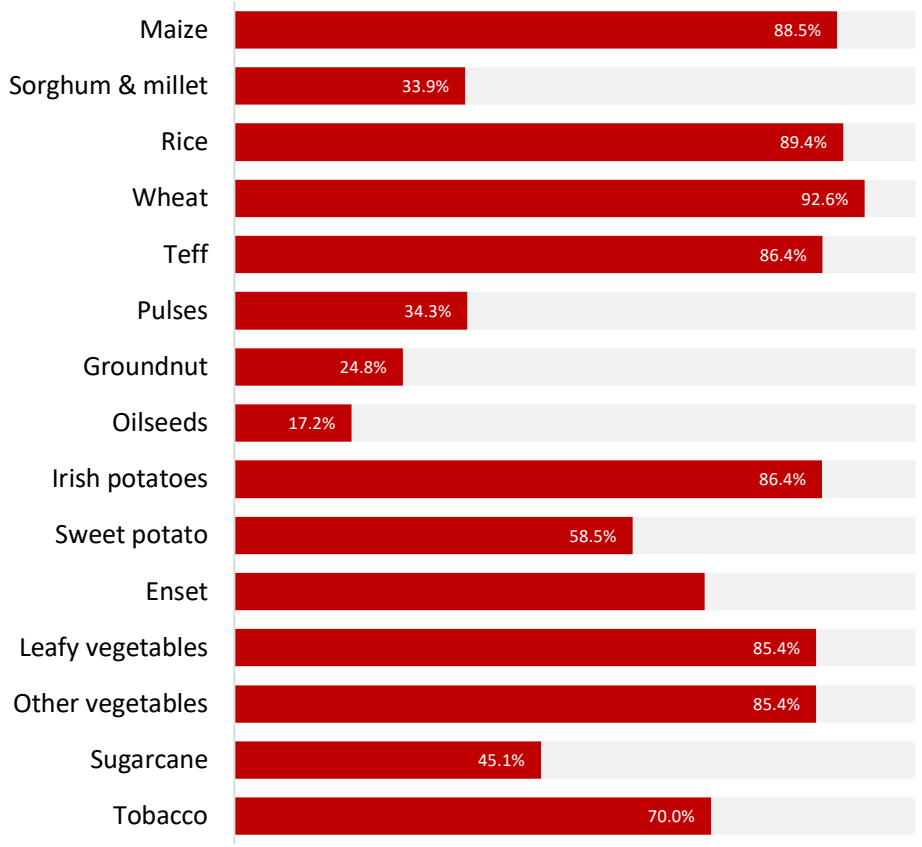
Impact Channel Considerations

- **Adoption** — What share of cultivated land uses fertilizers?
- **Application** — How much fertilizer is being used? *(i.e., fertilizer application rate)*
- **Price** — How big is the domestic fertilizer price increase?
- **Demand** — How do farmers react to rising fertilizer prices? *(i.e., price elasticity of fertilizer demand)*
- **Timing** — When is the fertilizer needed?
- **Response** — How do yields change with reduced fertilizer use? *(i.e., fertilizer response ratio)*

Fertilizer Adoption Rate

Ethiopia data

Share of cultivated land using fertilizer



Source: IFDC Ethiopia

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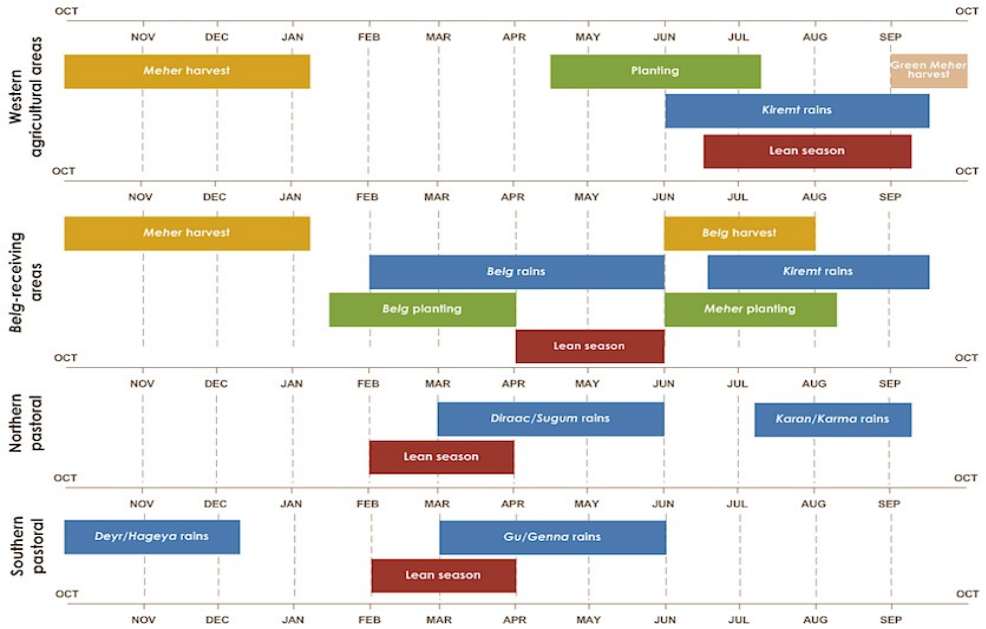
Crop Calendar

Ethiopia

Planting for Ethiopia's main 2022 season is already underway



Source: FEWSNET Ethiopia

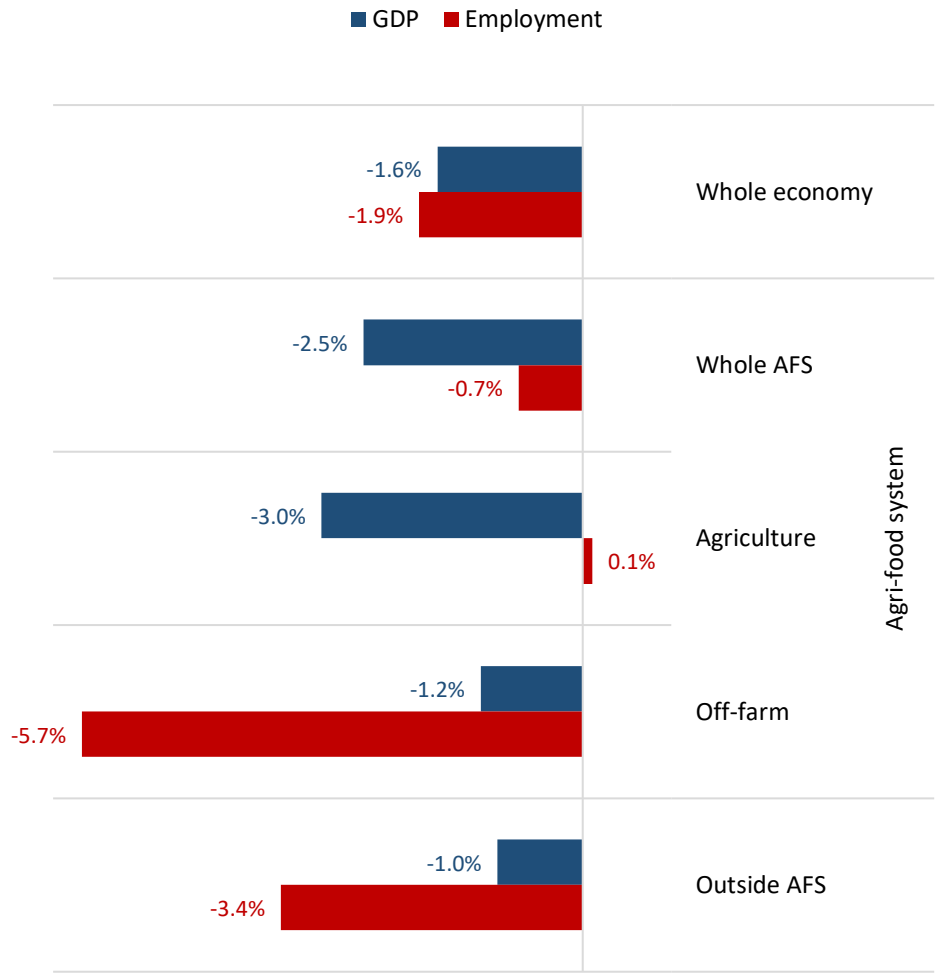
Results | GDP and Employment

- **National GDP and employment declines**
  - Negative terms-of-trade shock

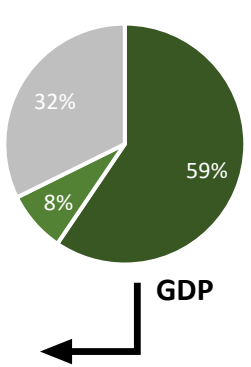
    (i.e., negative effect of higher import prices outweighs positive effect of higher export prices)
  - Rising import costs reduces spending on domestically produced goods
  - Falling production leads to job losses
  - Impacts occur throughout the economy

- **Agri-food system GDP and employment also fall**
  - GDP declines in both primary agriculture and off-farm agri-food sectors (e.g., processing, trading)
  - Larger GDP declines in agriculture (equal to 60% of overall GDP losses in the country)
  - Faster job losses in off-farm sectors, especially in food-related services, incl. trade and transport
  - More job losses outside agri-food systems (four out of every five jobs lost in the country)

Change in GDP and employment due to food, fuel and fertilizer shocks (%)



Contribution to total change



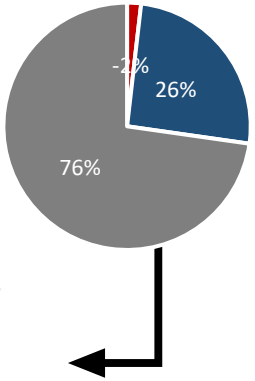
Source: IFPRI Ethiopia RIAPA Model

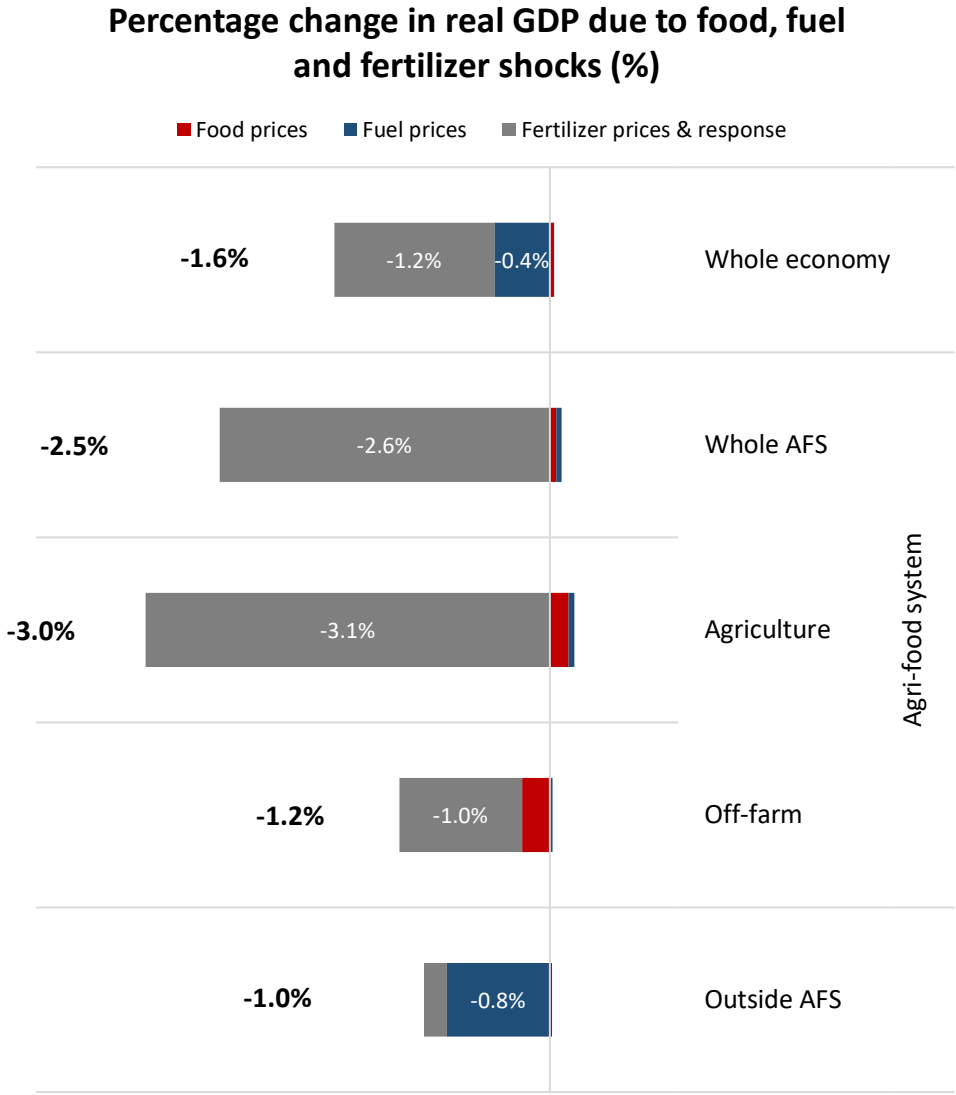
Results | Drivers of GDP Losses

- **Fertilizer and fuel shocks drive most of the decline in national GDP**

- **Agri-food GDP losses driven by fertilizer shocks**
  - Fertilizer directly affects primary agricultural production, and disrupts downstream processing via supply chains
  - Agriculture benefits slightly from higher food prices.

- **GDP losses outside the agri-food system driven more by higher fuel prices**
  - Higher transaction costs (esp. transport)
  - Lower consumer demand due to falling incomes



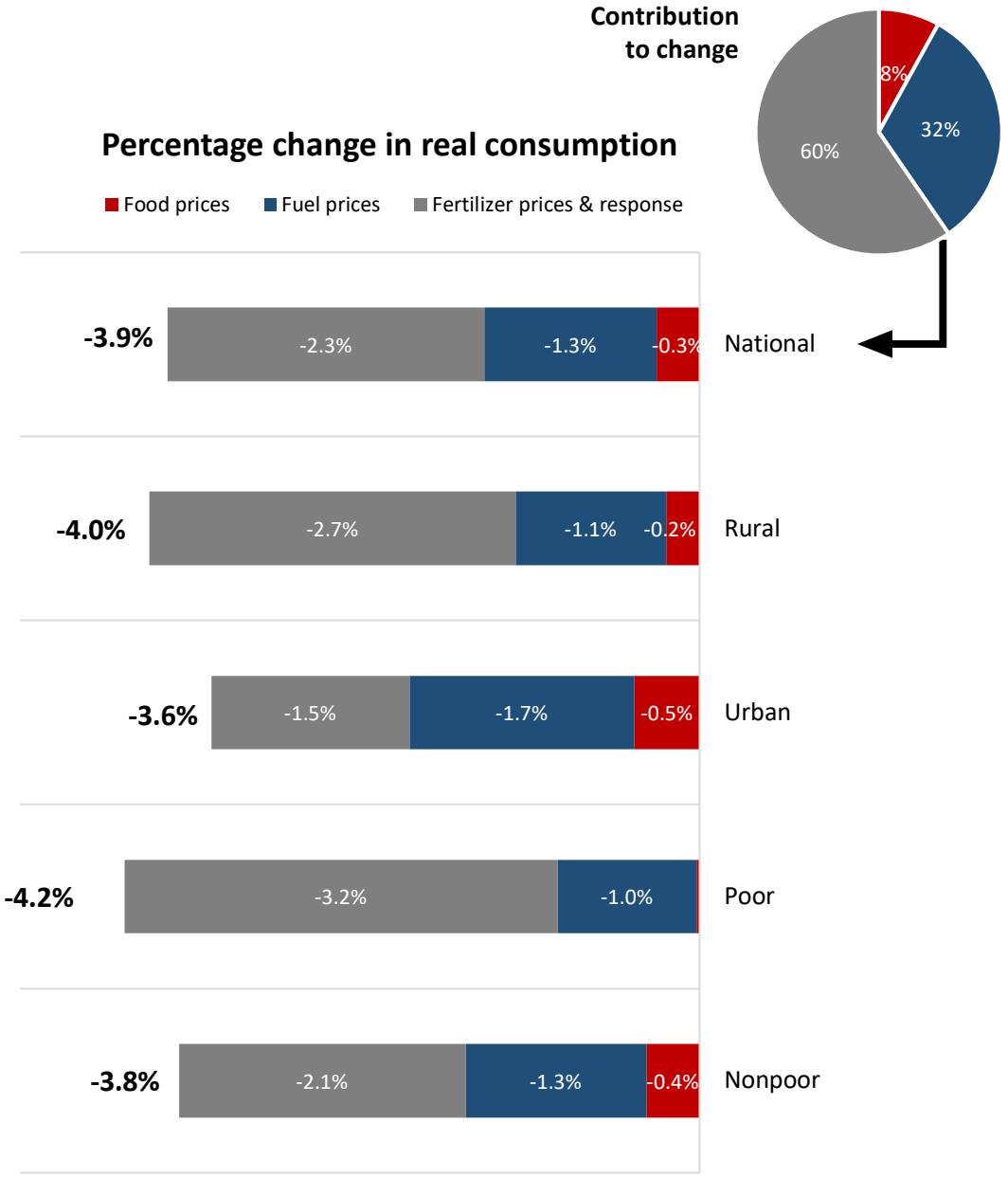


Source: IFPRI Ethiopia RIAPA Model

Results | Household Consumption

- **Household consumption falls significantly**
  - Larger than GDP losses as production shifts to exports to cover import costs & in response to real exchange rate
  - Fertilizer shocks and rising fuel prices are important drivers of consumption losses

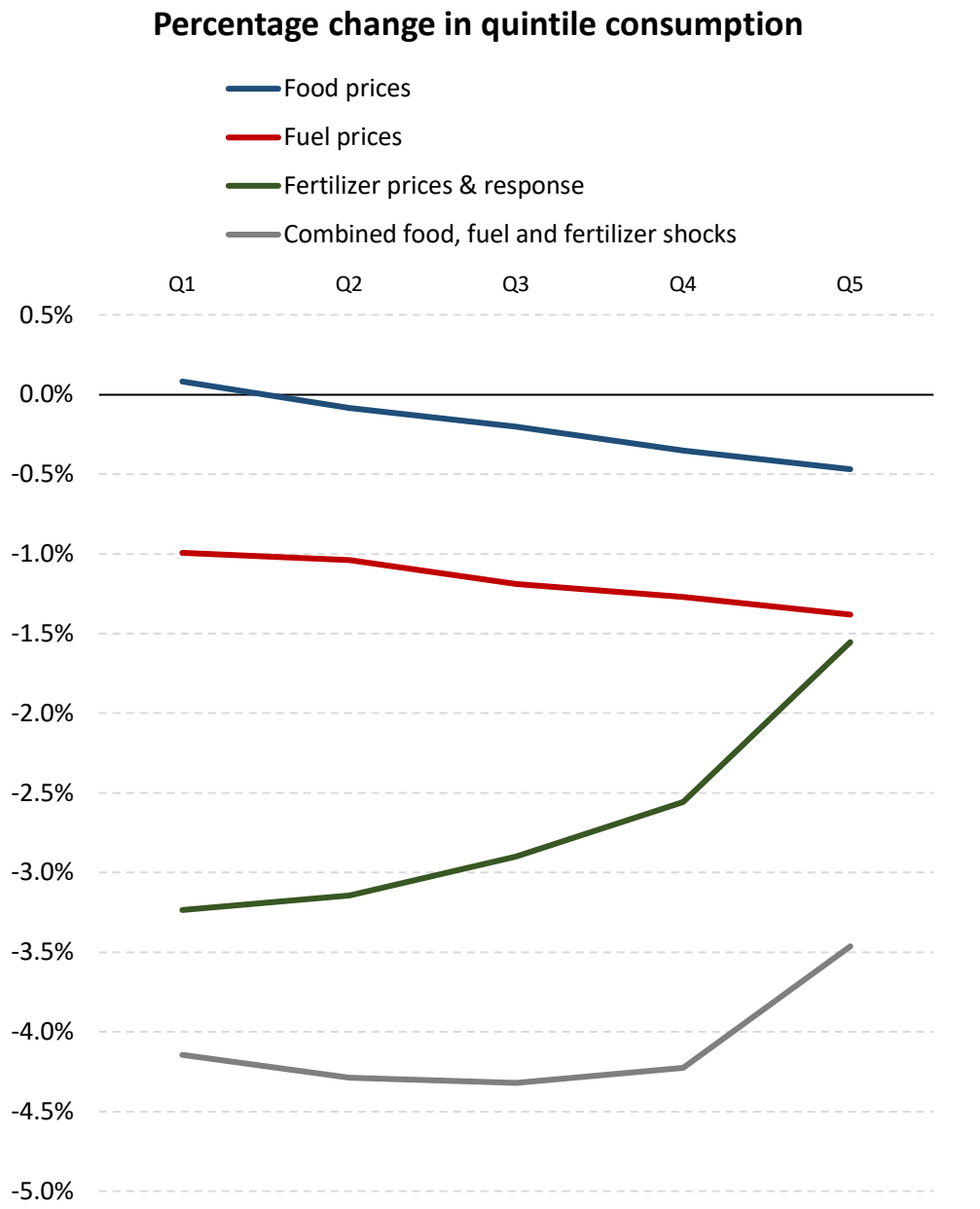
- **Importance of shocks differs across population groups:**
  - **Fertilizer shocks** much more important for rural and poor households
    - Rely more on farm incomes
    - Consume more domestically-produced foods
  - **Fuel shocks** important for urban and nonpoor households
    - Earn more income outside the agri-food system
    - Consume products with larger transaction cost margins
  - **Food prices** affect all households similarly
    - Slightly more important for urban and nonpoor households because of more import-intensive consumer basket



Source: IFPRI Ethiopia RIAPA Model

Results | Changes in Inequality

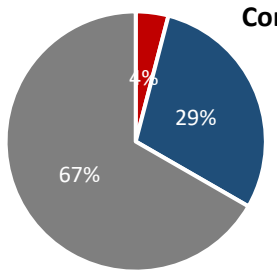
- **Differential effects on poor/nonpoor households driven by changes in inequality:**
  - **Fuel shocks** causes larger consumption losses for households in the top quintiles
  - **Fertilizer shocks** affect lowest quintile much more than top quintile, causing inequality to increase
  - **Food prices** have modest impact across the income distribution, albeit with slightly larger losses for the upper quintiles
- **Overall, inequality rises, but only slightly**
  - Larger consumption losses in the first four quintiles including those around Ethiopia's poverty line



Source: IFPRI Ethiopia RIAPA Model

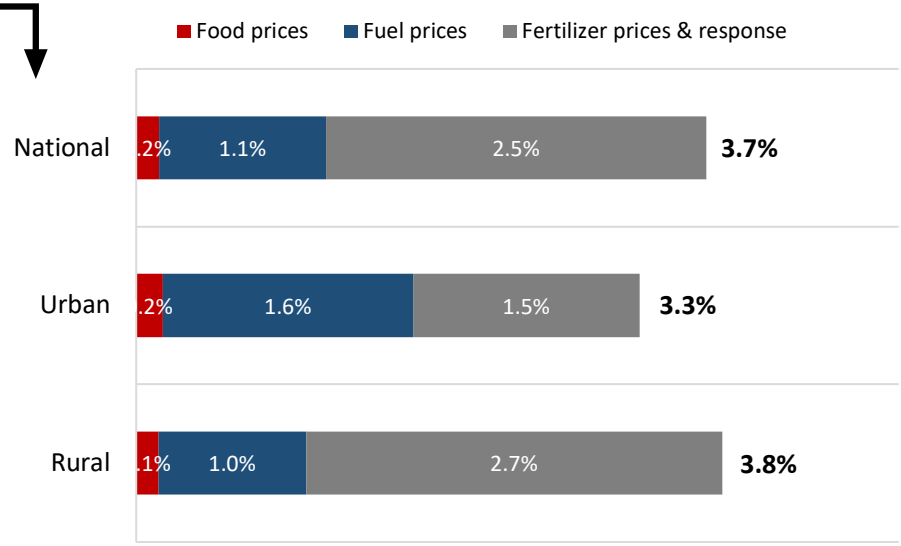
Results | Poverty

- **Poverty rises significantly**
  - Headcount rate up 3.7% points
  - 4.2 million more people pushed into poverty
- **Larger increase in poverty in rural areas**
  - More than four-fifths of expanded poor population
    - Larger increase in rural poverty headcount rate
    - Rural population much larger than urban population
  - Mainly driven by fertilizer shock

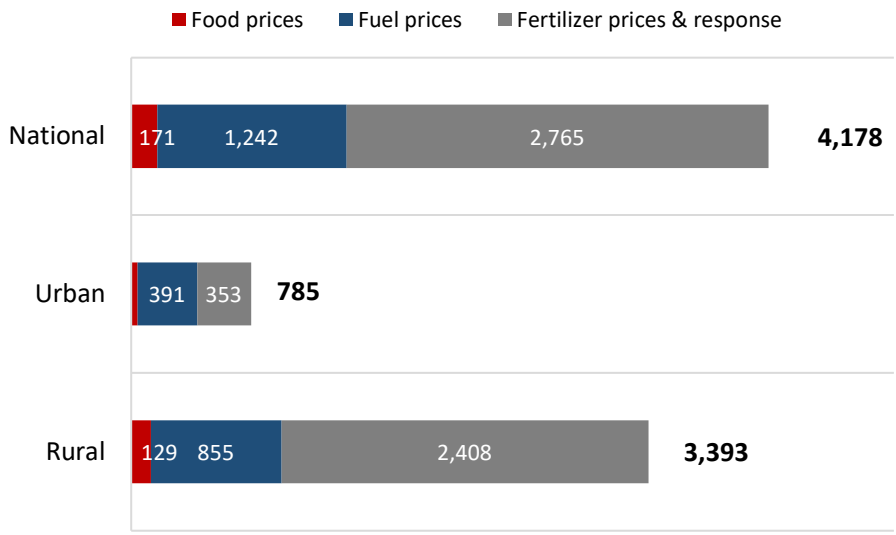


Contribution to change

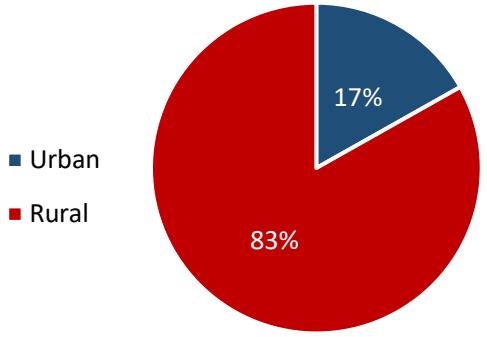
Change in poverty headcount rate (%-point)



Change in poor population (1000s)



Share of population falling into poverty

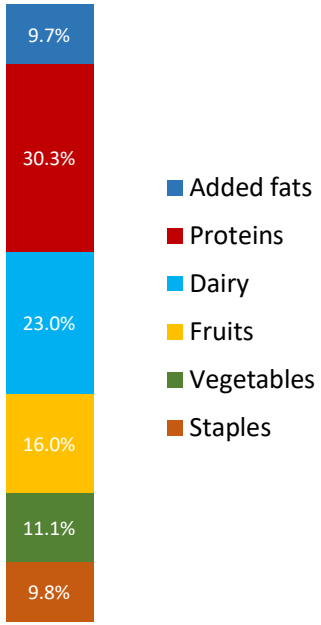


Source: IFPRI Ethiopia RIAPA Model

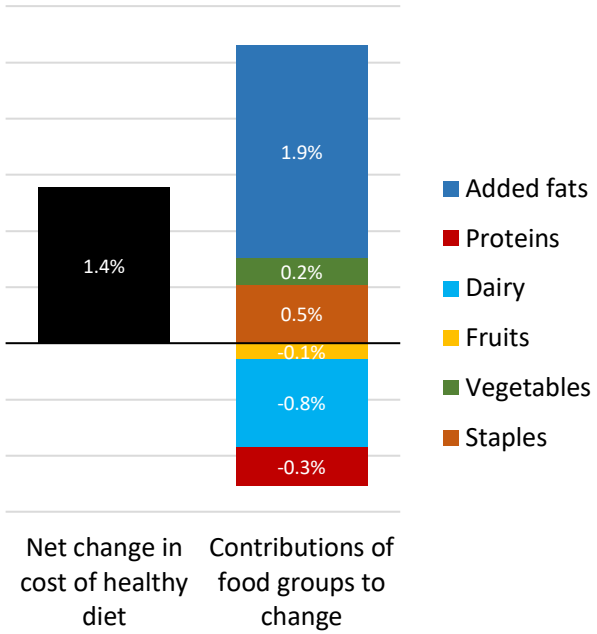
Results | Diet Quality

- **Food, fuel and fertilizer shocks together increase the cost of a healthy reference diet**
  - Reference diet is the EAT-Lancet's "healthy" diet thresholds for the major food groups
  - Driven by rising prices for edible oils (added fats) and cereals (staples)

Food group share in cost of healthy diet

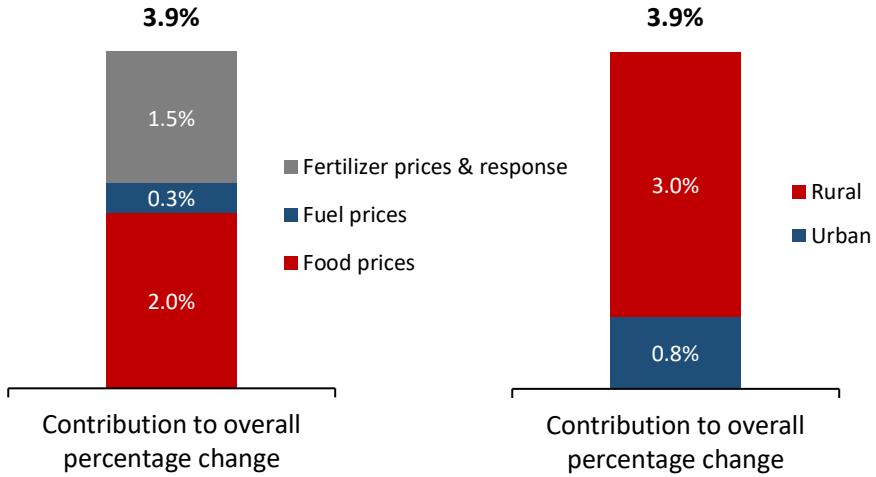


Change in the real cost of a healthy reference diet (%)



- **Rising food prices and falling incomes worsen diets**
  - Prior to the crisis, few households had consumption levels and diversity needed for a healthy diet
  - Crisis increases population with inadequate diets and widens the gap between current household consumption and a what is required for a healthy diet
  - Food and fertilizer shocks are the main drivers of reduced diet quality (most of which is in rural areas)

Increase in total gap between consumption and a healthy diet



Note: ReDD Index

Changes in diet quality are measured using the Reference Diet Deprivation index, which compares household-level consumption across six major food groups to the cost of a healthy or nutritionally-adequate diet. ReDD is a multi-dimensional gap measure and can be interpreted in a similar way as the poverty gap measure. See here.

Source: IFPRI Ethiopia RIAPA Model

Headlines

- **Food, fuel and fertilizer shocks lead to significant reductions in GDP and employment in Ethiopia**
  - Agri-food system is adversely affected, alongside the broader economy
  - Agriculture is particularly at risk to fertilizer shocks, esp. if it leads to lower fertilizer use in the current season

- **Poor and rural households are especially vulnerable**
  - Larger income losses due to fertilizer shock
  - Greater increase in poverty (esp. number of poor people)
  - Larger contribution to the deterioration in diet quality

- **Next steps**
  - Evaluate policy options available to governments and development partners to mitigate impacts on food systems, poverty, and food insecurity (e.g., cash transfers, food aid, fertilizer subsidies, fiscal support, etc.)