



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.

Senegal

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

Xinshen Diao, Paul Dorosh, Josee Randriamamonjy, Jenny Smart, James Thurlow

International Food Policy Research Institute, Washington DC

Overview

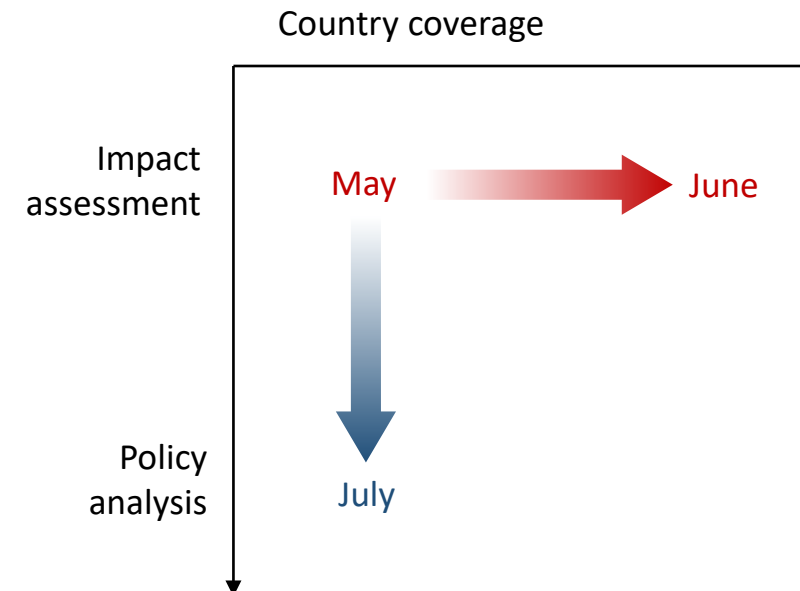
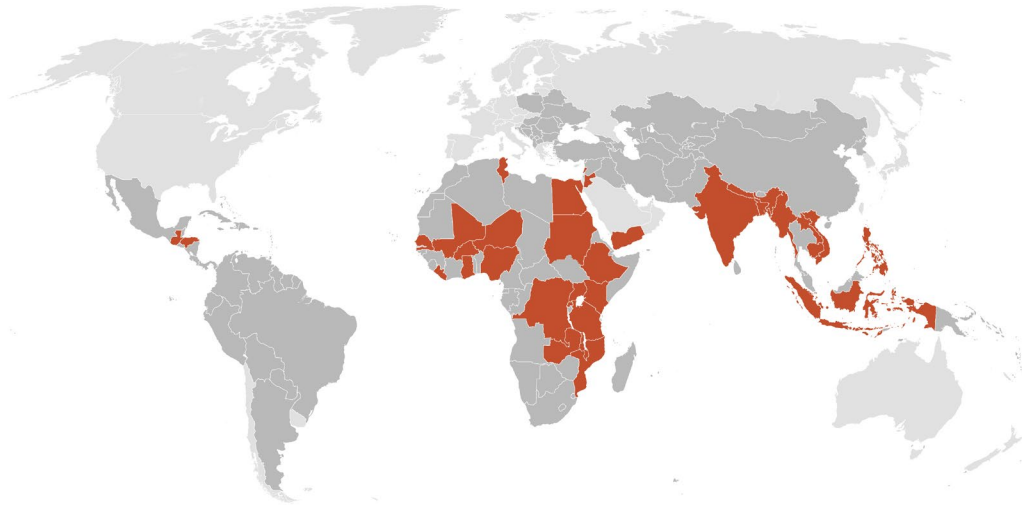
- **Series of country case studies**

- Economywide modeling
- Capture world market shocks
- Estimate impacts on economy, agri-food system, poverty, food security, etc.
- Simulate policy responses

- **Three phases of analysis:**

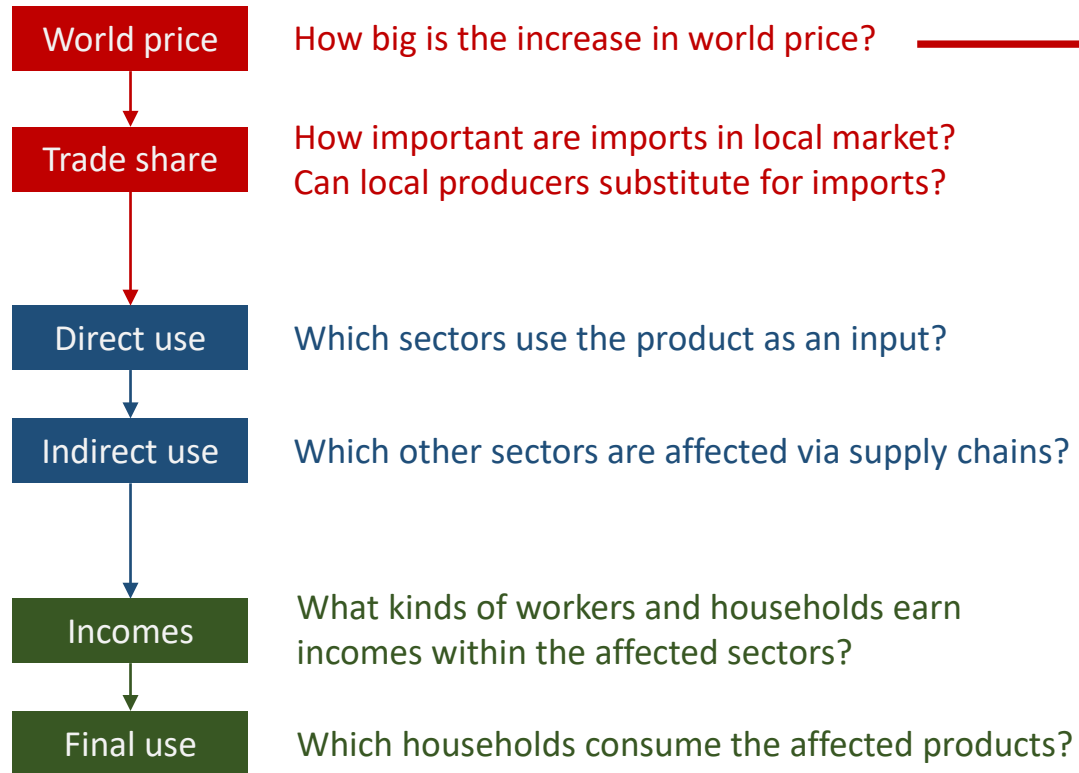
1. Initial data collection and impact assessment
2. Data revisions and analysis of broad policy options
 - Cash transfers, food aid, and fertilizer subsidies
 - Fiscal implications for national governments
3. In-country engagement and tailored policy analysis

Countries with IFPRI RIAPA models



Shocks | World Food, Fuel and Fertilizer Prices

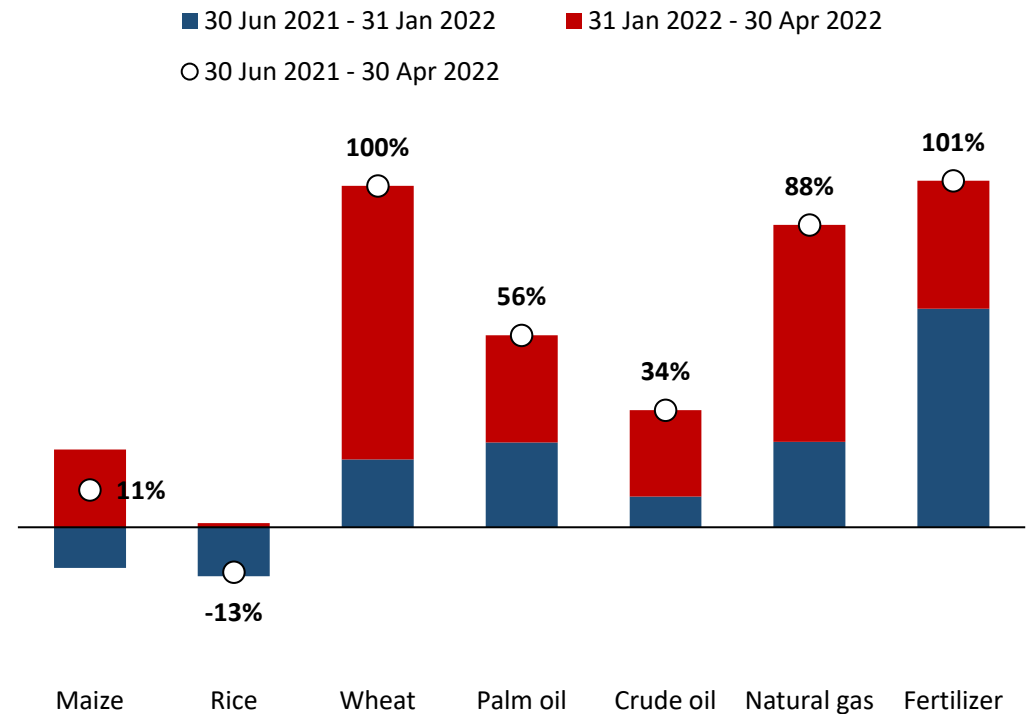
Impact Channel Considerations



World Price Shocks

Global data

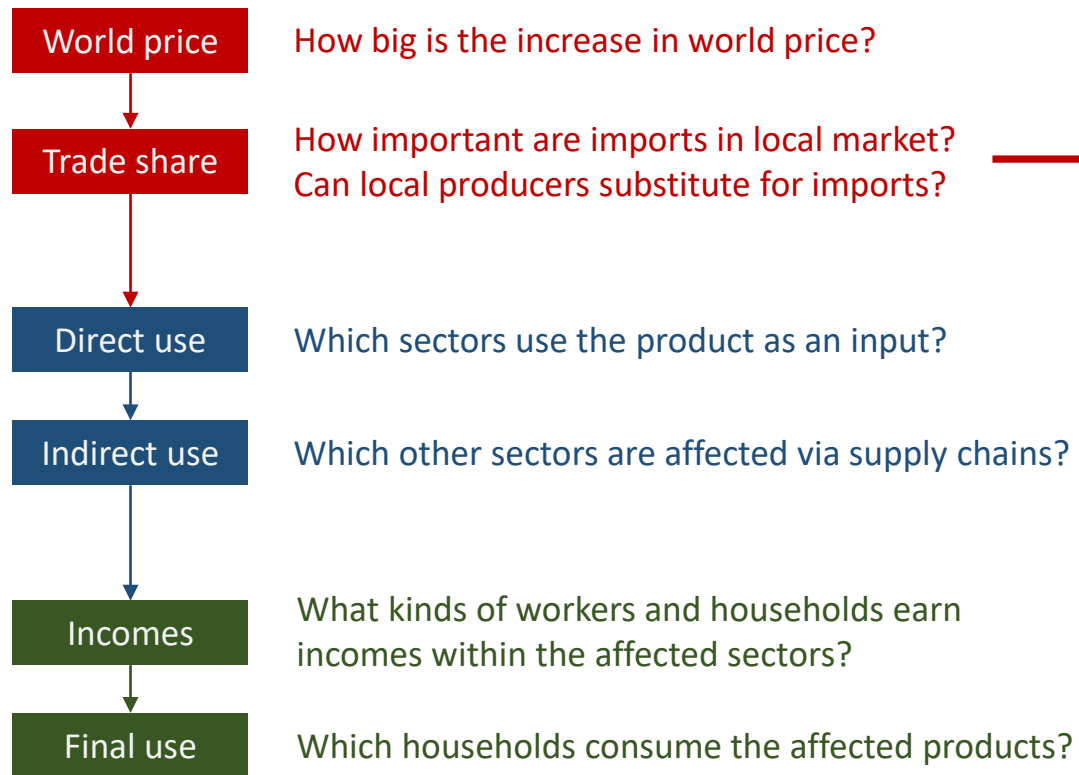
Change in real world prices (June 2021 to April 2022)



Source: World Bank Pink Sheets

Shocks | World Food, Fuel and Fertilizer Prices

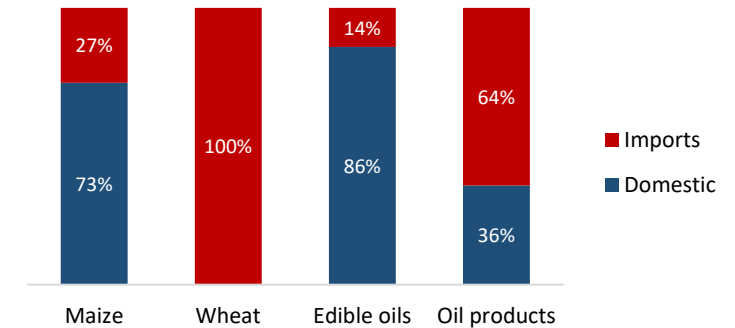
Impact Channel Considerations



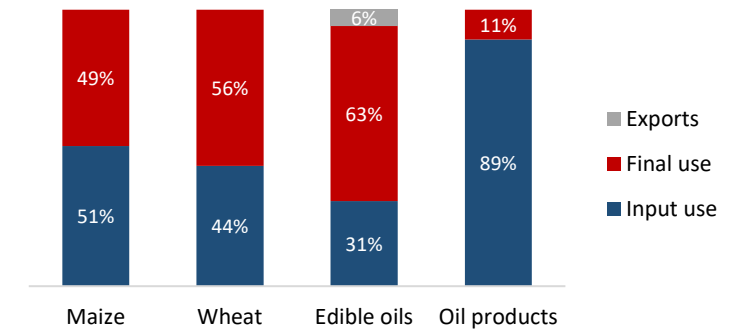
Supply and Demand

Senegal data

Supply
(% by source)



Demand
(% by use)



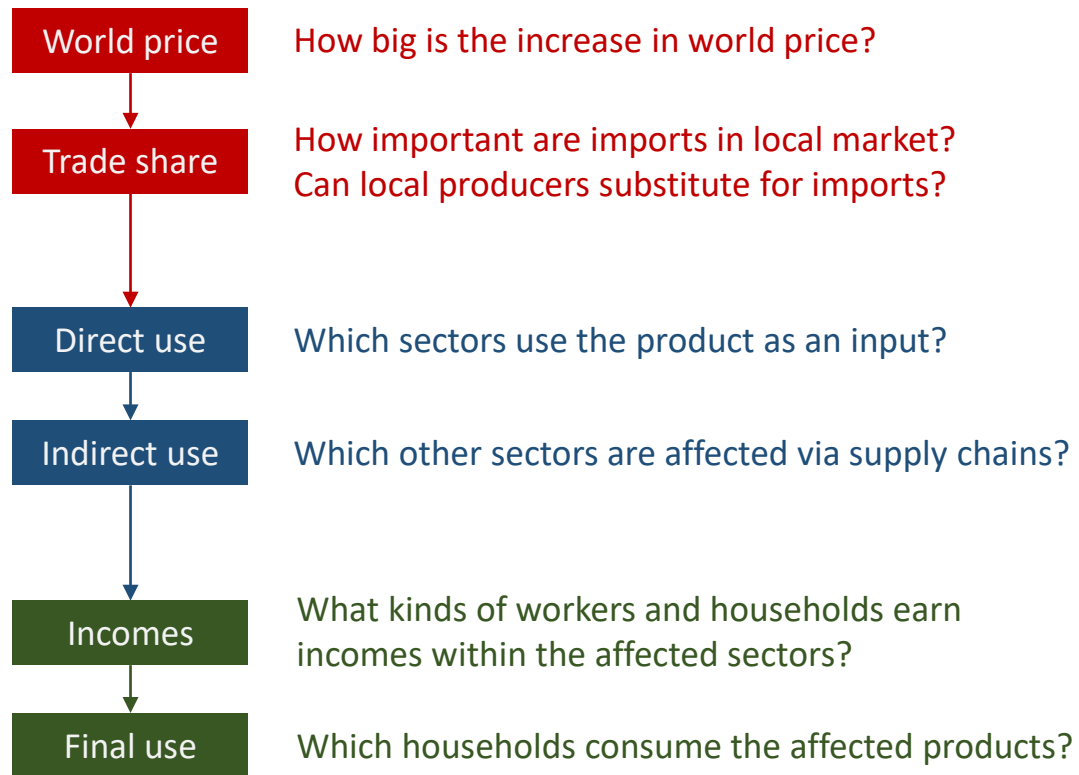
Products' share of the value of total demand throughout the economy

0.6% + 0.5% + 2.6% + 4.7% + Others = 100%

Source: IFPRI Senegal RIAPA Model

Shocks | World Food, Fuel and Fertilizer Prices

Impact Channel Considerations

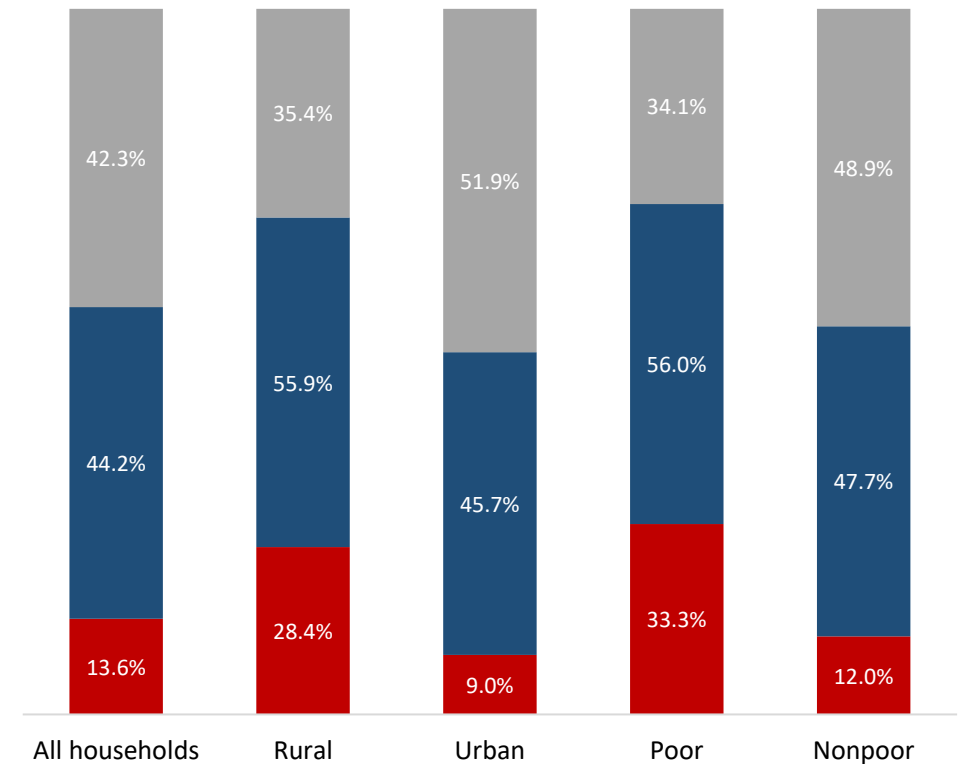


Consumption Baskets

Senegal data

Composition of household consumption spending

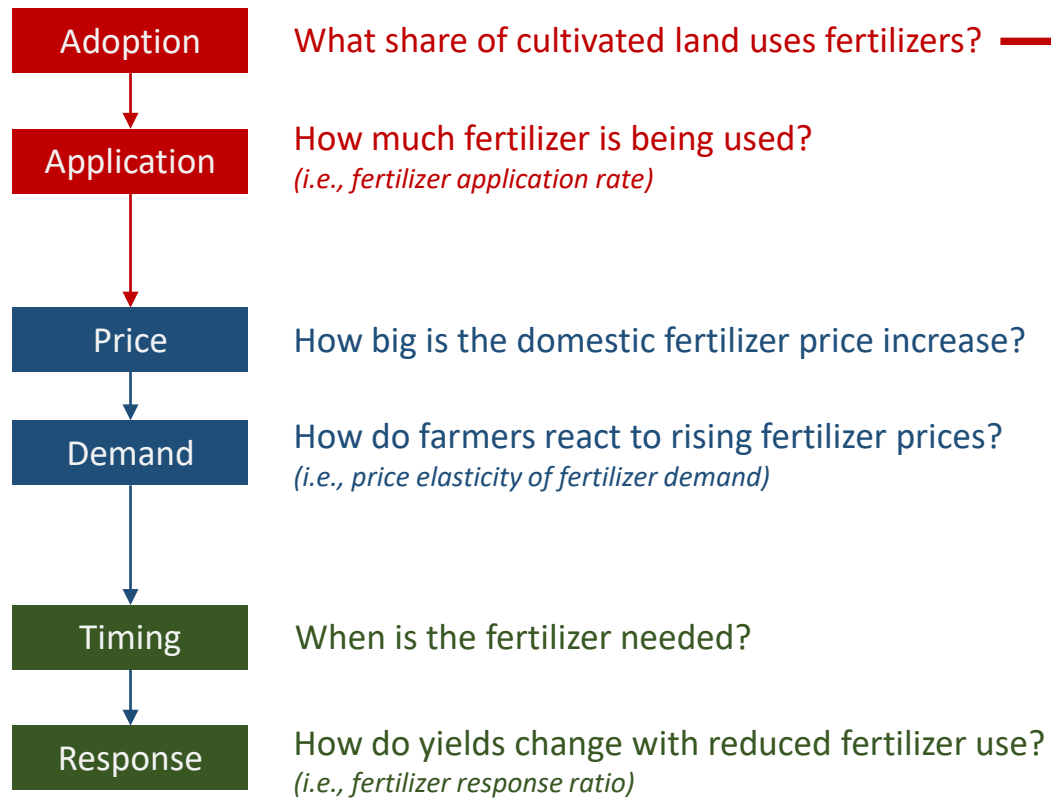
■ Cereals & edible oils ■ Other foods ■ Non-food goods & services



Source: IFPRI Senegal RIAPA Model

Shocks | Fertilizer Response (crop productivity effect)

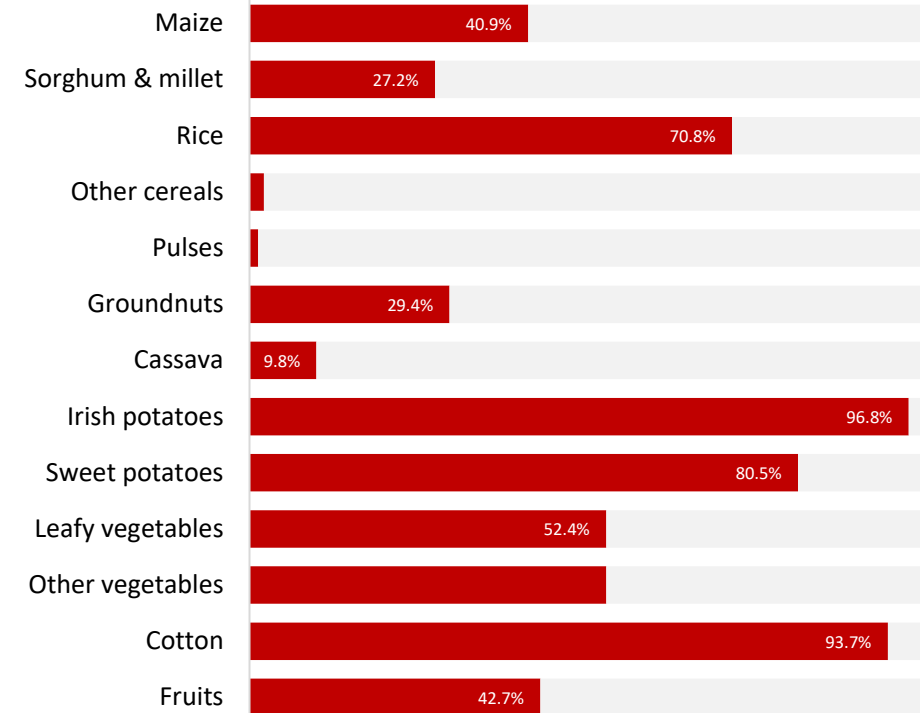
Impact Channel Considerations



Fertilizer Adoption Rate

Senegal

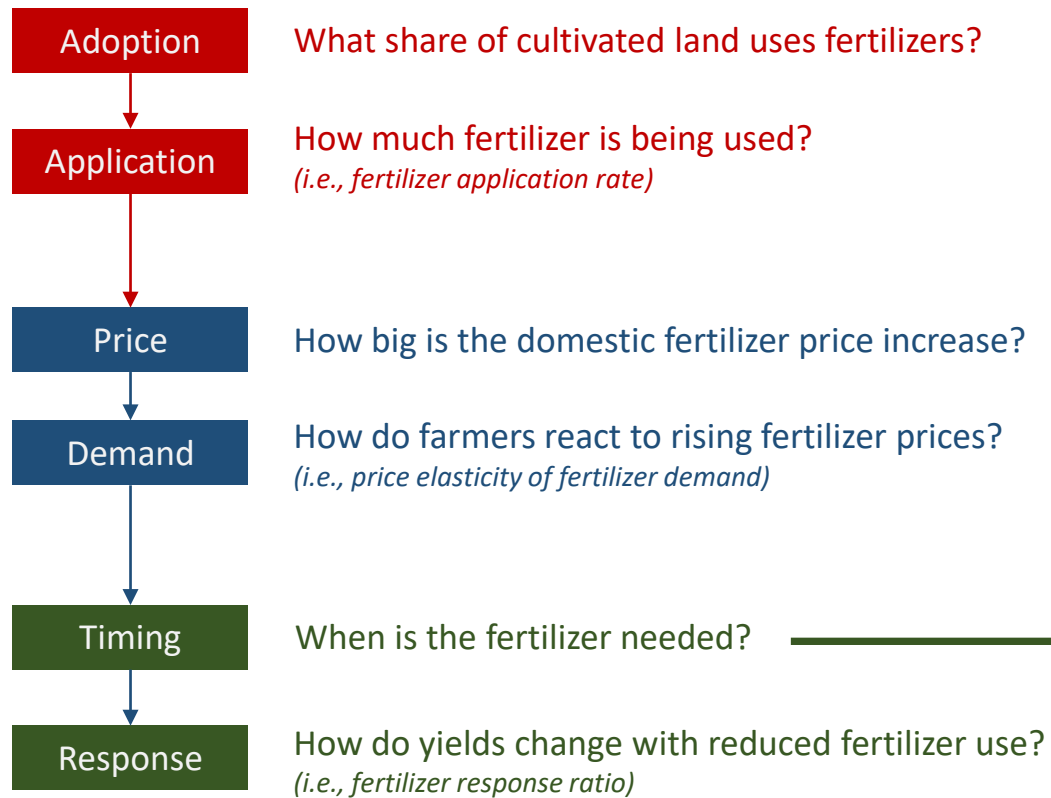
Share of cultivated land using fertilizer



Source: Harmonized Survey on Household Living Conditions (EHCVM) 2018/19, Senegal

Shocks | Fertilizer Response (crop productivity effect)

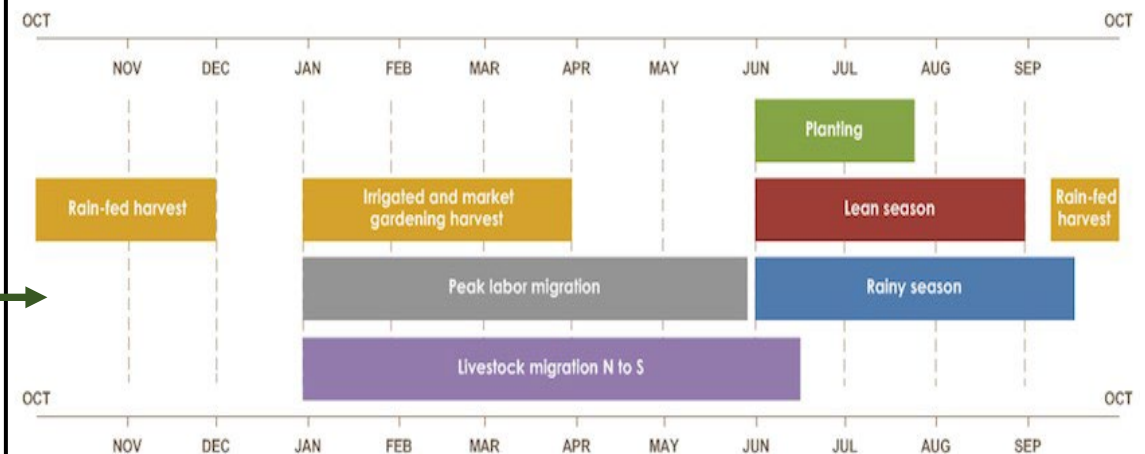
Impact Channel Considerations



Crop Calendar

Senegal

Planting for Senegal's 2022 season is underway



Results | GDP and Employment

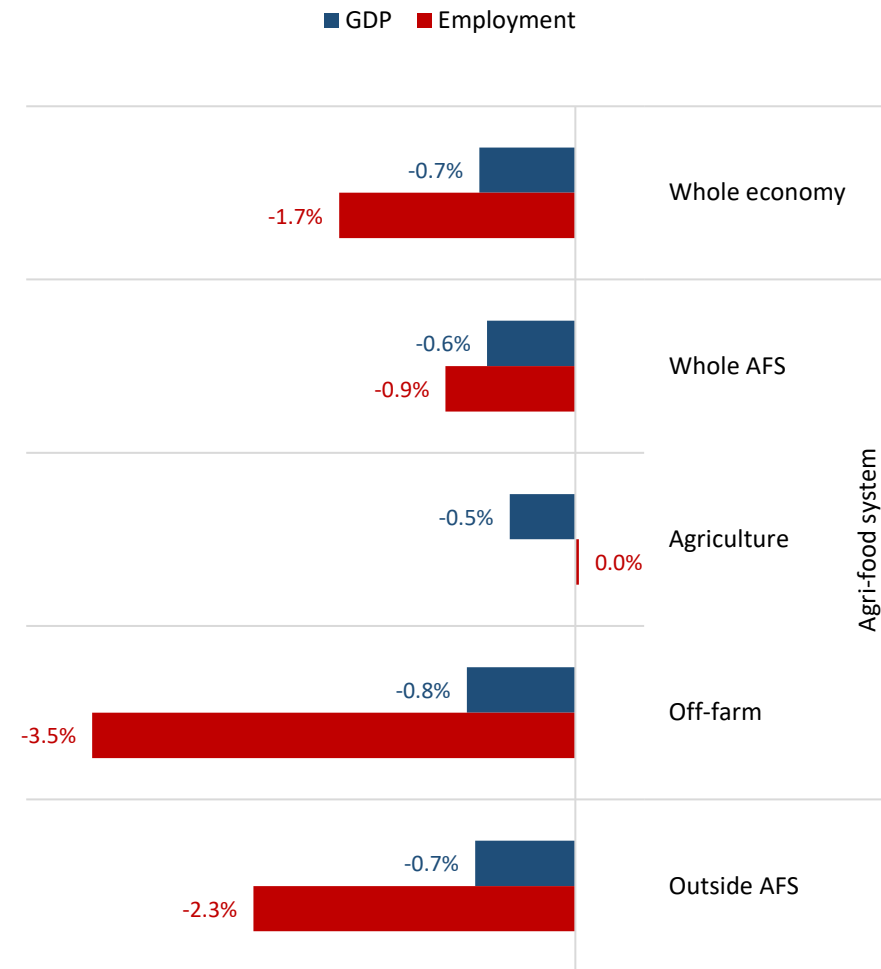
• National GDP and employment declines

- 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

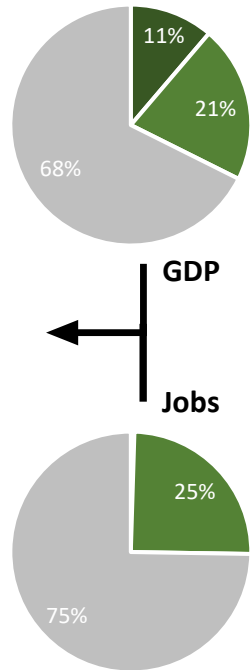
- GDP declines in both primary agriculture and off-farm agri-food sectors (e.g., processing, trading)
- Larger GDP declines in off-farm agri-food system (equal to 21% of overall GDP losses in the country)
- Job losses only in off-farm sectors, and agriculture's jobs are largely not affected
- More job losses outside agri-food systems (equal to 75% of overall job losses in the country)

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



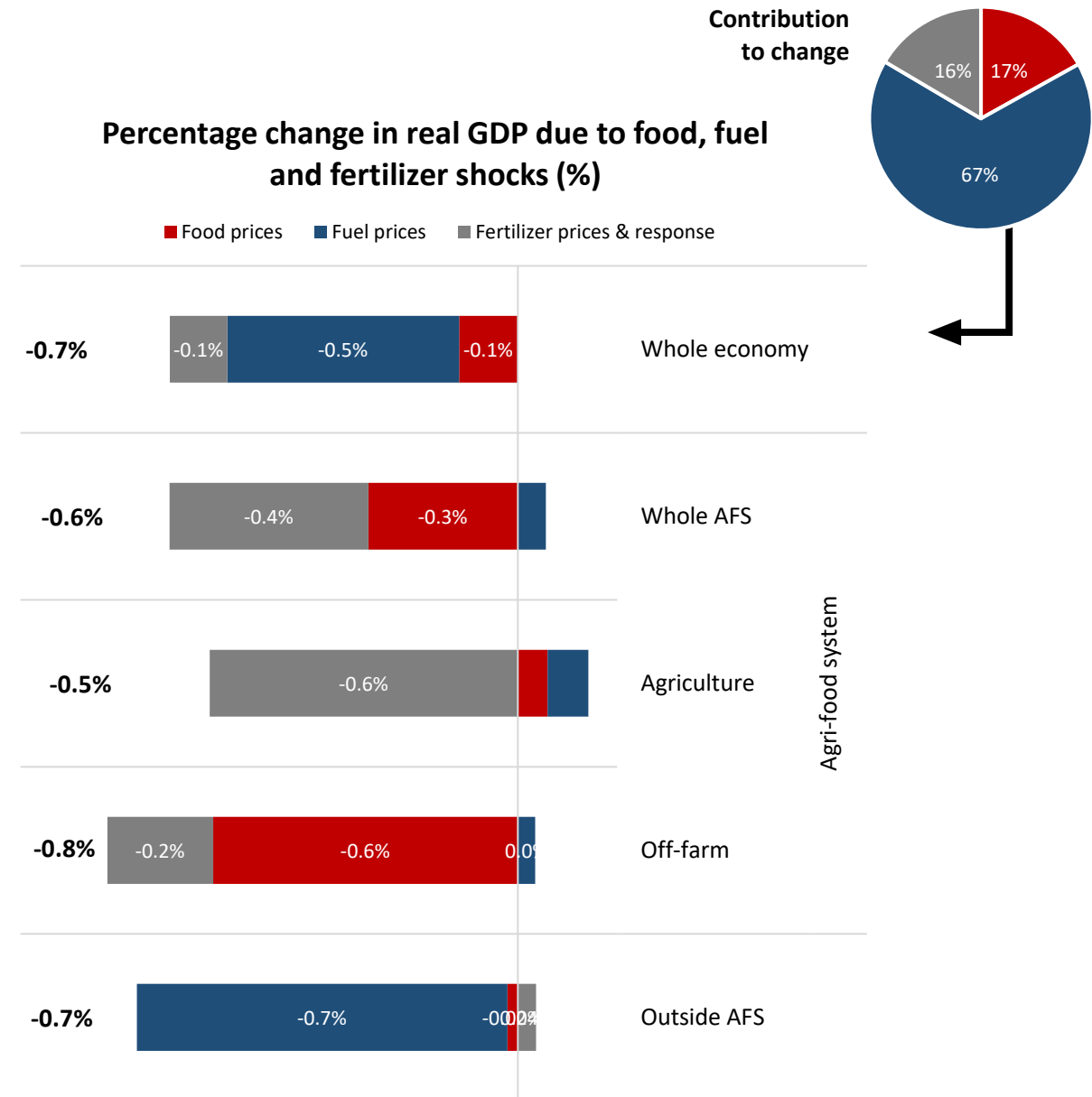
Contribution to total change

- Agriculture
■ Off-farm
■ Outside AFS



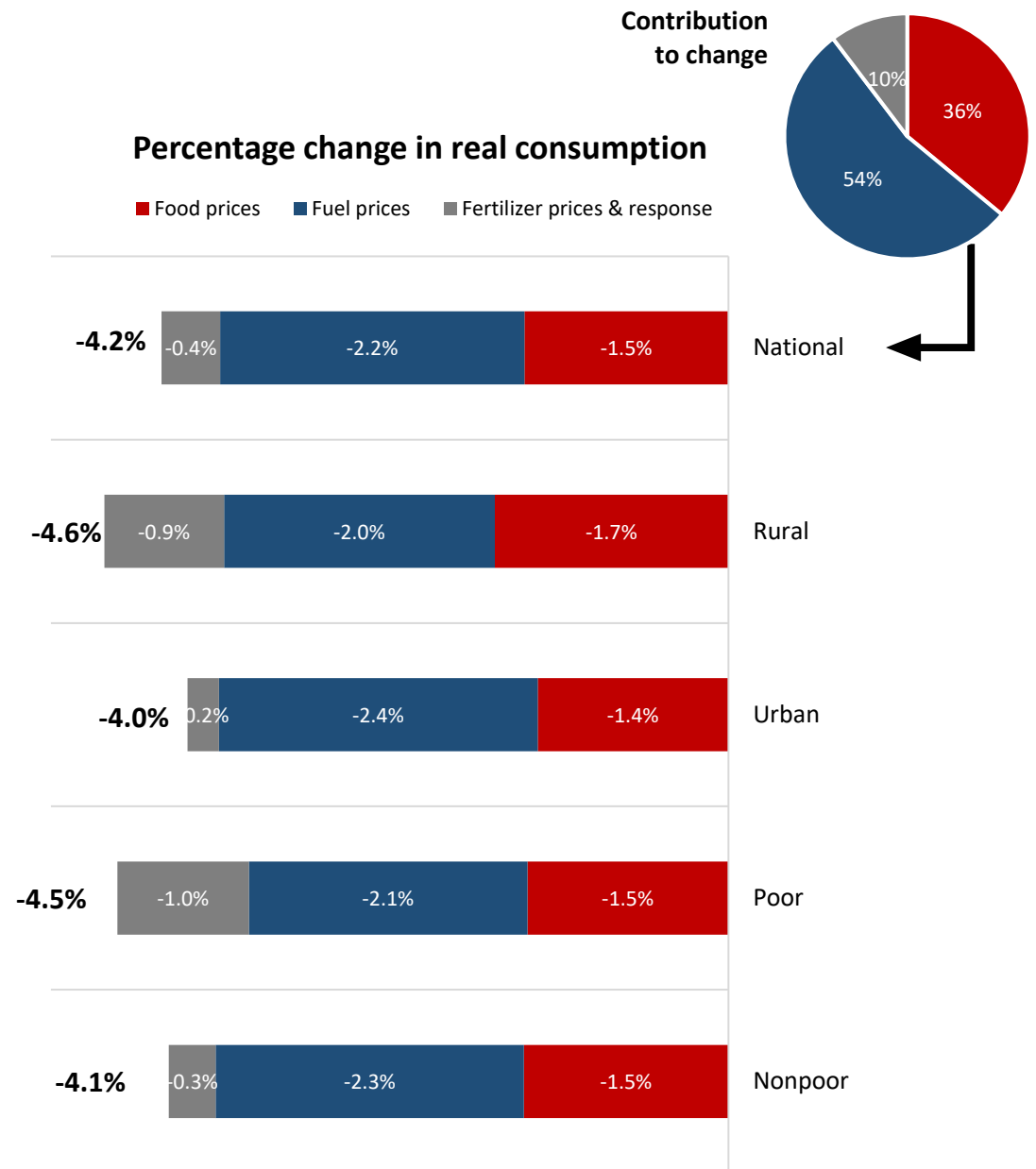
Results | Drivers of GDP Losses

- **Fuel shock drives most of the decline in national GDP**
- **Agri-food GDP losses mostly driven by fertilizer shocks**
 - Fertilizer directly affects primary agricultural production
 - Disrupts downstream processing via supply chains
 - Off-farm also adversely affected by higher fuel prices, which raise the cost of transport services
 - Fuel shock has little impact on agri-food GDP
- **GDP losses outside the agri-food system driven all by higher fuel prices**
 - Higher transaction costs
 - Lower consumer demand



Results | Household Consumption

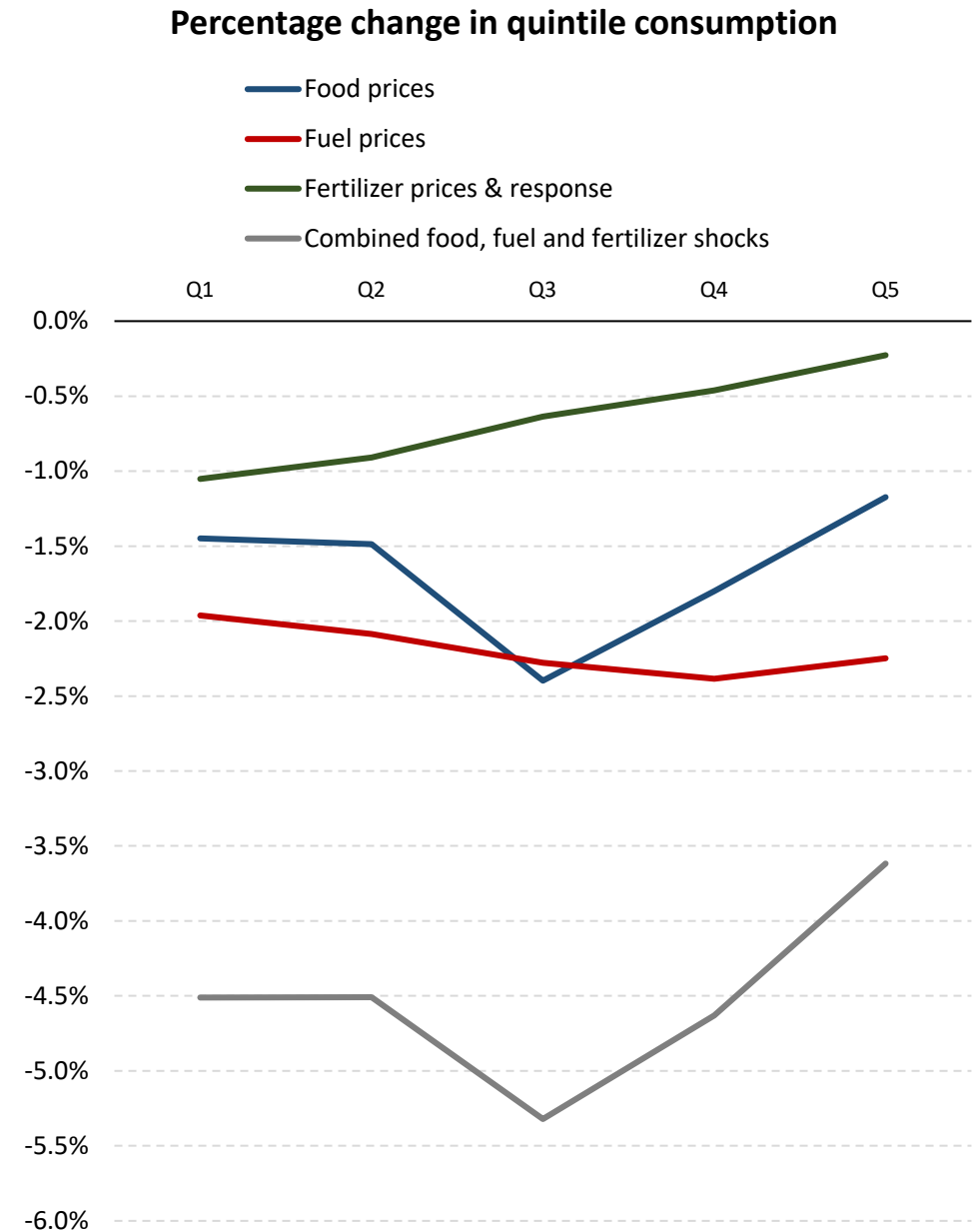
- **Household consumption falls significantly**
 - Much larger than GDP losses as households are hit twice, by rising prices and falling incomes
 - Rising fuel price is an important driver of consumption losses similar as for GDP losses, while higher food prices is also important
- **Importance of shocks differs across population groups:**
 - **Fertilizer shocks** 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
 - More import-intensive consumer basket
 - Consume products with larger transaction cost margins
 - **Food prices** affect all households
 - Higher food consumption share for rural households, means slightly larger impacts



Source: IFPRI Senegal RIAPA Model

Results | Changes in Inequality

- **Differential effects on poor/nonpoor households drive changes in inequality:**
 - **Fuel shocks** cause larger consumption losses for households in the fourth quintile
 - **Fertilizer shocks** affect lowest quintile much more than top quintile
 - **Food prices** have larger impact on households in the third quintile
- **Overall, inequality rises**
 - Larger consumption losses in poorer quintiles, driven mostly by fertilizer shock, causes inequality to increase



Source: IFPRI Senegal RIAPA Model

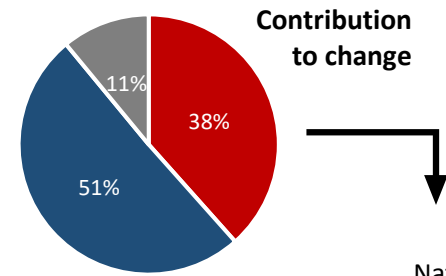
Results | Poverty

• Poverty rises significantly

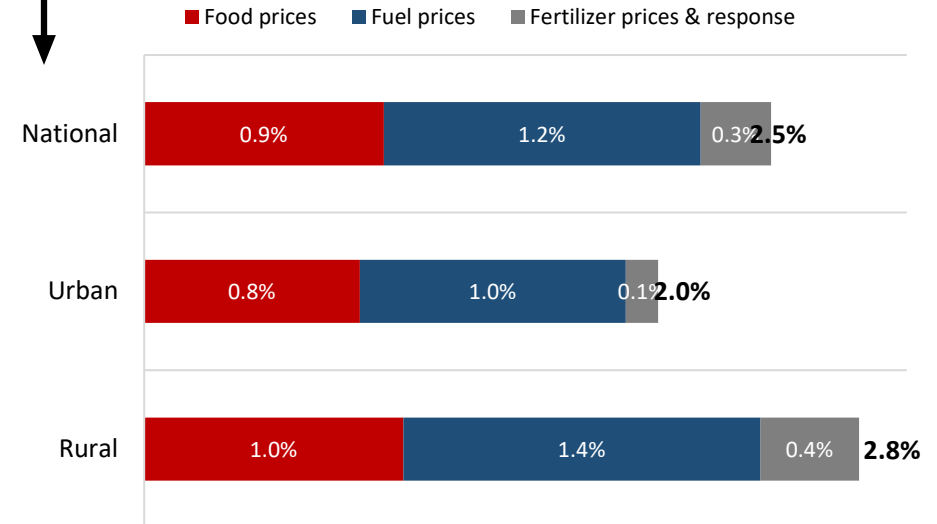
- Headcount rate up 2.5% points
- About 400 thousand more people pushed into poverty

• Larger increase in poverty in rural areas

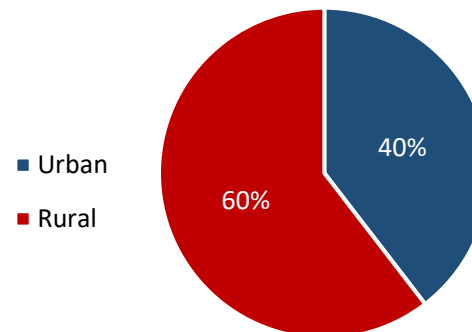
- 65% of expanded poor population
 - Larger increase in rural poverty headcount rate
 - Rural population slightly larger than urban population
- Mainly driven by fuel and food price shocks



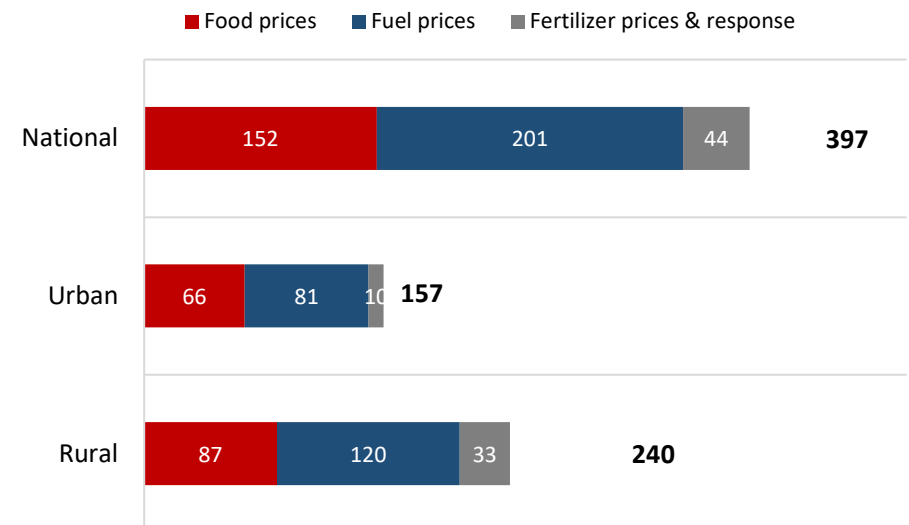
Change in poverty headcount rate (%-point)



Share of population falling into poverty



Change in poor population (1000s)

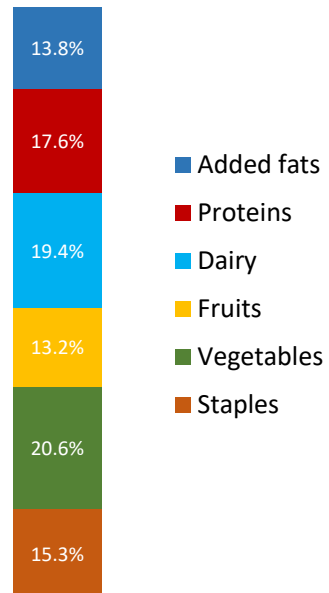


Source: IFPRI Senegal RIAPA Model

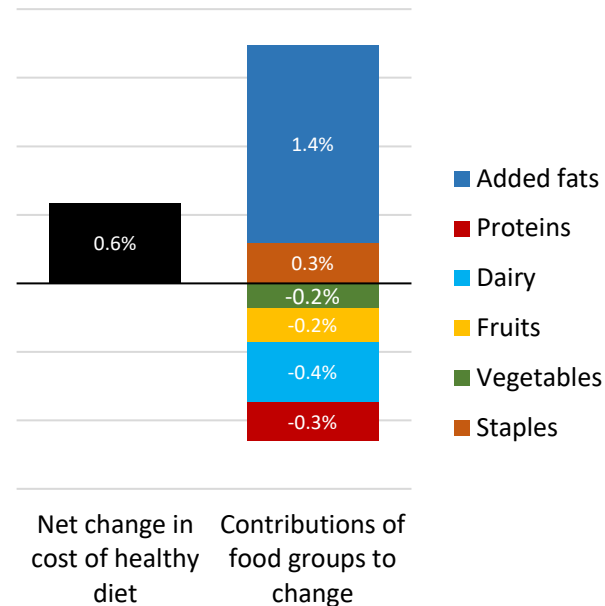
Results | Diet Quality

- Global price shocks have differential effects on the cost of six food groups for a healthy reference diet
 - Reference diet is the EAT-Lancet's "healthy" diet thresholds for the six major food groups
 - Rising prices for edible oils (in added fats) and cereals (in staples) push up their costs, while falling incomes reduce demand for vegetables, fruits, dairy, and proteins (meats & fish), and thus lower their real cost

Shares of six food groups in total cost of a healthy diet prior to the crisis

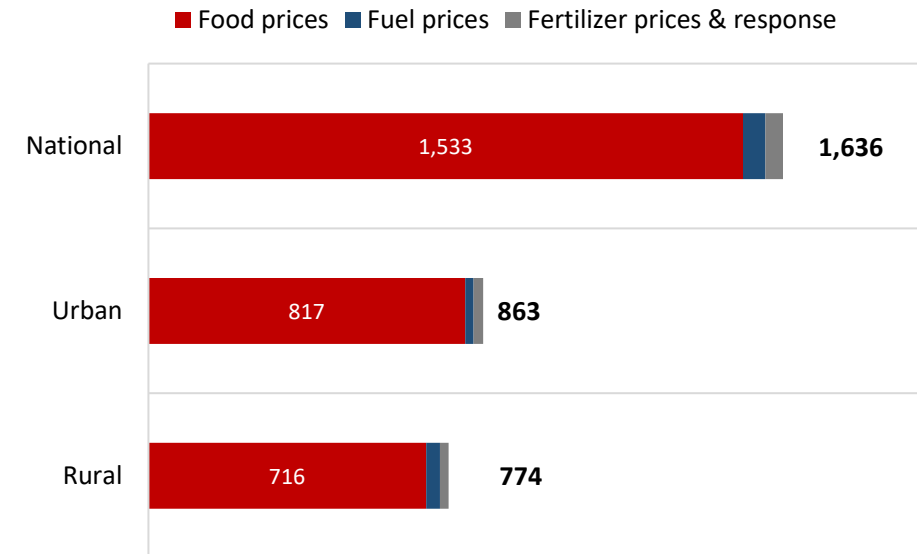


Change in the real cost of a healthy reference diet caused by rising world prices (%)



- Rising food prices and falling incomes cause diet quality to worsen for many households
 - Prior to the crisis, few households had consumption levels and diversity needed for a healthy diet
 - Rising food prices cause 1.6 million people to become deprived in at least one additional food group
 - Urban population accounts for slightly more of the deterioration in diet quality

Number of people to become deprived in at least one additional food group (1000s)



Headlines

- **Food, fuel and fertilizer shocks lead to large reductions in GDP and employment in Senegal**
 - Agri-food system 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
 - Greater increase in poverty (esp. number of poor people)
 - Many become 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.)

