Agricultural Trade, Food Prices, and Household Welfare: The Impact of the Ukraine War

Erhan Artuc, Guillermo Falcone, Guido Porto, Bob Rijkers
World Bank
Motivation: War-Induced Food Price Inflation

- The Ukraine war coincided with a surge in food prices

- Ukraine and Russia are important suppliers
  - Joint contribution to global exports
    - Wheat: 25%
    - Corn: 16%
    - Fertilizer: 15%
    - Oilseeds: 21%

- How were developing countries impacted?
How do price changes impact household welfare?

• Higher prices have ambiguous welfare effects
  • Increase the cost of consumption
  • Raise incomes
    • Increased agricultural profits
    • Higher wages

• Net effect on depends on consumption and income portfolios

• Over time, adjustments modulate impacts
  • Trade, consumption & production patterns adjust
The Household Impacts of Tariffs Database

- **Harmonized household survey data**
- 54 low and middle income countries
- Africa (29), Asia (17), Europe (4), and Latin America (4)
- Representative of 1.6 billion people

- **Very disaggregated** income and expenditure data

Poorer households are more exposed

• Poorer households spend a greater share of their budgets on food items
Poorer households suffer larger losses

Simulated short-run welfare impacts of food price inflation across 53 developing countries

• Food price inflation erodes real incomes and exacerbates inequality
Do Your Own Analysis Online

MATLAB Web App Server

Agriculture Price Simulation
by DECRG Staff

DECTIAppl: Impact of selected agricultural prices on income distribution. Product of DECRG.
version 0.61

Price Change Simulation (Advanced)
by E. Artuc, G. Porto & B. Rijker

DECTIAppl: Impact of agricultural prices on income distribution. Product of DECRG.
version 0.55

http://wbgmsmtlb005/webapps/home/
Example: Wheat and Corn Price Changes in Georgia
Many countries resorted to bans

- **Russia banned exports of wheat, corn, fertilizers, oilseeds**
  - (among others)

- **Ukraine’s trade was stifled**
  - It also imposed bans

- **Other countries also imposed bans**
  - E.g. wheat export bans in Georgia, Ghana, India, Moldova, Kazakhstan, Kyrgyzstan, India
Modeling Trade Responses

- **Trade model with heterogeneous households and adjustments**
  - Households make labor supply and land allocation decisions

- **Data**
  - Households Impacts of Tariffs Database
  - International Trade and Production Database for Estimation

- **Two Scenarios**
  1. **Baseline**
     - Russia *bans* exports of wheat, corn, fertilizers, sugar, oilseeds
     - **Ukraine isolated**
  2. **Retaliation**
     - Other countries also impose bans
Inflation increases with import exposure

% change in consumer price of wheat

share of wheat imports from RUS and UKR
Inflation typically reduces welfare

% change in consumer price of wheat

Average

- Afghanistan
- Armenia
- Azerbaijan
- Egypt, Arab Rep.
- Georgia
- Jordan
- Mongolia
Inflation typically reduces welfare, especially for the poor.
Most countries lose but impacts vary
Retaliatory protectionism aggravates welfare losses.
Retaliatory protectionism aggravates welfare losses
Conclusion

• War-included food price inflation hurts most developing countries

• It exacerbates inequality: The poor are hurt the most

• Retaliatory protectionism is aggravating welfare losses – and should be avoided