SUSTAINABILITY IMPLICATIONS OF THE WAR IN UKRAINE FOR GLOBAL FOOD PRICES AND GLOBAL FOOD SECURITY

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International Food Policy Research Institute

IEO Seminar
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Please visit:
https://www.ifpri.org/landing/war-ukraine-blog-landing-page
Grain and Oilseed Markets
Before the invasion: rising food prices and rising food insecurity

Acute food insecurity overview, 2021

- **193M people** in 53 countries/territories were in Crisis or worse (IPC/CH Phase 3 or above) or equivalent in 2021

- **570,000 people in 4 countries were in Catastrophe (IPC Phase 5) in 2021**

- **39.2M people in 36 countries were in Emergency (IPC/CH Phase 4) in 2021**

- **133.1M people in 41 countries were in Crisis (IPC/CH Phase 3) in 2021**

- **236.2M people in 41 countries were in Stressed (IPC/CH Phase 2) in 2021**

The FAO Food Price Index in nominal and real terms shows the impact of rising food insecurity post-invasion.
Pre-Crisis drivers of rising prices

**Strong demand:**
- Large purchases from China since early 2021

**Limited supply:**
- La Niña hurt South America, in particular soybean production
  - But Argentina wheat production has been spared
- Drought in Middle-East: increased demand
- Supply constraint and trade restrictions on Palm Oil in SE-Asia

**Low Inventories:**
- Wheat stocks at lowest level since 2007/08
- Corn stocks at lowest level since 2012/13
- Soybean stocks at lowest level since 2011/12
- Rice stocks at highest level in more than 20 years

**Rising production costs:**
- Fertilizers
- Energy
- Labor

More at Production and Stocks Monitoring System

https://www.foodsecurityportal.org/node/1734
Russia and Ukraine are key players in global markets for wheat, maize, barley & sunflower oil

**Share in global markets, volume**

<table>
<thead>
<tr>
<th></th>
<th>Russian Federation</th>
<th>Ukraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley</td>
<td>14.2</td>
<td>12.6</td>
</tr>
<tr>
<td>Maize</td>
<td>15.3</td>
<td></td>
</tr>
<tr>
<td>Sunflower</td>
<td>19.6</td>
<td>4.3</td>
</tr>
<tr>
<td>Sunflower Oil</td>
<td>23.1</td>
<td>49.6</td>
</tr>
<tr>
<td>Wheat</td>
<td>24.1</td>
<td>10</td>
</tr>
</tbody>
</table>

*Intra-EU trade excluded from computations.*

Chart: David Laborde • Source: COMTRADE

https://www.ifpri.org/blog/how-will-russias-invasion-ukraine-affect-global-food-security
Markets have taken further hits since the start of the invasion.

Commodity prices in constant USD per Metric Ton

Prices expressed in 2022 USD.

- 2008 5-days highest soybean price average
- 2008 5-days highest wheat price average
- 2008 5-days highest corn price average

Russian invasion of Ukraine

https://www.ifpri.org/blog/do-no-harm-measured-policy-responses-are-key-addressing-food-security-impacts-ukraine-crisis
Daily vegetable oil prices, current USD

Soybean oil: CBOT, Palm Oil, crude: Malaysian Board daily price, Rapeseed Oil: Rotterdam spot prices, Sunflower oil: India CIF Mumbai price

Chart: David Laborde • Source: MPOB, Bloomberg, CBOT

https://www.ifpri.org/blog/impact-ukraine-crisis-global-vegetable-oil-market
Direct vulnerability depends on countries’ diet and sourcing: Yemen has a strong dependency to wheat and the Black Sea.

### Daily calories consumption in Yemen

By origin and product, Kcal per day per capita (average 2018-2020)

1. Wheat and derivatives, 46.2% of daily intake
   - Domestic: 203 Kcal
   - Americas: 115 Kcal
   - Asia: 169 Kcal
   - Middle East & North Africa: 75 Kcal
   - Oceania: 403 Kcal

2. Other cereals and derivatives, 18.7% of daily intake
   - Domestic: 94 Kcal
   - Americas: 168 Kcal
   - Asia: 123 Kcal

3. Other food products, 13.6% of daily intake
   - Domestic: 231 Kcal
   - Americas: 1 Kcal

4. Sugar products, 12.4% of daily intake
   - Domestic: 186 Kcal
   - Americas: 36 Kcal
   - Asia: 41 Kcal

5. Oilseeds and vegetable oils, 9.2% of daily intake
   - Domestic: 120 Kcal

Chart: David Laborde • Source: IFPRI based on FAOSTAT & COMTRADE

https://www.ifpri.org/blog/russian-invasion-ukraine-threatens-further-exacerbate-food-insecurity-emergency-yemen
Direct vulnerability depends on countries’ diet and sourcing: West Africa has a limited dependency to wheat and the Black Sea

### Daily calories available for consumption in West Africa

By origin and product, Kcal per day per capita (average 2018-2020)

- **Domestic**
- **Americas**
- **Asia**
- **Europe**
- **Other regions**
- **Ukraine and Russia**

1. **Other food products, 40.5% of daily intake**
   - **Total:** 1049 Kcal
   - **Domestic:** 993 Kcal
   - **Americas:** 42 Kcal
   - **Asia:** 21 Kcal
   - **Europe:** 4 Kcal
   - **Other regions:** 3 Kcal
   - **Ukraine and Russia:** 1 Kcal

2. **Other cereals and derivatives, 38.8% of daily intake**
   - **Total:** 861 Kcal
   - **Domestic:** 806 Kcal
   - **Americas:** 29 Kcal
   - **Asia:** 3 Kcal
   - **Europe:** 7 Kcal
   - **Other regions:** 3 Kcal
   - **Ukraine and Russia:** 1 Kcal

3. **Oilseeds and vegetable oils, 10.4% of daily intake**
   - **Total:** 205 Kcal
   - **Domestic:** 143 Kcal
   - **Americas:** 22 Kcal
   - **Asia:** 6 Kcal
   - **Europe:** 8 Kcal
   - **Other regions:** 3 Kcal
   - **Ukraine and Russia:** 2 Kcal

4. **Wheat and derivatives, 6.5% of daily intake**
   - **Total:** 57 Kcal
   - **Domestic:** 57 Kcal
   - **Americas:** 4 Kcal
   - **Asia:** 2 Kcal
   - **Europe:** 5 Kcal
   - **Other regions:** 2 Kcal
   - **Ukraine and Russia:** 1 Kcal

5. **Sugar products, 3.8% of daily intake**
   - **Total:** 62 Kcal
   - **Domestic:** 62 Kcal
   - **Americas:** 1 Kcal
   - **Asia:** 1 Kcal
   - **Europe:** 3 Kcal
   - **Other regions:** 1 Kcal
   - **Ukraine and Russia:** 1 Kcal

Chart: David Laborde • Source: IFPRI based on FAOSTAT & COMTRADE • Created with Datawrapper

Fertilizer and Energy Markets
Prices for food, fertilizer and energy

Index based on constant USD prices. Base 100 = Average 2010-2020

- Energy
- Fertilizers
- Food

2011 food price crisis

2008 food price crisis

Chinese starts export restrictions on fertilizers

Russian invasion

European natural gas price reached a five-year lowest level

Natural gas prices

USD per MMBtu

Market
- $27.8
- $4.34
- Europe
- US

US price based on Natural Gas, next month, contract.
Europe price based on Dutch TTF contract.
Global markets of fertilizers in 2019

Market shares of main exporters and total amount of traded nutrients in metric tons.

Global production of N is estimated at 123 mio MT, of P2O5 44 mio MT, and of K2O 44 mio MT.

Chart: David Laborde • Source: FAOSTAT

Russia and Belarus plays a critical role on fertilizer markets

https://www.ifpri.org/blog/high-fertilizer-prices-contribute-rising-global-food-security-concerns
Dependency Ratio
Ratio between imports and agricultural use.

The map shows the dependency ratio, ranging from 0, no imports, to 1, domestic use fully supplied by imports. You can generate various maps by selecting several nutrients. 3 years available.
Source: Computations based on FAOSTAT

https://public.tableau.com/app/profile/laborde6680/viz/Fertilizer_Dashboard/FertilizerDashboard
Country vulnerability and food security risks
How to make things worst: Export restrictions

Food & Feed

Evolution of the share of global trade, in calories, impacted by export restrictions

- Daily update. Includes food, feed and other uses of food products.
- Week of Russian invasion in 2022
- Ukraine Crisis [2022]
- Food Price Crisis [2008]
- Covid-19 [2020]

X-axis shows the week of the year. 1 = first week of the year.
Chart: David Laborde • Source: IFPRI

Fertilizers

Agricultural use and import shares impacted by export restrictions

- Map based on the IFPRI Food and Fertilizer Export Restrictions tracker data, and domestic agricultural use quantities from FAOSTAT.
  European Union considered as an integrated market. Shares based on 2018-2020 average.

Share of imports impacted by export restrictions in total agricultural consumption

<table>
<thead>
<tr>
<th>Country</th>
<th>Nitrogenous</th>
<th>Phosphate</th>
<th>Potash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mongolia</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Togo</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Fiji</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>100.0%</td>
<td>100.0%</td>
<td>0.0%</td>
</tr>
</tbody>
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https://public.tableau.com/app/profile/laborde6680/viz/ExportRestrictionsTracker/FoodExportRestrictionsTracker
Food inflation was increasing, even before the war

**Food Price Inflation**

12 month inflation rate for food products. Only countries with update in the last 90 days displayed.

Source: World Bank; IMF; EUROSTAT; BECEAO; NSI
Consequences of changing world prices on current account

Commodity* prices impact on net import costs as share of GDP
Country vulnerability

- Direct exposure to Black Sea supply
- Food import dependency
- Macroeconomic vulnerability
- Fertilizer import dependency
- Existing local food market dynamics

Assessment based on March 28th 2022 data
Map: David Laborde
Conclusions
Crisis will not disappear with the end of conflict in Ukraine

18 months for markets to adjust

Short term response should not replace the long-term food transformation agenda

Policy response should be evidence-based and not emotionally driven
## Recommendations on short term policy responses

<table>
<thead>
<tr>
<th><strong>DO's</strong></th>
<th><strong>DON'TS</strong></th>
</tr>
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<tbody>
<tr>
<td>Remove biofuel subsidies and mandates</td>
<td>Apply sanctions that obstruct food and fertilizer trade</td>
</tr>
<tr>
<td>Target social safety nets to the most needy</td>
<td>Implement export restrictions</td>
</tr>
<tr>
<td>Boost funding to WFP and other humanitarian programs</td>
<td>Panic buying</td>
</tr>
<tr>
<td>Allow market prices to guide producer and consumer decisions.</td>
<td>Target subsidies to specific crops, or large-scale fertilizer subsidies programs</td>
</tr>
<tr>
<td></td>
<td>Cancel environmental initiatives without weighing long term costs</td>
</tr>
<tr>
<td></td>
<td>Promote self sufficiency policy and autarky strategy</td>
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https://www.ifpri.org/blog/do-no-harm-measured-policy-responses-are-key-addressing-food-security-impacts-ukraine-crisis
Lessons about sustainability and the need of smart policy actions

How to produce food: the fertilizer issue

What to produce with our land: food, feed and biofuels or ecosystem services

Learning from previous crisis: the role of information
Could we do without mineral fertilizers?

- Simple answer: no
- Could and should we have a more responsible use of fertilizers: yes, and policy matters
- Opportunities and challenges of green ammonia: a new nexus for food, energy and climate actions
What to do with our land

▪ The risk of agricultural land expansion to “compensate” reduced yields (fertilizer shortage) and lack of Ukraine products → do not compromise long term initiative in protecting/restoring biodiversity and carbon stocks

▪ The role of biofuel policies and in particular biodiesel

▪ The delicate issue of livestock sector → differentiated needs and responses around the globe
The critical role of AMIS and crop monitoring
Better information is the best defense against risk of panic or speculation
Thank you

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