

Food Policy in a Warming World

Hsiao, Moscona and Sastry

Discussion by Diego Känzig

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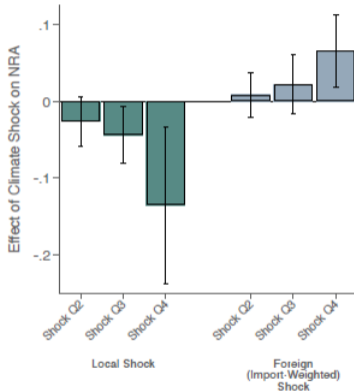
Macroeconomics of Climate Change Conference, Harvard University

A quick summary

- How does **agricultural policy** react to **climate extremes**?
 - border taxes, quantity restrictions, domestic production or input subsidies
- Relationship between **climate shocks** and **food policy** is **theoretically** ambiguous
 - depends on whether government revenue- or constituent-focused
- Estimate **agricultural policy responses in data**

Main takeaways

Figure 7: Local vs. Foreign Extreme Heat Shocks



- Domestic heat shocks induce **pro-consumer** policies
- Foreign heat shocks lead to **pro-producer** policies
- Consistent with **constituent-focused** government

⇒ Model disciplined with empirical responses implies that trade policy can drastically alter **level** and **distribution** of **climate damages**

- Great paper on a very timely and important topic!
- Beautiful example of how to test **sharp theoretical predictions empirically** ...
- ...and use **estimated responses** to discipline model and perform **welfare analyses**

Overview of my comments

1. A recent example
2. Missing intercept & macro effects
3. Uncertainty

A recent example: The Ukraine war

- Ukraine war led to an unprecedented **increase** in global food prices

Figure 2: Total wheat exports (up to 1 January 2024)

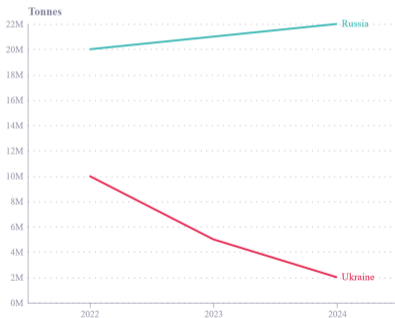
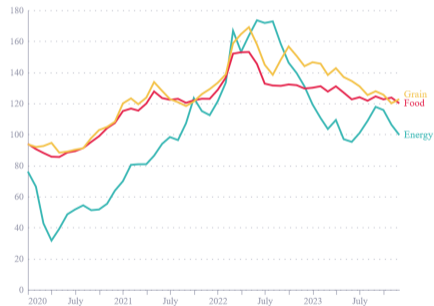


Figure 3: Commodity price indices



A recent example: The Ukraine war

- Countries introduced variety of policies to confront this **extreme surge** in prices
- According to IMF survey (2022) many countries tried to **limit rise** in **domestic food prices** as **international prices** increased
 - Focused on households, e.g. by cutting taxes or providing direct price subsidies
- **Opposite** than what the authors find
 - Is Ukraine war special?

Beyond extreme heat

- Authors focus on extreme **heat events**
 - show significant effect on crop yields
- However, other **important climatic factors**, in particular **droughts**
 - La Niña events become more frequent and severe
 - Before Ukraine war food prices were already at highest level in a decade because of once-in-a-century drought in Brazil
- Do the results **generalize** to other extreme climatic events?

The missing intercept problem

- Authors focus variation **across crop within country-years**

$$\text{NRA}_{lkt} = g(\text{ExtremeExposure}_{lkt}) + \gamma_{lt} + \delta_{kt} + \mu_{lk} + \varepsilon_{lkt}$$

- This nets out variation in **global commodity prices** (and other common factors)
- However, this may be an **important transmission channel** of climate extremes

The missing intercept problem

- To assess how restrictive this is, authors could exploit **time-series variation** more
- De Winne and Peersman (2016) identify a series of exogenous **food market shocks**
- Interesting to see how **nominal rate assistance responds** to such shocks
 - Could run simple local projection of NRA on food commodity supply shocks
- Captures **aggregate impact**, including any GE adjustment
- How does this differ from the **PE effect** the authors identify?

Uncertainty

- Climate change leads to **more frequent** extreme weather events
- This will cause more **volatility** in food prices
- Important factor when thinking about **welfare & climate damages**
- Would be interesting to incorporate uncertainty in the model
 - Possibly for the next paper 😊
- Would allow to speak to important debate on **food security**

Minor comments

- Theoretical framework has strong implications for import shares
 - Could authors look at these responses empirically?
 - May be easier to measure than nominal rate assistance
- Extreme heat has persistent effect on NRA
 - How persistent is effect on crop yield?
 - Is there a way to estimate the price response?
- Would be interesting to study heterogeneity a bit more
 - Do effects differ between developed and developing countries?

To sum up

- Great paper improving our understanding of **food policy** in face of **climate change**
- Tractable **theoretical framework** with stark predictions
- Convincing **empirical strategy** to test theory and discipline model