

Climate Risks and Macroeconomic Stability

THREE ESSAYS ON PHYSICAL RISKS IN DEVELOPING COUNTRIES

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Job Market Paper

Weather Shocks, Agricultural prices
and Inflationary pressures

Motivation

- ▶ Weather shocks act as negative supply shocks.
- ▶ No clear consensus on the response of prices.
- ▶ Strong implications of (food) price stability, especially in the context of developing economies.

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This paper

Do weather shocks lead to local inflationary pressures ?

Strategy and Methods

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- ▶ Determine empirically how crop prices and price indices evolve after a weather shock.
- ▶ Investigate the difference in responses depending on the magnitude of the shocks.
- ▶ Use a general equilibrium framework to understand the channels of transmission.

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Methods

- ▶ Assess the response of regional quarterly crop prices and price indices to temperature surprises using Local Projections.
- ▶ Develop a dynamic stochastic general equilibrium model estimated for the Peruvian economy to rationalize these findings.

Results - Local projections

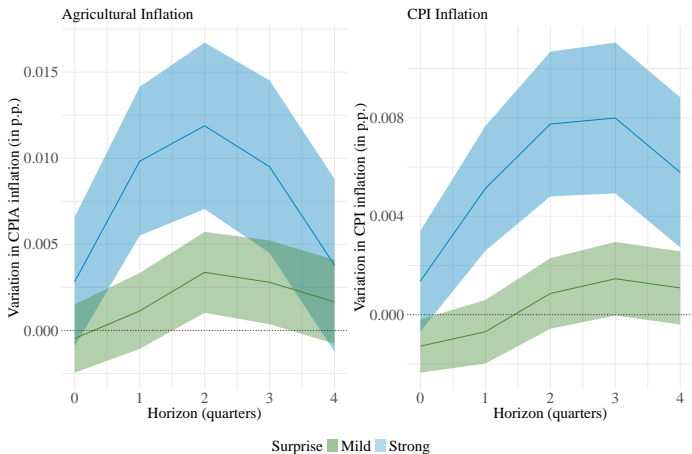


Figure – Linear response of variations in CPI Inflation after a unit shock in the Temp. surprises variable

Results - DSGE model

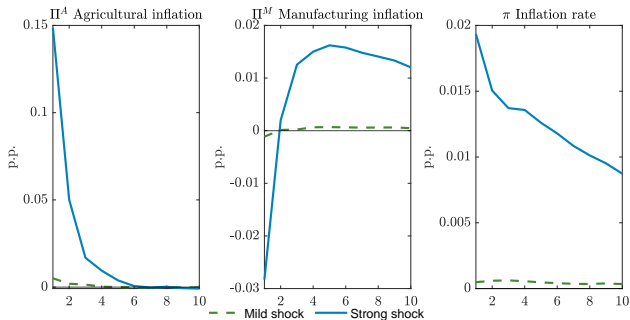


Figure – Response of the economy following mild (dashed green lines) and strong (solid blue lines) weather shocks

Results and Contributions

Results

- ▶ Increase in crop prices after weather shocks, with heterogeneous effects depending on the crops.
- ▶ Increase in regional food inflation but significant effect on CPI inflation only for strong weather shocks.
- ▶ Shifts in relative prices between goods and differences in price adjustments appear to drive the results.

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Contributions

- ▶ Highlight the non-linear effect of weather on inflation.
- ▶ Estimate a damage function specific to the agricultural sector.