

Annual ECB Banking Supervision Research Conference, 3 May 2023

“Climate, amenities, and banking: El Nino in the US”

by Filippo De Marco and Nicola Limodio

Discussion: Alexander Popov (ECB & CEPR)

Motivation

- Anthropogenic climate change is making the planet hotter and drier
 - Mostly for our grandchildren, but not only (“Wenn du mich siehst, dann weine”)
- We need to understand all the ways in which climate change affects the economy
 - Both financial and real sector, both firms and households
- This paper: Effect of El Nino on house prices and bank lending
 - Climate conditions change (temperature levels and volatility, salinity)
 - House prices decline, bank deposits and (mostly mortgage) lending decline
 - Transmission of climate shocks to real economic activity via bank balance sheets
- Assessment: Well-executed paper, important topic; few remarks to help improve analysis

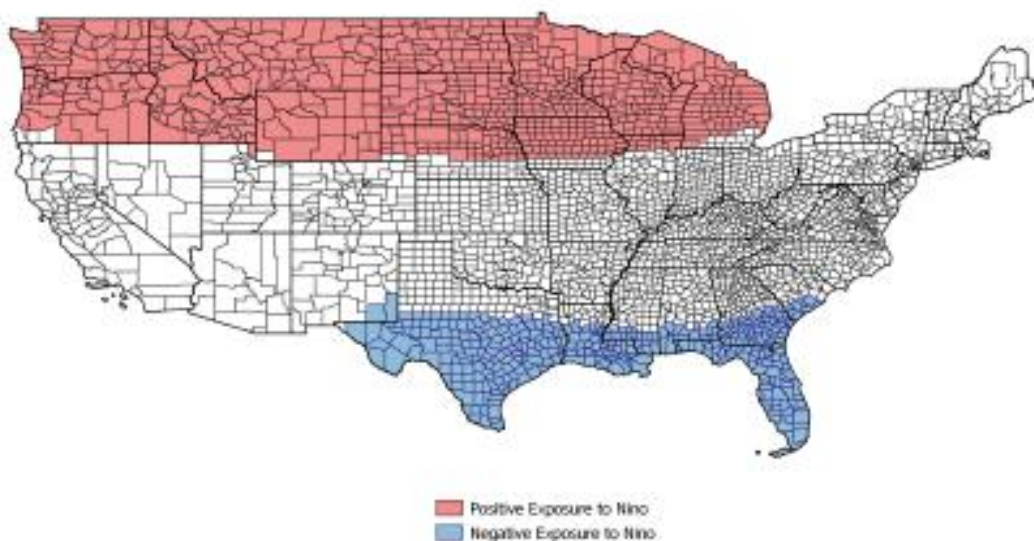
Comment 1: Empirical model

$$Y_{ct} = \alpha_c + \gamma_t + \sum_{j=P,N} \beta_j Exposure_{jc} \times ElNiño_t + \varepsilon_{ct}$$

$$Y_{bt} = \alpha_b + \gamma_t + \beta Exposure_b \times ElNino_t + \varepsilon_{bt}$$

- Effect of El Nino on more vs. less exposed countries / banks
 - Controlling for fixed county / bank forces & trends common to all counties / banks
- Unobservable county / banks trends unrelated to El Nino unaccounted for
 - Any other unobservable county- / bank-specific force could affect deposits / lending
- Alternative: outcomes in unaffected county C1 by bank B exposed to affected county C2
 - Explicitly identify / quantify cross-county transmission of climate shocks via banks
 - Need to look at banks that operate in multiple counties

Comment 2: Treatment vs. control



- Counties with positive and negative exposures vastly different economically
- Same applies for non-exposed countries
- Focus on counties on both sides of the demarcation line (red vs. white, blue vs. white)?
 - Better control for unobservable local variation

Comment 3: Main explanatory variable

- Take the top-5 El Nino years
 - Look at effect on climate conditions, house prices, bank lending
- This approach is silent about the underlying mechanism
 - You assume it is salinity...
 - ... but you can test explicitly
- Alternative: regress changes in dependent variables on environmental variables
 - Salinity / temperature levels / temperature volatility
 - Use El Nino years as an instrument

Comment 3, cntd: Main explanatory variable

- Can construct placebo extreme weather events that do not change a particular variable
 - If salinity, then look at heatwaves that do not affect it
 - If changes in temperatures, look at floods that do not move temperatures

Comment 4: Reallocation of lending and aggregate effect

- You show that banks balance sheets suffer from high exposures during El Nino events
- But, isn't the effect symmetric?
- E.g., think of temperatures
 - Exposure to hot counties that experience higher-than-average temperatures bad
 - Exposure to cold counties that experience higher-than-average temperatures good
 - Reminiscent of paradoxical result in Burke et al. (2015) about EU
- Is it possible that lending is reallocated such that in the aggregate, the net result is zero?
 - Influx of deposits from benefiting countries, more mortgage lending there
 - Again, need to look at banks that operate in multiple counties

Comment 5: Sectoral mechanisms

- Dig deeper into why banking conditions change as climate conditions vary
- E.g., decline in deposits in El Nino years
 - Real estate sector: housing values decline, owners feel poorer, withdraw savings
 - Agricultural sector: salinity increases, crop yields affected, farmers’ profits decline
 - Non-farms: volatile climate conditions affect NFCs, profits fall
- It will help you to tightly identify the chain of events

Conclusion

- Important question: Do adverse climate events affect financial sector and real activity?
- Main result: banks receive and transmit climate shocks
- We need more work like this!
- Few comments to tighten identification and interpretation
- Good luck publishing your paper! 😊