GENEVA GRADUATE INSTITUTE | INTERNATIONAL ECONOMICS

Discussion of:

Economic impact of climate change

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Impact of climate policy and shocks

- A central source of fluctuations to be integrated in macroeconomic models. In addition, climate policy affects banks' risk and possibly financial stability.
- *Climate-transition risks and bank lending: Evidence from Colombia (Camilo Bohórquez, Joëlle Noailly & Naël Shehadeh).*
  - What was the impact of the 2015 Paris agreement on the lending strategy of Colombian banks?
- *Implications of extreme weather events for macroeconomic and financial imbalances in CESEE countries (Meri Papavangjeli)*
  - How do climate event affect macroeconomic variables in Europe?
- *The economic footprint of natural disasters: Demand-side or supply-side forces? (Jorge Pozo & Youel Rojas)*
  - How do natural disasters affect inflation and growth, and how heterogenous is the impact?

Banks' reaction in Colombia

- Oil and gas represent a large share of exports, and banks are involved in funding these sectors.
- Paris agreement in 2015, signed into Colombian law in 2016. Oil and gas reserves become stranded assets, and the sector a riskier borrower.
- Use credit registry data with rich bank and firm level information.
  - Difference in difference approach between firms in fossile fuel (FF) sectors and other firms.
- The adoption of the Paris agreement law led to:
  - Drop in lending to FF firms relative to other firms.
  - Re-orientation to safer FF firms (large, well capitalised).
  - Higher drop of lending to all clients, and larger rise in interest rate, in brown banks (exposed to FF sector), but some re-orientation towards FF firms.

Oil price vs. Paris

- Shortly before the Paris agreement, oil prices fell.
  - Do we see the effect of Paris or lower oil prices?
- The paper takes care of this identification issue by looking at alternative cutoff times for the econometric analysis.
- But some indicators suggest a role of the oil price.
  - Sharp increase in the probability of default of FF firms (figure 5).
  - Paris agreement should not lead to higher defaults, but reduced earning from low prices can.
- Oil price fell in 2015, but coal price did not.
  - Use two FF dummies: one for oil, one for coal, and run both of them in the same regressions. Coal should shows the Paris effect.
  - Better than doing it separately as in table 4.

Interactions, effects, and other metrics

- In assessing heterogeneity, are we controlling for all that's needed?
  - Specification 3: $I(Paris) \times I(FF) \times I(Bal\_sheet)$ is in, how about $I(Paris) \times I(Bal\_sheet)$, and $I(Paris) \times I(FF)$?
- The Paris dummy appears to be 1 only in 2016 Q3 (page 16).
  - But it should be 1 from 2016 Q3 onwards, as the dependent variable is the loan volume (not its difference).
- Table 2 shows more lending to FF firms with high liability, puzzling.
- Table 3 shows more lending of brown banks to FF firms, but only for ongoing balance, with no extra effect for new credits and interest rate.
  - Suggests that brown banks do not treat FF firms so differently.
- Are FF firms and banks traded on the stock market?
  - If so, their stock prices should have moved around the time of the adoption of the Paris law in Colombia.

Macroeconomic effects of weather

- How do extreme weather events affect macroeconomic variables (growth, inflation, current account, real exchange rate).
  - Panel of 17 countries in central, eastern, and south-eastern Europe (CESEE).

- VAR approach with macro variable and indicator of extreme weather events, using Cholesky decomposition.
  - An adverse weather event reduces GDP temporarily, and raises inflation with persistence.
  - No effect on current account or exchange rate.

- Weather events are thus a source of recession.

Presentation of data

- Detailed presentation of the computations for current account gap and financial stability indicator.
  - These are standard, be shorter and use an appendix..

- Need to present the extreme weather events E3CI in many more details (currently 1 paragraph on page 17).
  - How is it built?
  - Can we contrast across different types of weather events?
  - What does a chart of the index for the various countries look like?
  - Has the frequency of events increased in recent years?

- E3CI is the major variable in the analysis, so we need to be told more about it.

Econometric approach

- Why a VAR? Climate events are clearly exogenous shocks, and we are interested in their effect, not so much on that of shocks to GDP, inflation, and other variables.
- What is the order of the Cholesky decomposition, and what motivates it?
- Panel imposes identical effects for each country, but the sample is quite heterogeneous: GDP per capita, exchange rate regime.
  - I would expect different effects depending on characteristics.
- Alternative: local projection of effect of weather events.
  - Much lighter on the data, allows to interact with some countries' characteristics to capture heterogeneity.
- Needs more clarity on some variables.
  - Macroprudential policy mentionned on page 10, but not in the VAR.
  - What is the monetary policy measure? Interest rate, spread (over what reference rate)?

Disasters: supply or demand?

- Disasters entail both elements of supply and demand shocks.
  - People in affected areas cannot consume, or refocus their consumption: demand shock.
  - Some sectors are more affected and have to pause production: supply shock for their customers.
- Panel of EME and LIC countries, with different measures of disasters.
  - Baker et al (2020), EM-DAT, WoiD (based EM-DAT).
- Natural disasters raise inflation.
  - Especially in countries with higher initial inflation.
  - But sensitivity to event measure (tables 3-4 vs. 5).
  - Heterogeneity across types of disasters (temperature has no effect).
- Disasters lower GDP growth, with heterogeneity.
- Effect different across country group (more inflation in LIC), and some nonlinear effects.

Structuring the results

- Rich set of results, but can leave the reader a bit lost.

- Go with one event measure (out of the 3) after another.
  - For each, look at the effect of inflation, then growth, and heterogeneity.

- Set of controls should be more consistent across tables, or difference explained more clearly (e.g.: credit in growth regressions).

- Results in robustness section 4 warrant more discussion.
  - Contrast by region, income level, and nonlinearity shows interesting patterns.
  - What do we learn from these patterns in terms of mechanisms?

Heterogeneity

- The effects are quite different across disasters.
  - Is this surprising? If not, what explains it?
- Go beyond GDP to its components.
  - Is the recession investment-driven? With reconstruction needs, investment should increase.
  - Does government spending dampen the recession?
- Events are exogenous, but they can be interacted with characteristics of the countries.
  - Measure of fiscal space, monetary policy credibility (central bank independence).
  - Usual macro: exchange rate regime, current account balance.
  - Interact with the number of past disasters. If many hit, does the country reach a «breaking point», or instead does it become more able to cope?