The Effect of Banking Crises: Evidence from Non-Life Insurance

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Purpose: Analysis of now Banking Crises Affected the Demand for Non-Life Insurance

• SOUND EMPIRICAL APPROACH:
  • Panel study with appropriate fixed effects
  • Some robustness checks with a concern of the lagged structure of the responses
    • Use alternative crisis measures
    • Use different windows for lag structure
    • Use alternative measures of output (but both based on aggregate premiums)
  • Weaving different data sources together
Two Generic Concerns with This literature:
1. Old School Rules

A. Test all possible model implications with the data:

1. “demand specification” (need a convincing identification strategy)

$$\ln \left( \frac{\text{Prem}}{\text{pop}} \right) = \beta_0 + \beta_1 \ln \text{GNP} + \beta_2 (\ln \text{GNP} \ast \text{Crisis}) + \beta_3 \text{Price} + \beta_4 \text{Educ};$$

But $\beta_3 > 0$ and $\beta_4 < 0$ (and $\beta_1$ is not income elas of demand unless crisis variables where standardized to have a zero means when used in interactions, use Slutsky equation to get “guess” for price elas of demand w.r.t. insurance)

2. lagged structure (16 year tail of influence—that’s start of email): Almon polynomial to model lags, estimated effects seem unreasonably long

3. recursive model structure: equation 3 (private/bank credit, investment) and 4, consistency only if errors are uncorrelated

4. test if ‘crisis’ variables are truly exogenous
Old School Rules continued

B. Some old conventions to avoid the appearance of being a “STATA-zombie”:

1. Convince us using graphs, OLS, 2SLS before using STATA ado-file #6759331417

2. don’t change specifications without a good reason/convincing test/clear need for interpretation’s sake (eq 3 (private/bank credit, investment): “Year dummy variables are not included in the regression to capture the downturn of the variables” ????)

3. If you impute a lot of variable (educ) values, show results both ways (“available upon request”, but send tables with packet when submitting to referees)

4. don’t use interactions (X1*X2) without the main effects in the model (X1, X2)

\[
\ln \left( \frac{Prem}{pop} \right) = \beta_0 + \beta_1 \ln GNP + \beta_2 Crisis + \beta_3 (\ln GNP \times Crisis) + \beta_4 stuff
\]

p. 8 footnote: “We also replaced the interaction terms with simple crisis dummy variables. The results obtained by the simpler regression are almost identical to the specification with the interaction terms, but show a slightly weaker statistical significance.” (give the joint F-tests in each table)
Second Generic Concern: Macro-Insurometrics

Using aggregate premiums ($p^*q$ outcome) in these models

Note:
Crisis shifts supply back from $S$ to $S'$
High income countries have more elastic demand for insurance
The price of insurance increases for both high and low income
BUT:
Premiums increase for low income country after crisis
Premiums decrease for high income countries after crisis,
Exactly mimicking the pattern of responses found in the crisis lags
for high and low countries (high income countries fall in
premiums, low income countries rise)—though the interpretation
of the findings is now very different.

$$\ln \left( \frac{\text{prem}}{\text{pop}} \right) = X\beta,$$

but

$$\ln \left( \frac{\text{prem}}{\text{pop}} \right) = \ln(\text{prem}) - \ln(\text{pop})$$

$$\ln(\text{prem}) = X\gamma, \quad \ln(\text{pop}) = X\alpha$$

$$\beta = \gamma - \alpha$$
Using average costs (say for average price) captures more than marginal incentive effects, it also captures the responses to those marginal incentives

• Workers compensation:
  • Costs = Frequency * Duration * Benefits
  • ln(Costs) = ln(Frequency) * ln(Duration) * ln(Benefits)
• So what happens to costs as Benefits increase? (one to one change)?
  \[
  \frac{\partial \ln \text{ Costs}}{\partial \ln \text{ Benefits}} = \frac{\partial \ln \text{ Frequency}}{\partial \ln \text{ Benefits}} + \frac{\partial \ln \text{ Duration}}{\partial \ln \text{ Benefits}} + 1
  \]