Fiscal Policy Cyclicality and Growth within the US States

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Motivation

- 48 states have faced a budget deficit during the recent recession
  - North Dakota and Montana are the exceptions
- Combined shortfall from 2009 - 2012: $\sim$ 550 billion
- Responses have varied – dependent on size of deficits, political climate, stringency of balanced budget restrictions
  - Aggressively reduce deficits through combination of higher taxes and reduced government spending; ex. Illinois, California
  - Maintain (or expand) current deficits, paying off debt in future; ex. Delaware, Michigan
- Each response implies a different path for fiscal policy across the business cycle
Questions

- General question: What are the long-run consequences of choosing one response over another?
- Specific question: How does the cyclicality of fiscal policy affect long-run growth within the US states?
Firms choose to invest in either capital or productivity-enhancing technology

- Investment in technology is subject to future payment shocks
- Credit-constraint – firms can only borrow up to a fraction of their earnings
- Firms forecast that their credit constraint tightens during recessions, reducing their likelihood of being able to pay the shock
- Implication: firms reduce investment in technology, GDP growth slows

Policy response

- Introduce a counter-cyclical fiscal policy; ex. counter-cyclical public investment
- Firms forecast that, during future recessions, government will buy more goods – loosens credit constraint
- Leads to increased investment in technology, higher growth rate

Elements consistent with Aghion, Angeletos, Banerjee, and Manova (2006)
Does a more counter-cyclical fiscal policy increase long-run growth across US states?

- Data: Annual data on US states from 1977 - 1997*
- Key finding: A one standard deviation increase in the counter-cyclicality of fiscal policy increases the average, per-capita growth rate by 0.4%
  - Robust to a number of different specifications and robustness checks
  - Complements Aghion and Marinescu (2007) and Woo (2009)
Fiscal cyclicality

Comovement in primary deficit and GDP growth

Maine

-6% -4% -2% 0% 2% 4% 6% 8% 10%


Wyoming

-6.0% -5.0% -4.0% -3.0% -2.0% -1.0% 0.0%


Blue: Real GDP Growth
Red: Primary Deficit over GDP
Fiscal cyclicality
Comovement in primary deficit and GDP growth

\[
\frac{G_{st} - T_{st}}{Y_{st}} = \alpha_{1,s} + \alpha_{2,s} \Delta \log Y_{st} + \alpha_{3,s} \pi_t + \alpha_{4,s} t + \epsilon_{st}
\]
Cyclicality and Growth

A Scatterplot

GDP Growth

Cyclicality
Empirical Strategy

- Difficulty: Cyclicality is potentially endogenous
  - Governments, in response to low growth rates, can alter the cyclicality of their fiscal policy

- Instrumental variables approach
  - Exclusion principle: instrument must influence a state’s cyclicality, but be uncorrelated to the unexplained component of a state’s average growth rate
  - Chosen instrument: balanced budget restrictions
Background on BBRs

- 49 states (exception: Vermont) have some type of balanced budget restriction
  - Enforced by the courts and public opinion

Variation in BBRs:

- Ex-ante BBRs – proposed budget is balanced
  - Governor must submit a balanced budget (10)
  - Legislature must pass a balanced budget (8)
- Carry-over – state may carry-over deficit into following fiscal year if it is corrected in following year (8)
- Ex-post BBRs – actual budget is balanced
  - State cannot carry-over deficit into following biennium (9)
  - State cannot carry-over deficit into following fiscal year (28)
BBRs and Voter Preferences

- Potential issue: A state’s chosen BBR might reflect voter preferences over deficits
  - Preferences might then be correlated to variables related to growth

- Historical legacy argument:
  - BBRs were implemented almost 150 years ago, in response to the Panic of 1837
  - Because they were typically enacted as amendments to the state’s constitution, they are difficult to modify
  - If voter preferences over deficits have changed over time, change was not reflected in the state’s BBR
  - Exogenous component to the rules (Poterba 1996)

- Our contention: BBRs constrain potential counter-cyclicality of policy, but do not reflect changes in voter tastes or other recent shocks in the macroeconomy
**IV Analysis**

- **Regression**

\[
\Delta \log Y_s = \beta_1 + \beta_2 \text{cyc}_s + \beta_3 X_s + \nu_s
\]

where

\[
\text{cyc}_s = \gamma_1 + \gamma_{2,i} BBR_{i,s} + \gamma_3 X_s + \nu_s
\]

- Controls in \(X_s\): 1977 levels of education, income, political variables, population, IG transfers, and debt to GDP ratio
### First stage results

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<td>R-squared</td>
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<td>F stat for H0:BBR_* = 0</td>
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Implication: states with strict balanced budget restrictions run more procyclical fiscal policy than states with loose BBRs
## Second stage results

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<td>R-squared</td>
<td>0.482</td>
<td>0.53</td>
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We cannot reject the null hypotheses from either the over-identification test or a Durbin-Wu-Hausman type test.

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Robustness Checks

- Same qualitative results whether we ...
  - Include or exclude fiscal outliers (Alaska and Hawaii)
  - Examine state + local government statistics or just state statistics
  - Insert regional dummy variables
  - Alter the definition of fiscal cyclicality
    - Stronger results when only independent variable is growth in real GDP
    - Weaker results when only independent variable is output gap
Conclusion

- This analysis examined whether counter-cyclical fiscal policy affects the growth rate in per-capita GDP across states.
- Using the variation in balanced budget restrictions as our instrument, we find that a more counter-cyclical primary deficit increases a state’s long-run, per-capita growth rate.
  - Strict balanced budget restrictions lead to a more pro-cyclical primary deficit.