

Does Fiscal Countercyclicality Pay?

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Fiscal Procyclicality

- Stabilization is a major goal of macroeconomic policy.
 - Stabilization would call for countercyclical fiscal policy, specially under ZLB (Christiano et al, 2011),.
- Evidence of persistent & pervasive nature of procyclical fiscal policy in emerging economies
 - Higher instability (GDP growth volatility, inflation, ...)
 - Less sustainability (debt, fiscal balance, BOP crises, ...)
 - Gavin and Perotti 1997; Frankel, Vegh and Vuletin (2013), Talvi and Vegh (2005), Vegh and Vuletin 2015, etc.

Fiscal Procyclicality

- Correlation between the cyclical components of real government expenditures and real GDP
 - (Frankel, Vegh and Vuletin, 2013; Ardanaz and Izquierdo 2022).
- Graduation
 - Moving from pro to countercyclical fiscal policy is good ... or is it?
 - Swallows abound (Fuentes and Soto, 2022).
 - Might be hard to reconcile with institutional changes (FVV 2013).

Countercyclical or Acyclical?

- Countercyclical policy might not be costless
- Fiscal rules do not necessarily aim at countercyclicality (revealed preferences)
 - Expenditure rules (50 countries) and debt rules (51 countries) aim at sustainability.
 - Budget balance rules (77 countries) aim, at best, at achieving a-cyclical fiscal policy over the long run. Mostly, cyclically-adjusted structural deficits.
- Escape clauses limit authorities to react only to “major” adverse shocks.

Is there a case for fiscal acyclicity?

- Empirical methodology for taxonomy focus on binary classification of states: either pro or countercyclical.
- Behavior and rules indicate goal of “acyclical” fiscal policies.
- If intervention is costly, it might be worth doing nothing when shocks are small. Acyclical fiscal policy.

Main Contributions

- It provides a rationale for acyclical fiscal policies
 - There is an optimal response of governments that must pay an intervention cost that outweighs the benefits of countercyclical policies
- Empirical methodology for a new taxonomy with three states
 - Pro, counter, and acyclical policy
- The effects of the fiscal stance on:
 - Output instability, price instability, long-run economic growth, and fiscal sustainability .

Conceptual Framework

- Simple cost-benefit analysis. Government minimizes loss function:

$$L = \alpha(y_t - y^*)^2$$

- A reduced form for equilibrium output:

$$y_t - y^* = z_t + \theta(g_t - \bar{g}) + \beta(a_t - \bar{a})$$

- In a frictionless economy, the optimal fiscal policy would be:

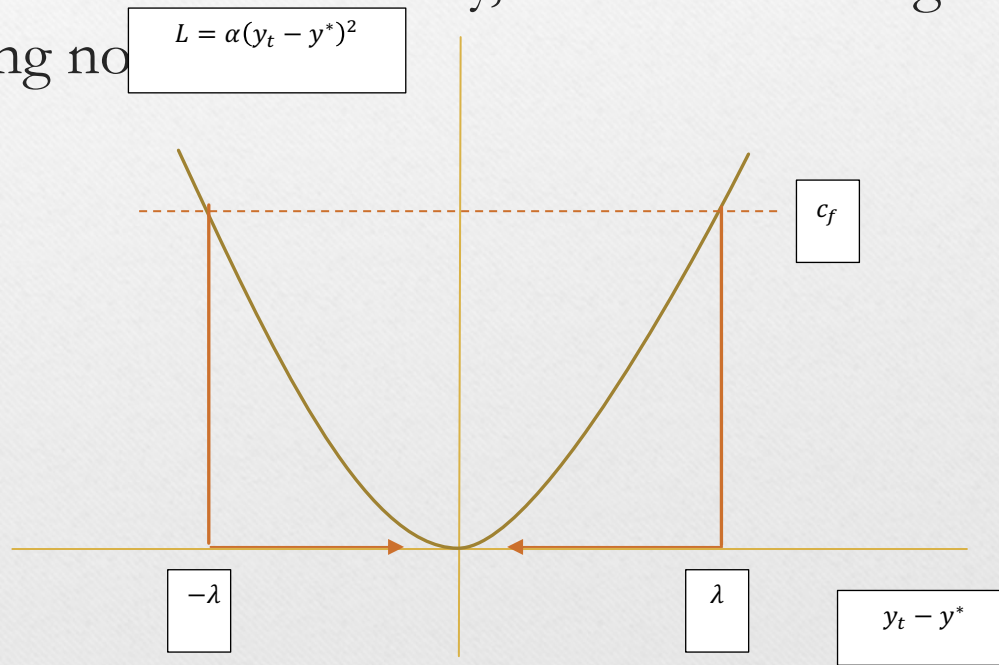
$$(g_t - \bar{g}) = -\frac{z_t}{\theta} z_t - \frac{\beta(a_t - \bar{a})}{\theta}$$

- If the government must pay an intervention cost c_f , then

$$(g_t - \bar{g}) = \begin{cases} -\frac{z_t}{\theta} z_t - \frac{\beta(a_t - \bar{a})}{\theta} & \text{if } \alpha(y_t - y^*)^2 > c_f \\ 0 & \text{if } \alpha(y_t - y^*)^2 < c_f \end{cases}$$

The Reaction Function

- If intervention is costly, sometimes it might be worth doing no



Cost of Intervention

- Economics reasons for the intervention cost
 - *Uncertainty*: Magnitude of the shocks and persistence → wait and see
 - *Lack of expertise* to know what policy works better
 - *Indebtedness limitations*: Active fiscal policy requires to have access to the debt market. Period of low interest rate my help.
- Political reasons for the intervention cost
 - *Vested interests*: People who receive the benefits could be different than those who pay the cost.

Methodology for a New Taxonomy

- Literature focus on
 - Correlation ($\hat{\rho}$) between cyclical components of Real GDP and Government Expenditures (general, central) by time periods (decades). Unconditional. Hamilton Filter.
 - Regression analysis. Conditional.
- Binary taxonomy:
 - Positive correlation=procyclical
 - Negative correlation = countercyclical
- Correlations are random variables. Statistical tests needed.

Methodology for a New Taxonomy

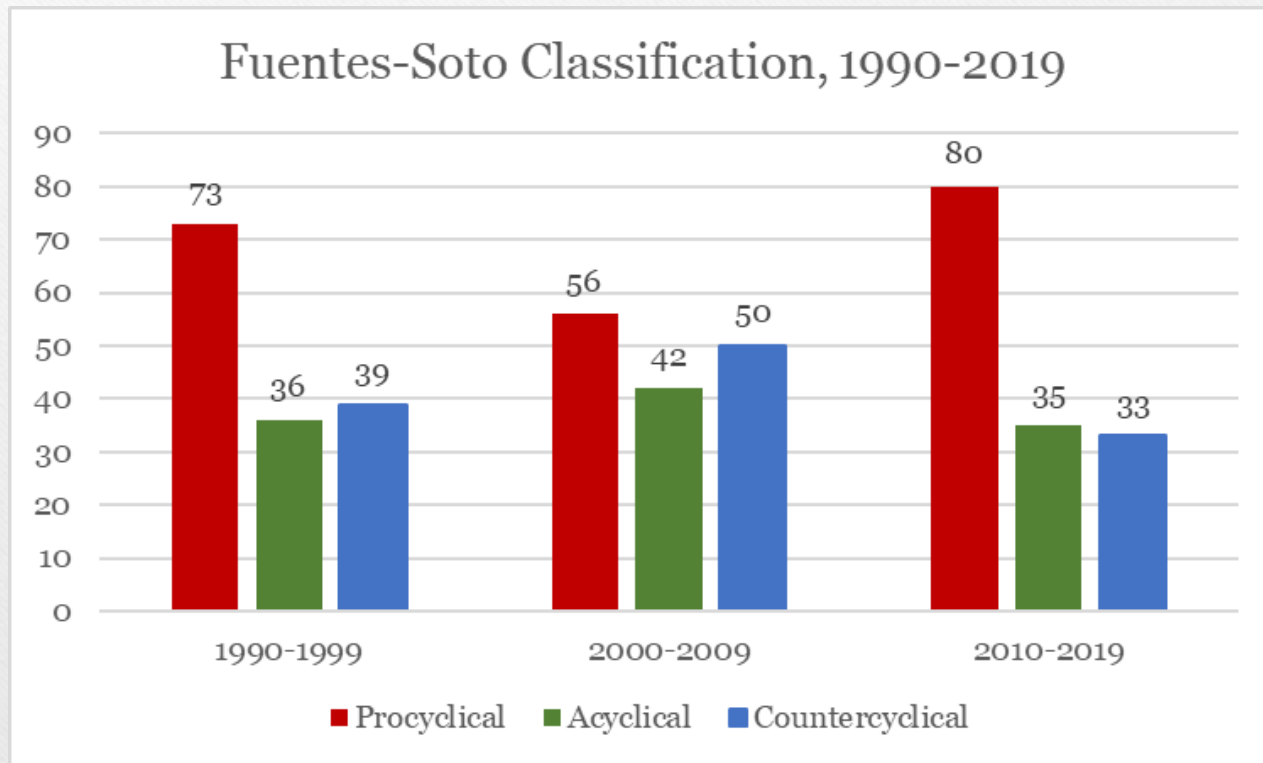
- Fischer z-test: $z = \frac{1}{2} \ln \left(\frac{1+\hat{\rho}}{1-\hat{\rho}} \right) \sim N \left(\frac{1}{2} \ln \left(\frac{1+\rho}{1-\rho} \right), \frac{1}{N-3} \right)$
- Build a 95% confidence interval for the null of no correlation $z \in \left[\frac{-2.24}{\sqrt{N-3}}, \frac{2.24}{\sqrt{N-3}} \right]$.
- Procyclical (right), countercyclical (left)
- 148 countries, 1980-2019, IMF WEO database
- Drop 2020-2021 (Covid years)

New Taxonomy and New Evidence

- Vis-à-vis 1990-1999 and 2000-2009, adding 2010-2019 allows to check on:
 - “Recent graduates” that later fell into procyclicality (Swallow). *Pro* → *Counter* → *Pro*
 - “Back to school” that leave procyclicality behind (Repentant) *Counter* → *Pro* → *Counter*

	Period 1: pre-2000	Period 2: 2000-2009	Period 3: 2010-2019
<i>Established Graduate</i>	Acyclical or Countercyclical	Acyclical or Countercyclical	Acyclical or Countercyclical
<i>Recent Graduates I</i>	Procyclical	Procyclical	Acyclical or Countercyclical
<i>Recent Graduates II</i>	Procyclical	Acyclical or Countercyclical	Acyclical or Countercyclical
<i>Repentant</i>	Acyclical or Countercyclical	Procyclical	Acyclical or Countercyclical
<i>Swallows</i>	Procyclical	Acyclical or Countercyclical	Procyclical
<i>Back to School I</i>	Acyclical or Countercyclical	Procyclical	Procyclical
<i>Back to School II</i>	Acyclical or Countercyclical	Acyclical or Countercyclical	Procyclical
<i>Still in School</i>	Procyclical	Procyclical	Procyclical

Taxonomy of Fiscal Policy



Taxonomy of Fiscal Policy

	Countercyclical	Acyclical	Procyclical
Developed Economies	Austria, Belgium, Canada, Denmark, Finland, France, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, United Kingdom, United States	Australia, Portugal	Germany, Greece, Iceland

Taxonomy of Fiscal Policy

	Countercyclical	Acyclical	Procyclical
East Asia & Pacific	Hong Kong, Singapore, Thailand	Brunei Darussalam, China, Fiji Indonesia, Korea, Malaysia, Samoa	Kiribati, Mongolia, Papua New Guinea, Philippines, Solomon Islands, Vanuatu
Emerging Europe & Central Asia		Cyprus, Latvia, Poland, Turkey, Uzbekistan	Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Hungary, Romania
Latin America & Caribbean	Mexico	Bahamas, Barbados, Chile, Costa Rica, Dominica El Salvador, Jamaica, Nicaragua	Antigua and Barbuda, Argentina, Belize, Bolivia, Brazil, Colombia, Dominican Republic, Ecuador, Grenada, Guatemala, Haiti, Honduras, Panama, Paraguay, Peru, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela
Middle East & North Africa	Bahrain, Kuwait, United Arab Emirates	Algeria, Egypt, Tunisia	Djibouti, Iran, Israel, Jordan, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Yemen
South Asia		India, Maldives, Sri Lanka	Bangladesh, Bhutan, Pakistan
Sub-Saharan Africa	Equatorial Guinea, Guinea, Uganda	Benin, Botswana, Chad, Comoros, Cote d'Ivoire, Gambia, Kenya, Lesotho, Malawi, Mauritius, Sao Tome and Principe, Togo, Zambia	Angola, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Congo, Eswatini, Ethiopia, Gabon, Ghana, Guinea-Bissau, Madagascar, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Zimbabwe

Macroeconomic variables

- The relationship between fiscal policy stance on:
 - Annual economic growth
 - Long term economic growth (GDP per capita growth)
 - Price instability (normalized inflation)
 - Government to GDP ratio

Unconditional Evidence 1980-2019, selected variables

	Procyclical	Acyclical	Countercyclical
Std. Deviation of Business Cycles (%)	8.2	3.5	6.9
Std. Deviation of TOT Cycles (%)	16.9	19.5	13.4
Std. Deviation of RER Cycles (%)	9.1	5.4	22.1
Economic Growth (% annual)	3.9	4.3	3.3
Per capita GDP growth (% annual)	2.1	2.3	2.1
Price Instability (% annual)	5.6	3.4	3.0
Fiscal Balance (% GDP)	-2.3	-2.0	-2.4
Government Debt (% GDP)	43.9	34.1	46.2

Source: own elaboration

Conditional evidence

	Growth instability	Inflation (normalized)	Growth GDP per capita	Debt to GDP ratio
Acyclical economy	-0.002	0.052	5.451	0.298
	(0.041)	(0.000)	(0.000)	(0.000)
Procyclical economy	0.000	0.064	5.221	0.288
	(0.843)	(0.000)	(0.000)	(0.000)
Countercyclical economy	0.002	0.026	4.920	0.289
	(0.407)	(0.002)	(0.000)	(0.000)
Observations	148	130	145	133
R-squared	0.443	0.685	0.670	0.848

The control variables for growth instability are government expenditure instability, normalized inflation; for inflation are TOT instability, government expenditure instability and broad money over GDP (%); for growth of GDP per capita are initial GDP (1990), TOT instability and government expenditure instability; for debt TOT instability, RER instability, government expenditure instability and dependency ratio in the population (inactive population over total population).

Concludings remarks

- Stabilization is one of the primary goals of macroeconomic policy.
 - Revealed policymakers' preferences signaled that acyclical fiscal policy is the primary goal of several economies
 - Costly active policy makes an acyclical policy more suitable
- New taxonomy of fiscal stance
- This classification matters for empirical analysis

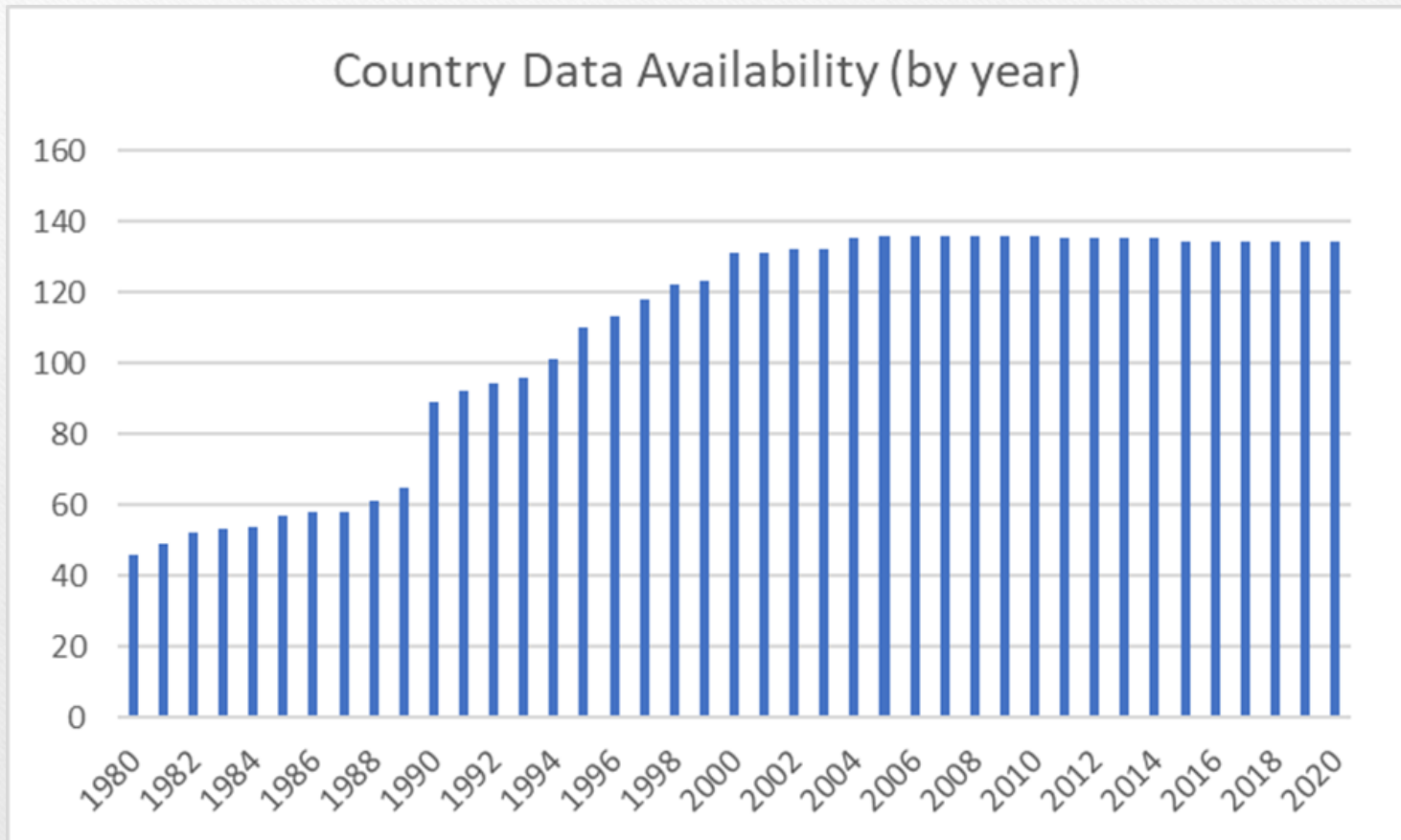
THANK YOU!

Appendix

Fiscal Procyclicality

- Causes for procyclical fiscal policy
 - Liquidity constraints (no debt issuing in bad time) (Gavin and Perotti, 1997)
 - Political weakness & irresponsibility (Velasco, 1997; Talvi and Vegh, 2005)
 - Absence of proper fiscal institutions (Frenkel, Vegh and Vuletin, 2013)
 - Sovereign debt buildups and endogenous default (Niemann & Pichler, 2020)

Fiscal Data



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<i>Back to School II</i>	Acyclical or Countercyclical	Acyclical or Countercyclical	Procyclical
<i>Still in School</i>	Procyclical	Procyclical	Procyclical

Reproducing FVV

- FS data is for 1990-2019, FVV is for 1980-2009.
- We have data for 91 out of 94 countries analyzed by FVV (3 countries do not have data for 2010-2019).
- There is coincidence in 31 cases.

Our classification vis-à-vis FVV

	Frankel, Vegh, and Vuletin				
Fuentes Soto	Established Graduate	Recent Graduate	Back to School	Still in School	Total
Established Graduate	12	8	4	6	30
Recent Graduate	0	6	0	8	14
Swallow	0	3	1	8	12
Repentant	2	0	0	2	4
Back to School	1	7	2	9	19
Still in School	0	1	0	11	12
Total	15	25	7	44	91

Changes in classification and institutions (ICRG-4)

FVV Classification	Average IQ change 2009-2000 vs 1999-1990	Average IQ change 2019-2010 vs 2009-2000
Recent Graduate	0.0181	-0.004
Established Graduate	0.0386	-0.023
Back to School	0.0297	-0.011
Still in School	0.0081	0.008

Note: institutional quality is defined as in FVV (2013), i.e., the average of four normalized indices in the ICRG database: Investment Profile, Control of Corruption, Law and Order, and Bureaucratic Quality.