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Fiscal fragility and fiscal space - 10 years after the GFC

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Overview of Aizenman et al., 2018, NBER WP 25012,

https://www.nber.org/papers/w25012

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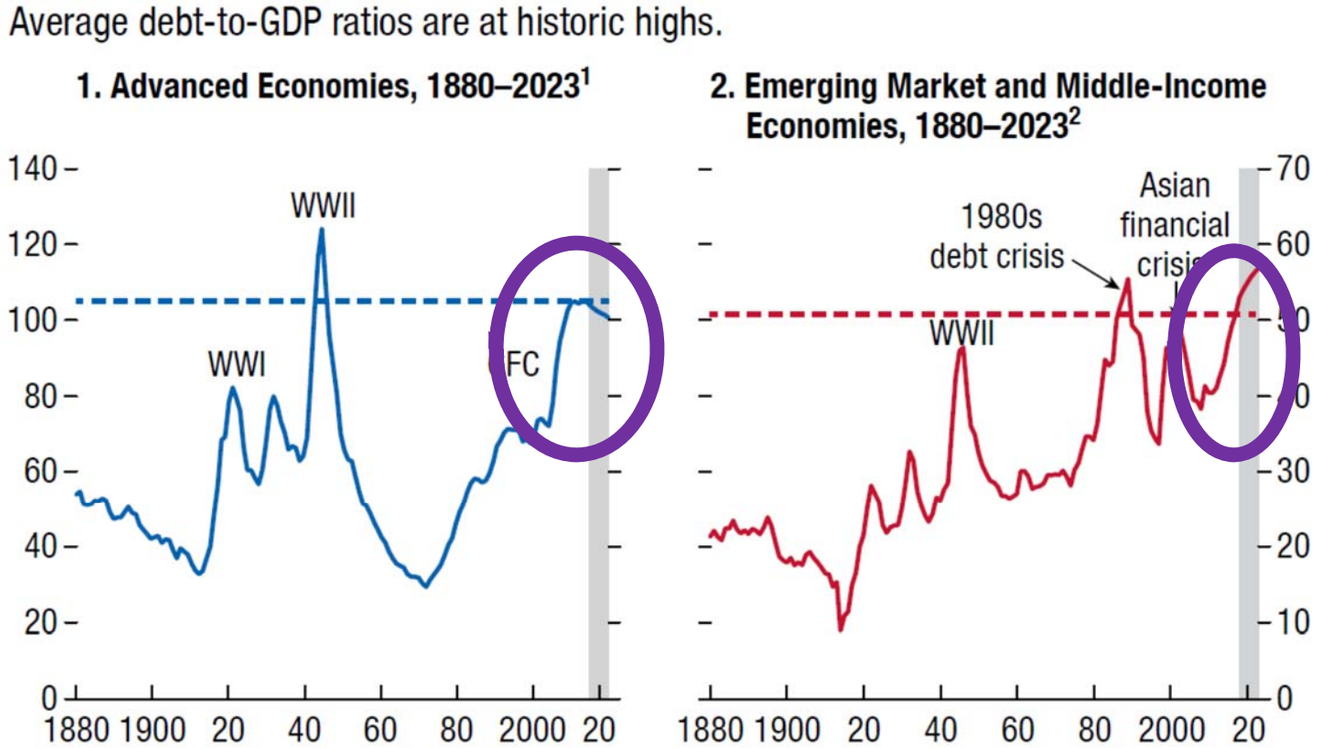
The policies triggered by the GFC [bailing out 'systemic players,' fiscal stimuli, QEs], & lower GDP growth rates pushed public debt/GDP ratios towards historic highs. Source: IMF Fiscal Monitor 2018



The post-GFC trajectory failed to deal with leverage concerns:

The global total of $184 trillion in debt at the end of 2017, about 225% of global

GDP, close to two-thirds is nonfinancial private debt and the remainder is public debt. Compared with the previous peak in 2009, the world is now 12% of GDP deeper in debt, reflecting a pickup in both public and nonfinancial private sector debt after a short hiatus. All income groups have experienced increases in total debt, but, by far, emerging market economies are in the lead.

- **Stabilizing a crisis triggered by an unsustainable leverage-growth in turn triggered a potentially untenable increase in leverage/GDP ratios.**
- **The decline of policy interest rates and risk premia in the aftermath of the GFC reduced the costs of serving the growing public and private debt, thus masking the growing fragility associated with rising aggregate leverage/GDP during the last 10 years.**

This masking period may be over. The robust recovery of the U.S. (so far); the gradual unwinding of FED's balance sheet; the more tepid recovery of the Eurozone, and the weakening global expansion impose growing fiscal challenges that will test countries' fiscal space and their ability to cope with higher interest rates and sovereign spreads. The latest IMF global outlook cites numerous factors contributing to fiscal headwind challenges [German recessionary trend, Italy's fiscal challenges, the slowing growth of China, Turkey's recession, and the continuation of uncertainty regarding trade wars].

Common textbook prescription -- when there is a sharp decline in economic activity of an uncertain duration, government intervention should take the form of an expansionary fiscal policy.
Yet, the viability of this option hinges upon the degree to which the government has elastic access to borrowing.

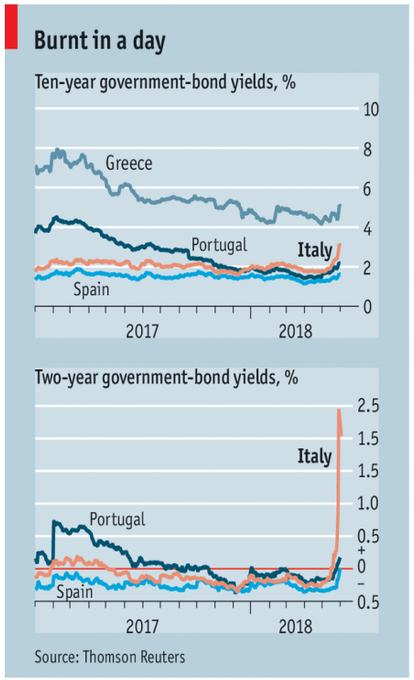
In the past, this has been the case for most OECD countries, allowing them to contemplate both tax cuts and fiscal expansions in recessionary times.

In contrast, developing countries and emerging markets with a low tax base and a large public debt burden have a limited fiscal space -- cutting taxes or increasing government expenditure in recessionary times will increase the interest rate on their public debt, dampening thereby the stimulus and increasing the cost of serving the debt overhang.

Gaining more fiscal space for heavily indebted countries requires practicing more countercyclical policies in good times, allowing them to repay more of their debt in expansions, thereby increasing their **fiscal space** in recessions.

The rapid increase in public debt/GDP of most OECD countries in recent years implies that the old fiscal dichotomy between the fiscal space of the OECD and other countries is blurred by now. Examples -- Belgium, Greece, Italy, Iceland and Ireland in recent years. Thereby, greater countercyclicality in good times may be the key for securing greater fiscal space in future rescissions.

Recent example of EZ and global fragility: FT, June 1st 2018



The Economist, May 31, 2018: Italy is slow-growing and groans under public debt of around €2.3trn, 132% of GDP.

The yield on Italian two-year bonds, negative as recently as May 15th, leapt to 2.73%, the highest since 2013, before retreating.

Banks in Italy, holders of €600bn of government bonds, were hit hardest.

Under ECB's QE programme, which has held down borrowing costs across the euro area, the ECB has bought €340bn Italian bonds; it holds around a sixth of the stock.

It has been a willing buyer as foreigners have quit.

Procyclicality of fiscal policy is a major amplifier of developing and EMs countries' vulnerability to shocks [Gavin et al. (1996)].

A key resilience margin is fiscal space — the availability of a countercyclical fiscal policy aimed at mitigating business cycles and preventing a prolonged depression in the aftermath of financial crises [Ostry et. al (2010), Auerbach (2011)].

- Over the last two decades a growing share of developing countries' fiscal policies and EMEs have become countercyclical [Frankel (2011) and Frankel, Vegh, and Vuletin (2013)].
- Woo (2009) - evidence that social polarization is positively associated with fiscal procyclicality, controlling for other determinants from existing theories. He also found a robust negative impact of fiscal procyclicality on economic growth.

Against this background, Aizenman, Jinjarak, Nguyen, Park (NBER WP 25012, https://www.nber.org/papers/w25012) **compare fiscal cyclicality across countries and time, and identify factors that explain countries' fiscal space and fiscal fragility.**

Results

1. **A mixed fiscal scenery -- more than half of the countries are characterized by limited fiscal space, and their fiscal policy is either pro- or acyclical.**
2. **More limited fiscal capacity; measured by public debt/tax base and its volatility, are positively associated with fiscal cyclicality.**
3. **Public debt/tax base provides a more robust explanation than public debt/GDP for government spending cyclicality.**
4. **Public debt/tax base measures how many years it would take for a country to pay back its debt if net borrowing is zero.**
   It is akin the net debt to earnings before interest depreciation and amortization ratio in the corporate sector[=Debt / EBITDA]: a measurement of leverage, how many years it would take for a company to pay back its debt if net borrowing is zero; used frequently by credit rating agencies; where values approaching 4, and above **5** indicate heightened fragility.

5. A more indebted (relative to tax base) government spends more in good times and cuts back spending indifferently compared with a low-debt country in bad times.
6. Country's sovereign wealth fund has a countercyclical effect in our estimation.
7. We simulate an enduring interest-rate rise on fiscal space, rank countries and regions by the fragility of their fiscal space to such a shock, and discuss policies to increase fiscal resilience. A 10% increase of public debt/tax base ratio is associated with about 6 % increase in government-spending procyclicality.
8. Iraq, Egypt, Greece, Libya, Yemen, Jamaica show limited fiscal capacity based on the 2010–2016 data, accumulating public debt four to eight times larger than their tax base. Fiscally fragile countries are mostly in Sub-Saharan Africa (Republic of Congo, Nigeria, Rwanda, Seychelles) and a few cases in East Asia and the Pacific (Vietnam, Indonesia, Cambodia).

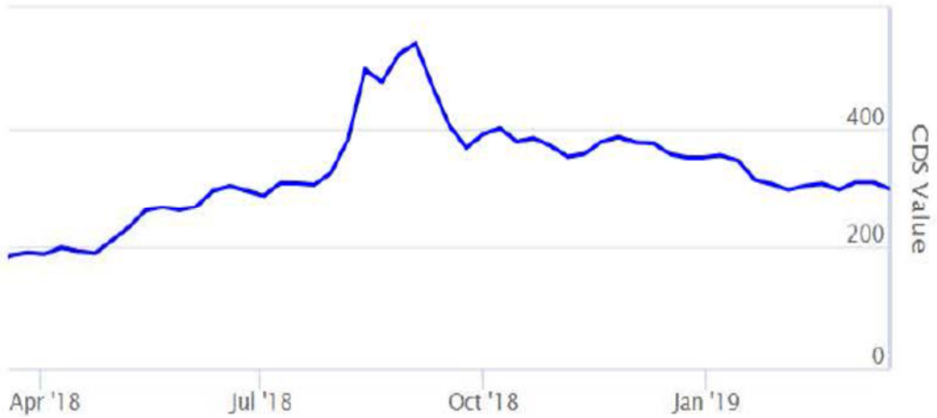
Cautionary notes: The post GFC (Global financial crisis) low interest rates, the ZLB and QEs imply that the ECB's and FED's policies have first order fiscal repercussions: the lower sovereign spreads benefited the EZ debtors countries, at a cost to their creditors.

This raises complex governance challenges, risking CBs' independence, and increasing the odds of turbulences associated with fiscal fragilities in weaker EZ countries.

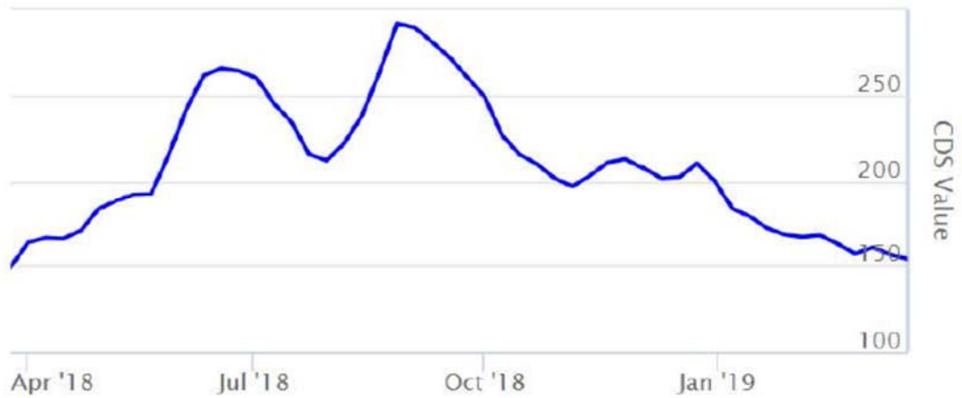
Specifically, shrinking fiscal space implies growing fiscal dominance of countries relaying on external funding and volatile sovereign spreads.

Fiscal dominance *occurs when a country has a large government debt and deficit such that monetary policy targets keeping the government from bankruptcy as opposed to economic targets such as inflation, growth and employment*.

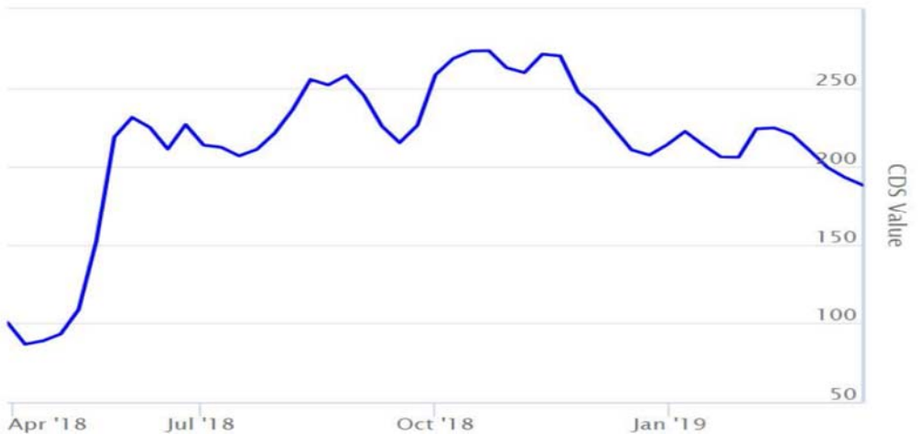
EMs debt/GDP continues to grow. A major concern in countries where sovereign spreads are volatile: Turkey, Brazil, Italy, Argentina; CDS spreads last year; bp. Source: http://www.worldgovernmentbonds.com/sovereign-cds/



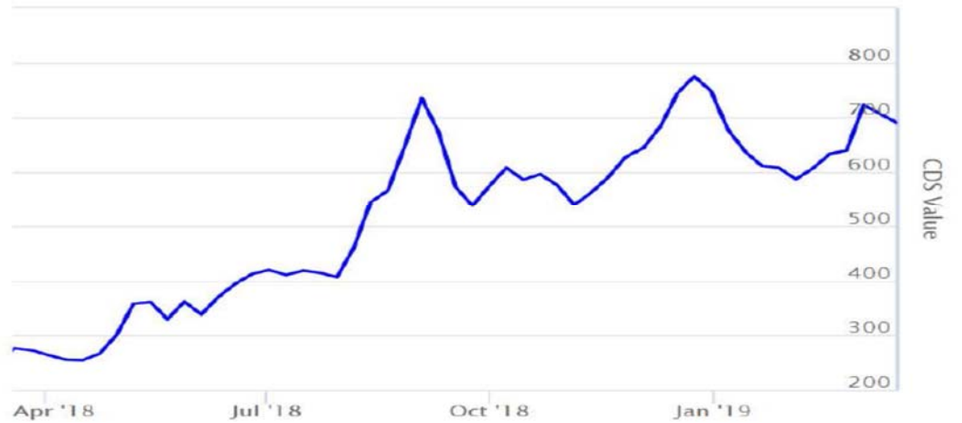
Turkey 5 y. CDS spread, range **150-565 bp**



Brazil 5 y. CDS spread, range **150-305 bp**



Italy 5 y. CDS spread, range **85 - 285 bp**



Argentina 5 y. CDS spread, range **280-760 bp**

Sovereign default is not an issue facing China & the US, though debt overhang concerns are looming

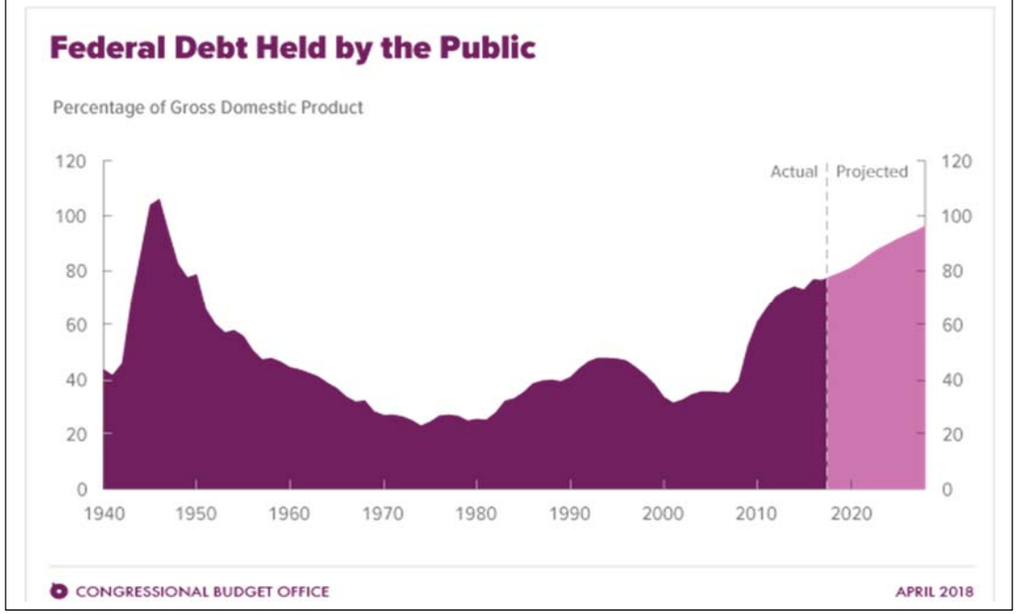
Citibank, 3/2019 We believe that this (*debt overhang*) is causing Chinese policymakers to switch more and more frequently between the targets of financial stability and economic growth, pursuing each target for a shorter period of time and less intensively.

NATIXIS 3/2019

We do not expect the debt problem to pose any crisis-level threats.

…Still, China will not be able to avoid the consequences of an over-leverage economy, as it drags down consumption and investment.

OCT 16, 2018, Trump: the FED is his "biggest threat." "The Fed is raising rates too fast and it's independent so I don't speak to [him]," "I'm not happy with what he's doing," Trump said of Powell. https://www.cnn.com/2018/10/16/economy/trump-fed-threat-fox-interview/index.html



Concluding Remarks

- A mixed fiscal environment in which more than half of the countries in the study are characterized by limited fiscal space and fiscal policy is either pro- or acyclical.
- Public debt/average tax base is a robust measure of limited fiscal space, more informative than public debt/GDP.
- The cyclicality is asymmetric: on average, a more indebted government spends more in good times and cuts back indifferently compared with a low-debt country in bad times.
- Countries could use the global recovery as an opportune time to invest in greater fiscal space, which could be done by increasing the tax base.
- Countries could also benefit by investing in countercyclical fiscal buffers, including the accumulation of Sovereign Wealth Fund in good times to mitigate tax revenue shortfalls in bad times [e.g., Chile, Norway, Russia].

- Our results probably understate the fiscal fragility of countries -- we are not controlling fully for possible secondary effects associated with higher sovereign risk premia of exposed EMs [e.g., EMs relying on external funding, and borrowing in hard currencies].

Thanks for your attention

Table 1 Empirical literature on estimation of fiscal-policy cyclicality.

Studies	Methodology	Measurement of fiscal cyclicality	Sample	Key findings
Lane (2003)	$\Delta\, log(G_{it}) = \alpha_i + \beta_i * \Delta\, log(Y_{it}) + \varepsilon_{it}$ (1) $\widehat{\beta}_i = \alpha_0 + \alpha_1 Z_i + \varepsilon_i$ (2) *G*: various components of government spending *Y*: real GDP *Z*: control variables (1): Country regression using OLS procedure with a correction for AR(1) in the residuals; (2): WLS.	$\beta_i > 0$: procyclicality $\beta_i < 0$: countercyclicality	22 OECD countries 1960–1998	The level of procyclicality varies across spending categories and countries. Volatile output and dispersed political power are associated with government spending procyclicality.
Kaminsky et al. (2004)	*ρ(GS,OG), φ(inflationtax,OG)* *ρ*, *φ*: country correlation coefficient *GS*: cyclical government spending; *OG*: output gap. The cyclical series are estimated by the Hodrick-Prescott filter method.	$\rho > 0$: procyclicality $\rho < 0$: countercyclicality $\varphi > 0$: countercyclicality $\varphi < 0$: procyclicality	104 countries 1960–2003	Most OECD countries have countercyclical fiscal policy while most of developing countries have procyclical fiscal policy.
Talvi and Végh (2005)	*ρ(FC,OG), φ(inflationtax,OG)* *ρ*, *φ*: country correlation coefficient *FC*: cyclical government consumption, cyclical revenue; *OG*: output gap. The cyclical series are estimated by the Hodrick-Prescott filter method.	$\rho > 0$: procyclicality $\rho < 0$: countercyclicality $\varphi > 0$: countercyclicality $\varphi < 0$: procyclicality	56 countries 1970–1994	Fiscal revenues are procyclical in both developing and industrial countries. Government consumption in the G7 countries is acyclical when that in non-G7 industrial countries and developing countries is procyclical. Inflation tax rate is countercyclical in industrial countries and procyclical in developing countries.
Aghion and Marinescu (2007)	$\frac{b_{1t}-b_{i,t-1}}{y_{it}} = -a_{1it} y_{gap,it} + a_{2it} + \varepsilon_{it}$ (1) *b*: gross government debt *y*: GDP y_{gap} is computed using Hodrick-Prescott filter (1): 10-year centered rolling window; local Gaussian-weighted OLS; AR(1) Markov Chain Monte Carlo process	$a_{1it} > 0$: countercyclical $a_{1it} < 0$: procyclical	19 OECD countries 1961–2005	The budget deficit has become increasingly countercyclical in most OECD countries over the past 20 years. However, this trend has been significantly less pronounced in the EMU.

Alesina et al. (2008)	$\Delta F_{it} = \alpha_i + \beta_i * OG_{it} + \gamma X_{it} + \lambda F_{it-1} + \nu_t + \varepsilon_{it}$ (1) *F*: government surplus or public spending; *OG*: output gap, *X*: control variables. *OG* is estimated by the Hodrick-Prescott filter method. (1): Fixed Effects where *OG* of country *i* is instrumented by *OG* of the region of country *i*. Alternatively, (1) is estimated by country to get $\widehat{\beta_i}$ and then run cross-country regression of $\widehat{\beta_i}$ on X_i.	β_i is interpreted depending on the fiscal policy variable	83 countries 1960–2003	Fiscal policy is procyclical in many developing countries. Political distortion (i.e. corruption) is positively correlated with procyclicality of fiscal policy.
Ilzetzki and Végh (2008)	$\Delta log(GS_{it}) = \alpha_i + \beta_i * \Delta log(Y_{it}) + \varepsilon_{it}$ (1) *Y*: output, *GS*: government spending, or its components (1) is regressed using alternative methods include 2SLS, GMM, OLS estimation of simultaneous equations, Granger causality tests, VAR.	$\beta_i > 0$: procyclicality $\beta_i < 0$: countercyclicality	49 countries 1960–2006	Fiscal policy is always procyclical in developing countries and acyclical/procyclical in high-income countries.
Woo (2009)	$\Delta log\ GS_{it} = \alpha_i + \beta_i * \Delta log\ Y_{it} + \varepsilon_{it}$ (1) $\widehat{\beta_i} = \alpha_0 + \alpha_1(\text{Social polarization})_i + \phi X_i + \varepsilon_i$ (2) *GS*: real general government spending *Y*: real GDP *X*: control variables (1): Country regression using Prais-Winsten procedure; (2): OLS, WLS.	$\beta_i > 0$: procyclicality $\beta i < 0$: countercyclicality	96 countries 1960–2003	Developing countries are more procyclical than OECD countries. Latin America is the most fiscally procyclical region, followed by Sub-Saharan Africa and East Asian. Income inequality and educational inequality is positively associated with fiscal procyclicality.
Végh and Vuletin (2015)	$Tax_{it} = \alpha_i + \beta_i * OG_{it} + \varepsilon_{it}$ (1) $\Delta Taxrate_{it} = \alpha_i + \beta_i * \Delta log(RGDP_{it}) + \varepsilon_{it}$ (2) *Tax*: Inflation tax, cyclical component of revenues, and Revenues/GDP *OG*: output gap *Taxrate*: VAT, PIT, CIT, Tax index The cyclical series are estimated by the Hodrick-Prescott filter method. (1): Fixed Effects (2): Fixed Effects, Instrumental Variables	β_i is interpreted depending on the fiscal policy variable	62 countries 1960–2013	Tax policy is acyclical in industrial countries but mostly procyclical in developing countries. Better institutional quality (less corruption and more bureaucratic quality) and more financially integration are associated with less procyclical/more countercyclical fiscal policy.
Guerguil et al. (2017)	$\Delta logG_{it} = \alpha_{it} + \delta_{it} * \Delta logG_{it-1} + \beta_{it} * \Delta logY_{it} + \gamma_{it} * X_{it} + \varepsilon_{it}$ (1) *Y*: real GDP *G*: public spending (total spending or investment spending) *X*: control variables (1): Local Gaussian-Weighted OLS	$\beta_{it} < 0$: countercyclicality $\beta_{it} > 0$: procyclicality	167 countries 1990–2012	Total public spending was countercyclical in both fiscal-rule countries and non-fiscal rule countries but the degree of countercyclicality is more pronounced in the former group.

				In contrast, investment spending was procyclical in both groups and it is more procyclical in the fiscal-rule countries.