

Fiscal Pro-cyclicality and Optimistic Forecasts

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Fiscal policy has two jobs (macroeconomically).

- Long run: keep enough budget discipline on average to ensure debt is sustainable.
- Medium run: keep fiscal policy counter-cyclical.
 - Or, if counter-cyclical is too difficult, at least don't allow it to be *pro*-cyclical.

Pro-cyclicality



Fiscal policy has historically tended to be pro-cyclical in most developing countries, thereby worsening ups & downs in the economic cycle.

- Correlation of income & spending mostly positive:
 - Cuddington (1989), Gavin & Perotti (1997), Tornell & Lane (1999), Kaminsky, Reinhart & Végh (2004), Talvi & Végh (2005), Alesina, Mendoza & Oviedo (2006), Campante & Tabellini (2008), Ilzetski & Végh (2008), Medas & Zakharova (2009), Erbil (2011), Céspedes & Velasco (2014), Bova, Carcenac & Guerguil (2014), Avellan & Vuletin (2015), Végh, Lederman & Bennett (2017).
- Tax policy tends to be pro-cyclical as well:
 - Végh & Vuletin (2015).

Why do leaders fail to take advantage of boom times to strengthen the budget?

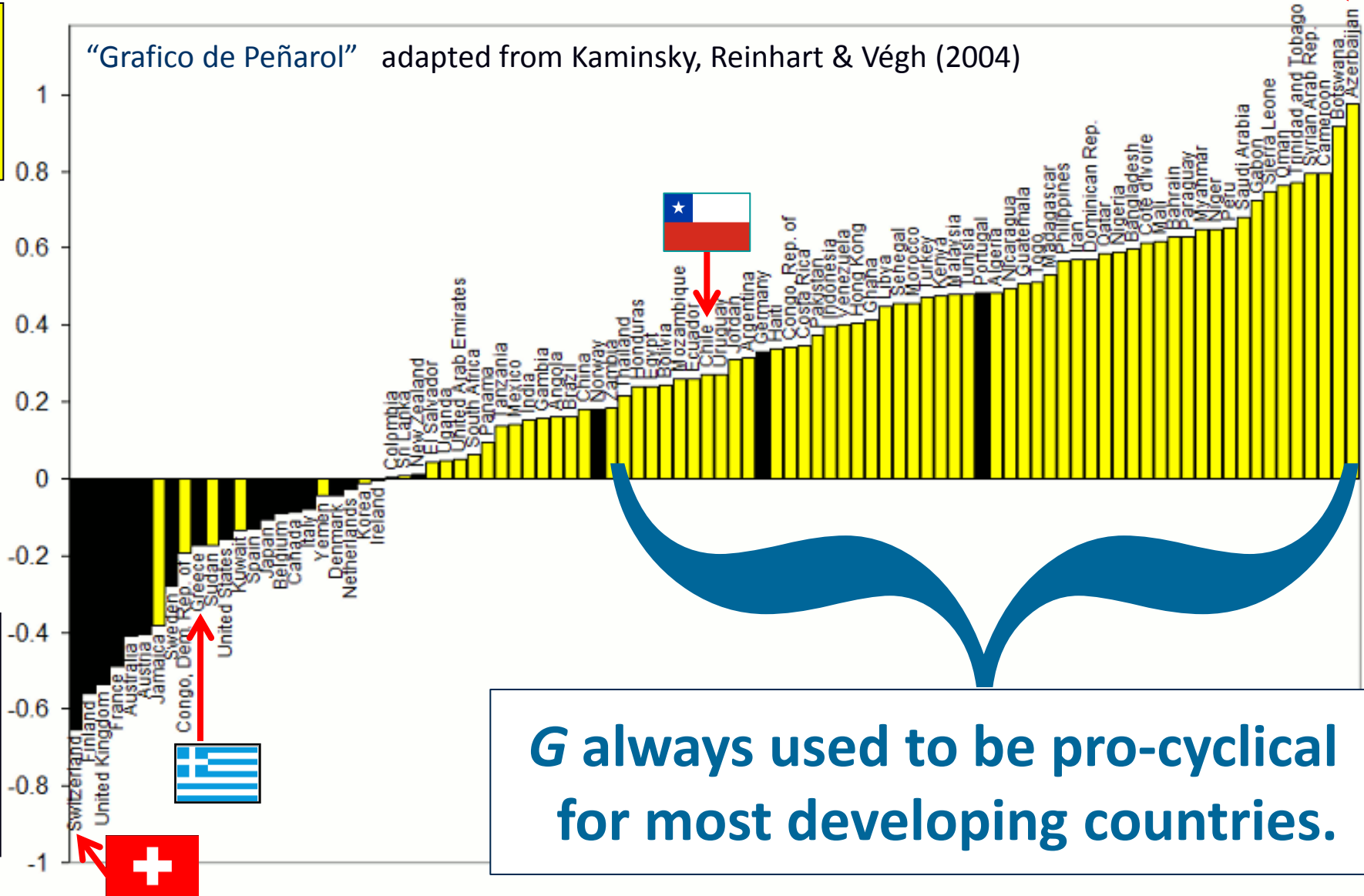
- People don't see the need to "fix the hole in the roof when the sun is shining."
 - They may see the mistake when the storm hits,
 - but then it is too late.
- My claim: Official forecasts are over-optimistic in boom periods, rationalizing the failure to act
 - according to data from 33 countries.



Correlations between Gov.t Spending & GDP 1960-1999



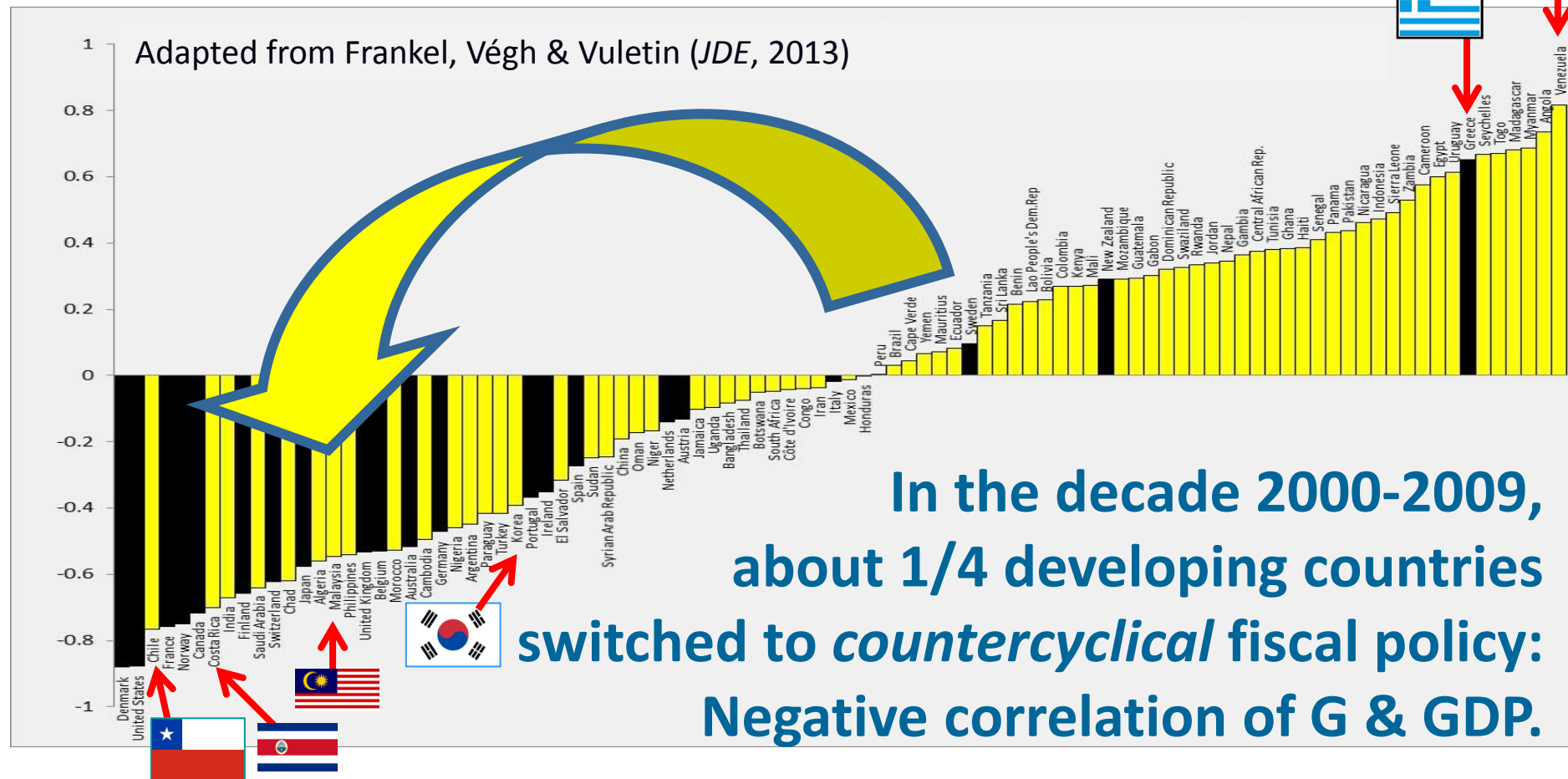
"Grafico de Peñarol" adapted from Kaminsky, Reinhart & Végh (2004)



The procyclicality of fiscal policy, cont.

- An important development -- some developing countries were able to break the historic pattern after 2000:
 - taking advantage of the boom of 2002-2008
 - to run budget surpluses & build reserves,
 - thereby earning the ability to expand fiscally in the 2008-09 crisis.
 - Chile, Costa Rica, Botswana, Malaysia, S. Korea... 
- Subsequently, some went back to full pro-cyclicality,
 - e.g., Argentina, Brazil, & Ecuador.

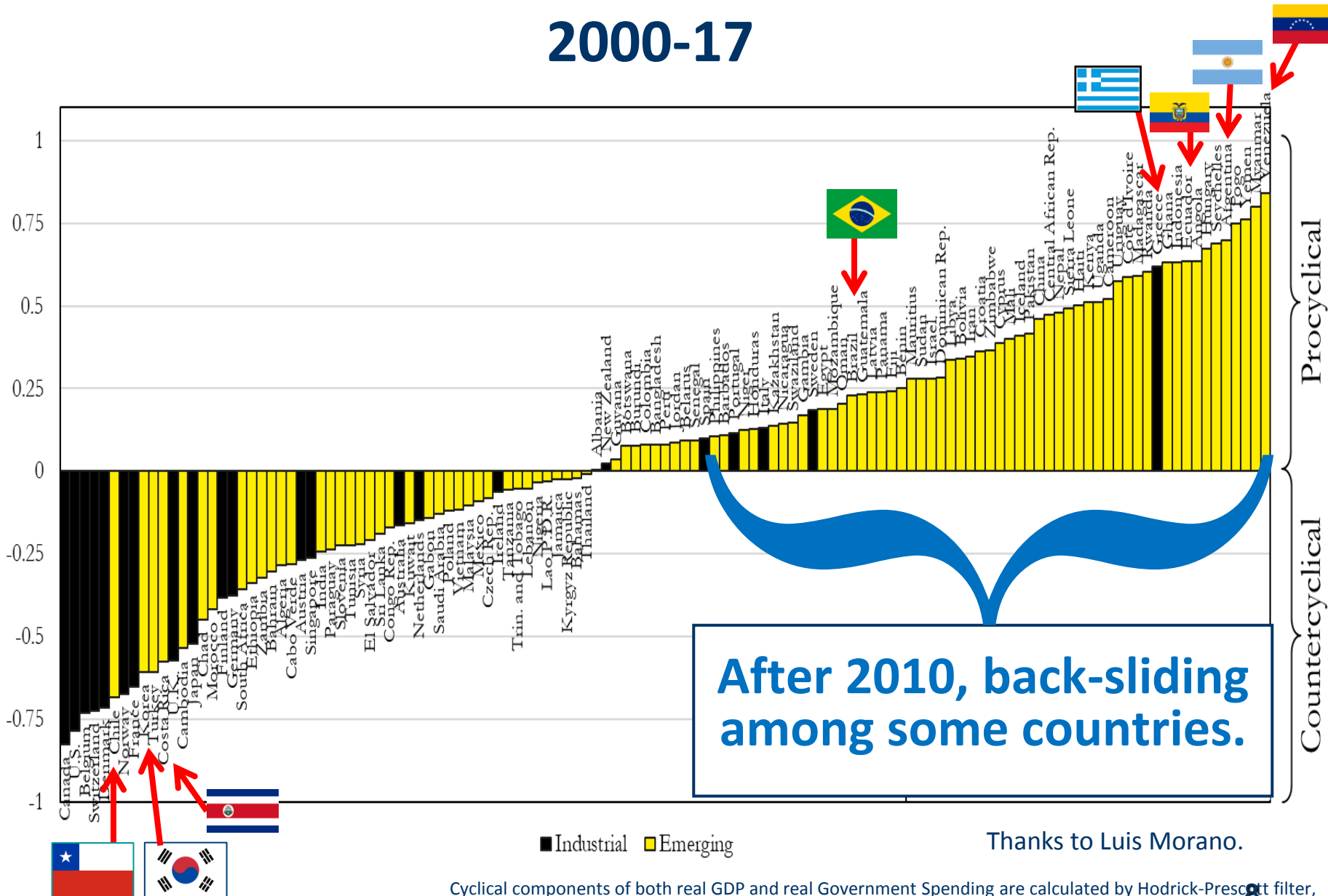
Correlations between Government spending & GDP 2000-2009



DEVELOPING: 43% (or 32 out of 75) countercyclical. Was 17% (or 13 out of 75) in 1960-99.
ADVANCED: 86% (or 18 out of 21) countercyclical. Was 80% (or 16 out of 20) in 1960-99.

Update of Correlation (Govt spending, GDP): 2000-17

Correlation between cyclical components of real government spending and real GDP 2000-2017



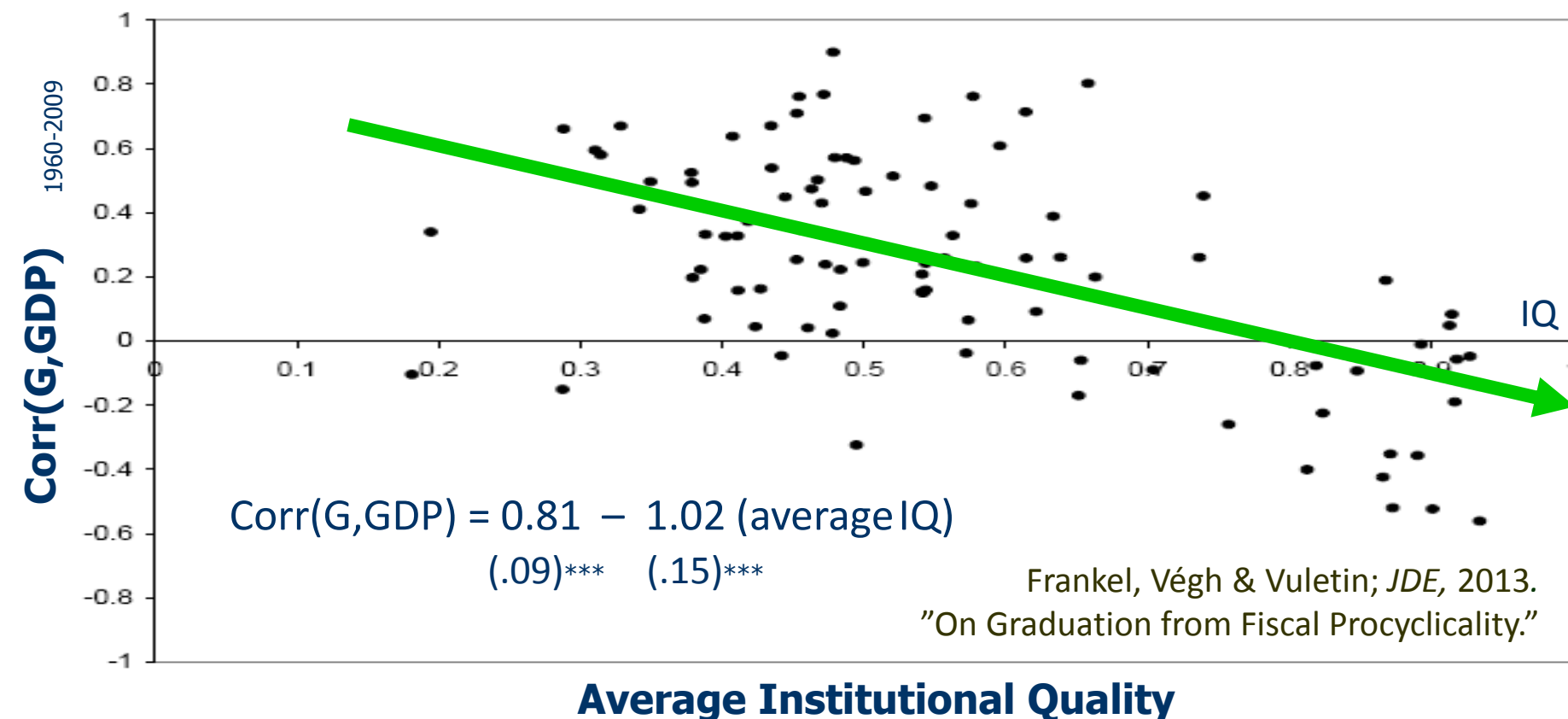
Thanks to Luis Morano.

Cyclical components of both real GDP and real Government Spending are calculated by Hodrick-Prescott filter, using 6.25 as smoothing parameter and extracting the cyclical components from the series of the level.

Who achieves countercyclical fiscal policy?

Countries with “good institutions”

Country correlations between the cyclical components of the real government expenditure and real GDP (1960-2009) vs. average institutional quality (1984-2008)



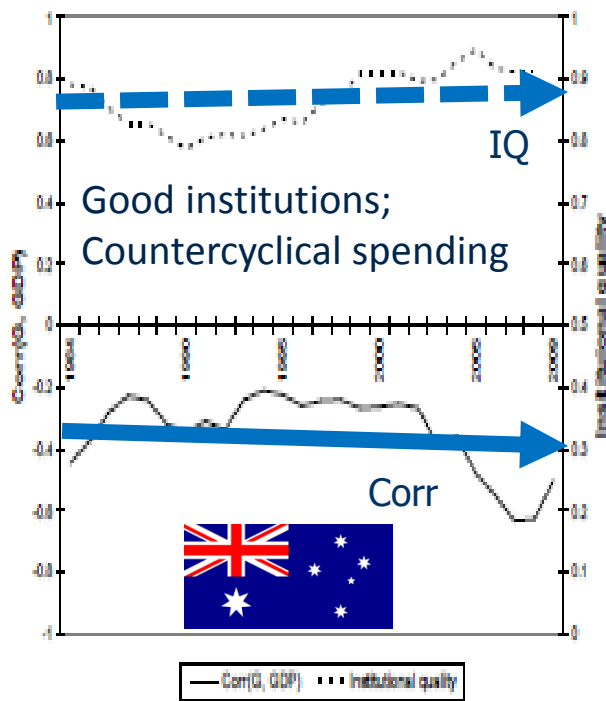
Notes: The cyclical components have been estimated using the Hodrick-Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as central government expenditure and net lending deflated by the GDP deflator. Country correlations between the cyclical components of the real government expenditure and real GDP (i.e., $\text{Corr}(G, \text{GDP})$) are calculated for the period 1960-2009. Institutional quality is a normalized index that ranges between 0 (lowest institutional quality) and 1 (highest institutional quality). The index is calculated as the average of four components: investment profile, corruption, law and order, bureaucracy quality. Country average institutional quality (i.e., av. IQ) is calculated for each country for the period 1984-2008. See Appendix 2 for correlation value and average institutional quality for each country.
Source: International Country Risk Guide (ICRG), World Economic Outlook and International Financial Statistics (IMF).

The quality of institutions varies, not just across countries, but also across time.

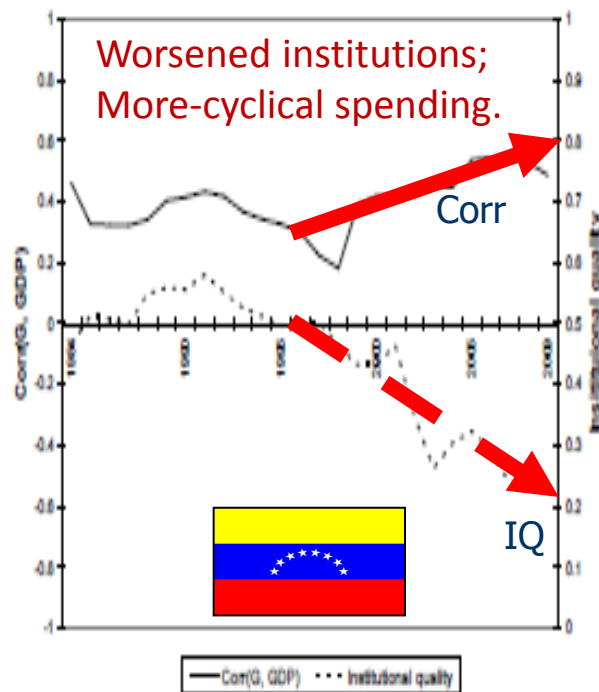
Country correlations between the cyclical components of real government expenditure and real GDP (20-year rolling windows) vs. institutional quality

1984-2009

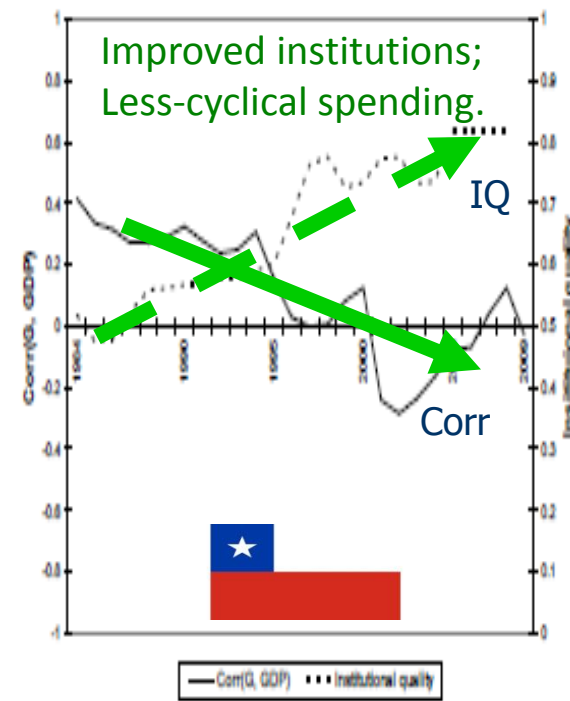
Panel A. Australia (established graduate)



Panel B. Venezuela (still in school)



Panel C. Chile (recent graduate)



Notes: The cyclical components have been estimated using the Hodrick-Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as central government expenditure and net lending deflated by the GDP deflator. Country correlations between the cyclical components of real government expenditure and real GDP (i.e., $\text{Corr}(G, \text{GDP})$) are calculated as 20-year rolling windows for the period 1960-2009. Institutional quality is a normalized index that ranges between 0 (lowest institutional quality) and 1 (highest institutional quality). The index is calculated as the average of four components: investment profile, corruption, law and order, and bureaucratic quality. Actual institutional quality (i.e., for each year) is used. Institutional quality is shown on the right axis and the correlation between the cyclical components of real government expenditure and real GDP is shown on the left.

Source: International Country Risk Guide (ICRG), World Economic Outlook and International Financial Statistics (IMF).

Advanced countries can suffer pro-cyclicality too.

i) The euro periphery.



ii) The US.

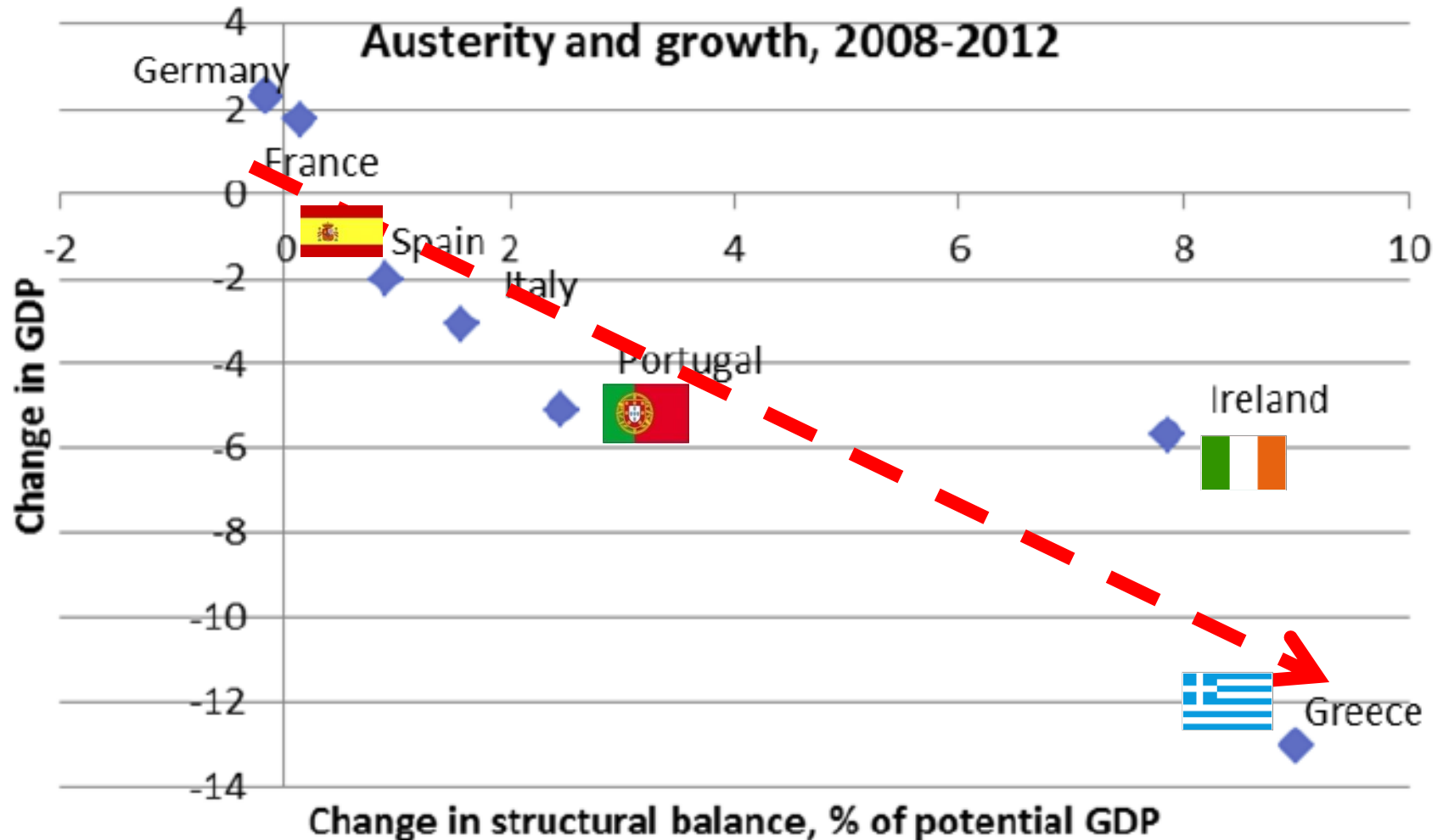




(i) Pro-cyclical fiscal policy in Europe:

When the euro crisis hit in 2009,

the bigger fiscal contractions went with the bigger recessions.



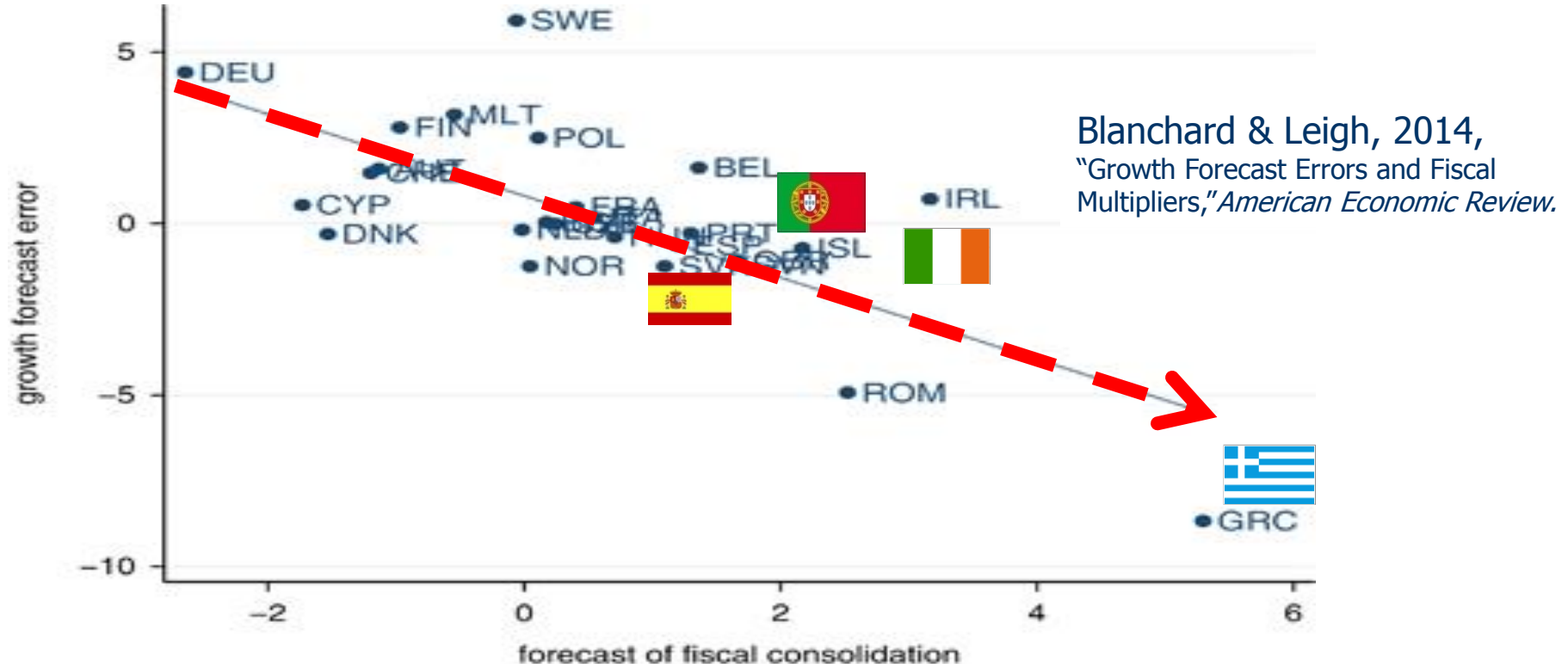


Why? A different kind of over-optimism:

Effects of austerity were worse than the Troika had assumed.

The evidence: the bigger the fiscal contraction, the bigger the GDP loss *relative to what had been officially forecast in 2010*.

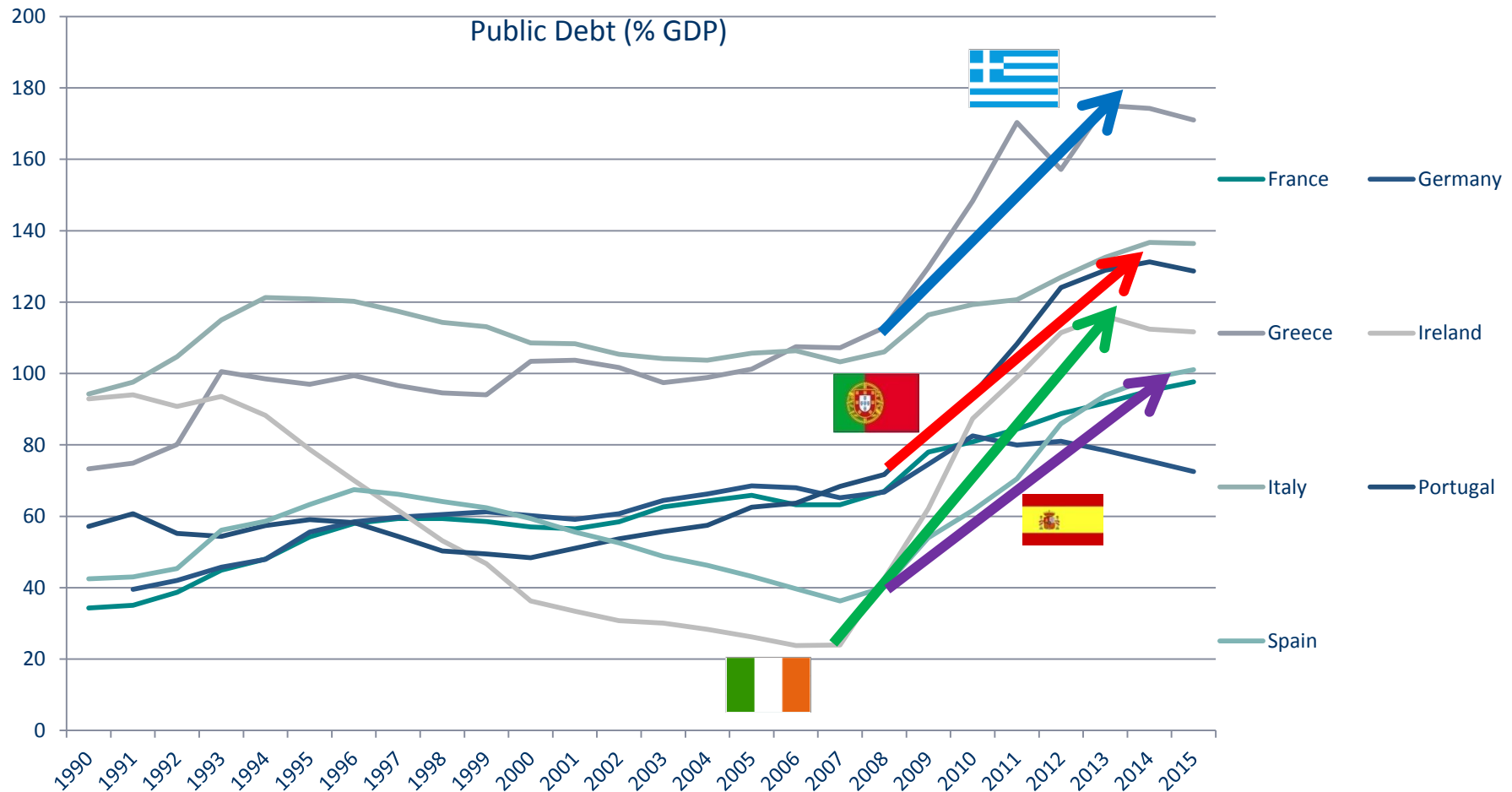
Europe: Growth Forecast Errors vs. Fiscal Consolidation Forecasts



Note: Figure plots forecast error for real GDP growth in 2010 & 2011 relative to forecasts made in the spring of 2010, on forecasts of fiscal consolidation for 2010 & 2011 made in spring of year 2010.



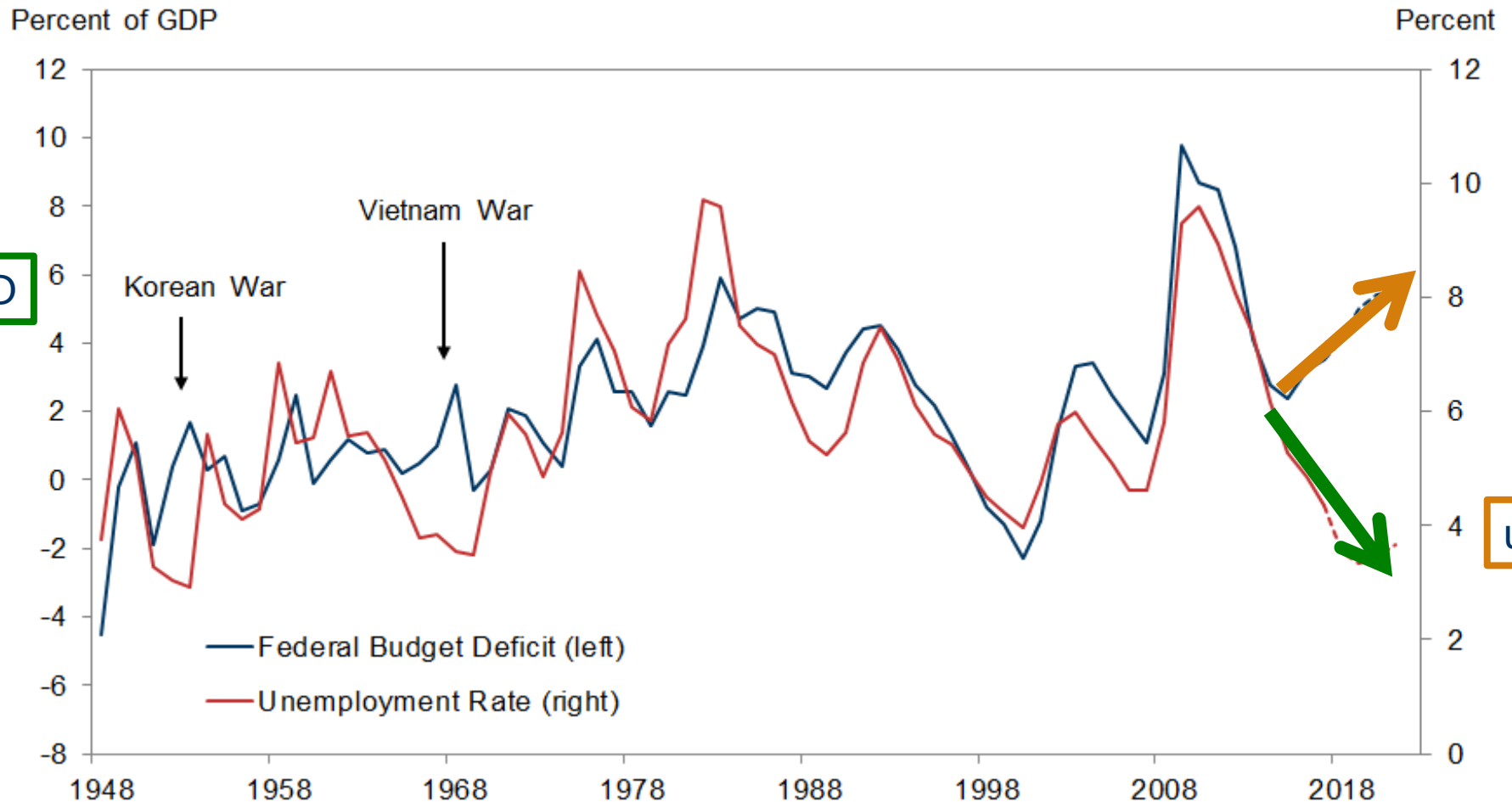
With austerity, debt/GDP ratios continued to rise sharply:
Declining GDP outweighed progress on reduction of budget deficits
(Fatas & Summers, 2018).



(ii) US fiscal policy



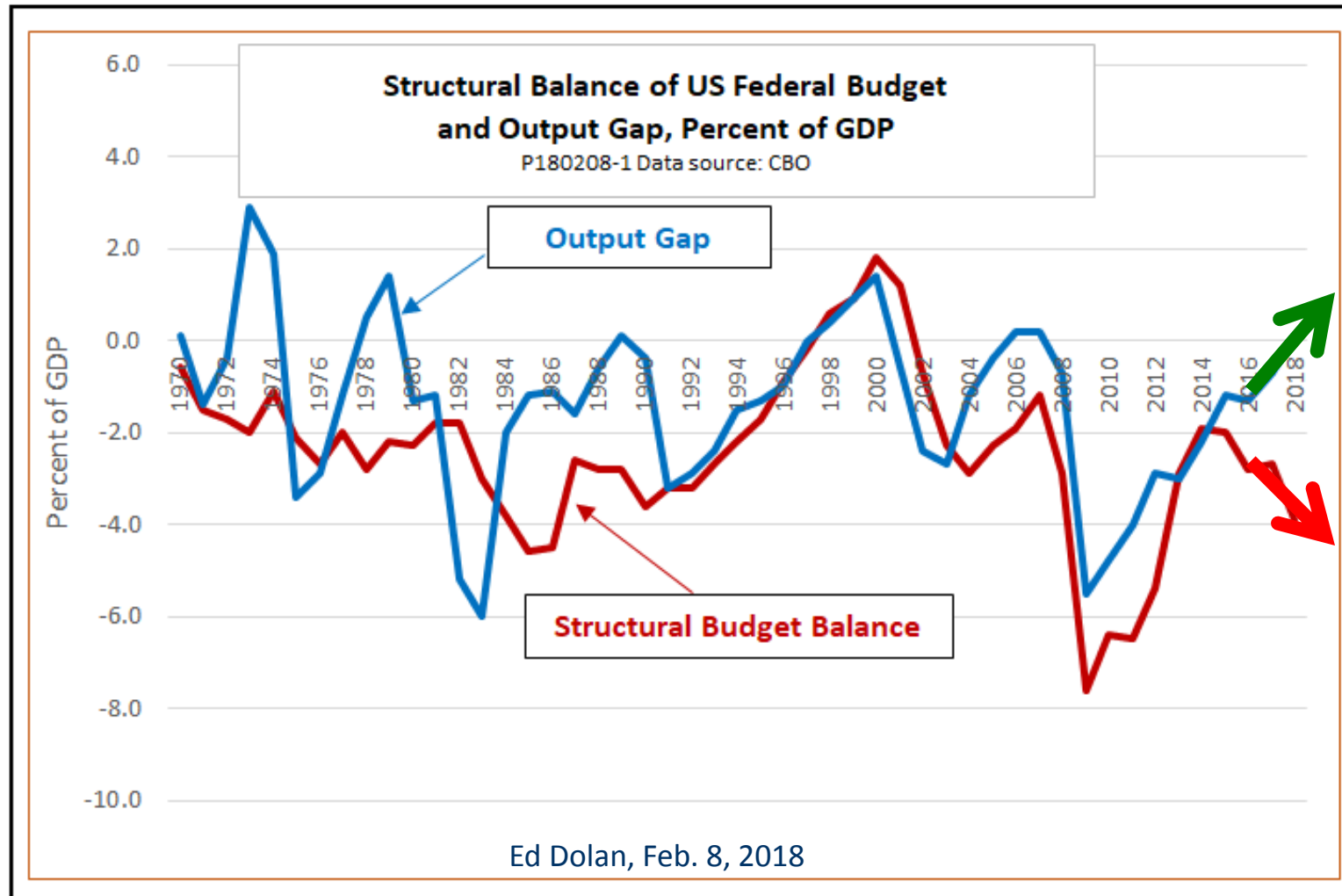
Departing from history, especially in peacetime, the budget deficit has been raised sharply though the economy is at full employment.



Source: Goldman Sachs Global Investment Research, May 12, 2018 Data: Dept. of Labor & OMB



In Dec. 2017, the government cut taxes sharply although the US economy was already operating at its potential.



American “fiscal conservatives” have behaved pro-cyclically before



	Conservative leaders	Fiscal action: discipline or laxity?	Cyclicity?
Aug.1988 thru 1990	G HW Bush	Promised “read my lips, no new taxes”	Boom, so pro-cyclical
Sept. 1990	G HW Bush	Agreed with Congress to raise taxes & cut spending	Recession, so pro-cyclical
June 1993	Congressional Republicans	Voted against Clinton’s budget balance law (extension of GHWB’s)	Boom, so pro-cyclical
May 2003	G W Bush	More tax cuts and more spending.	Boom, so pro-cyclical.
Feb. 2009	Congressional Republicans	Voted against Obama fiscal stimulus	Recession, so pro-cyclical
Dec. 2017	Trump	Tax cut, followed by spending increase	Boom, so pro-cyclical

Three kinds of over-optimism

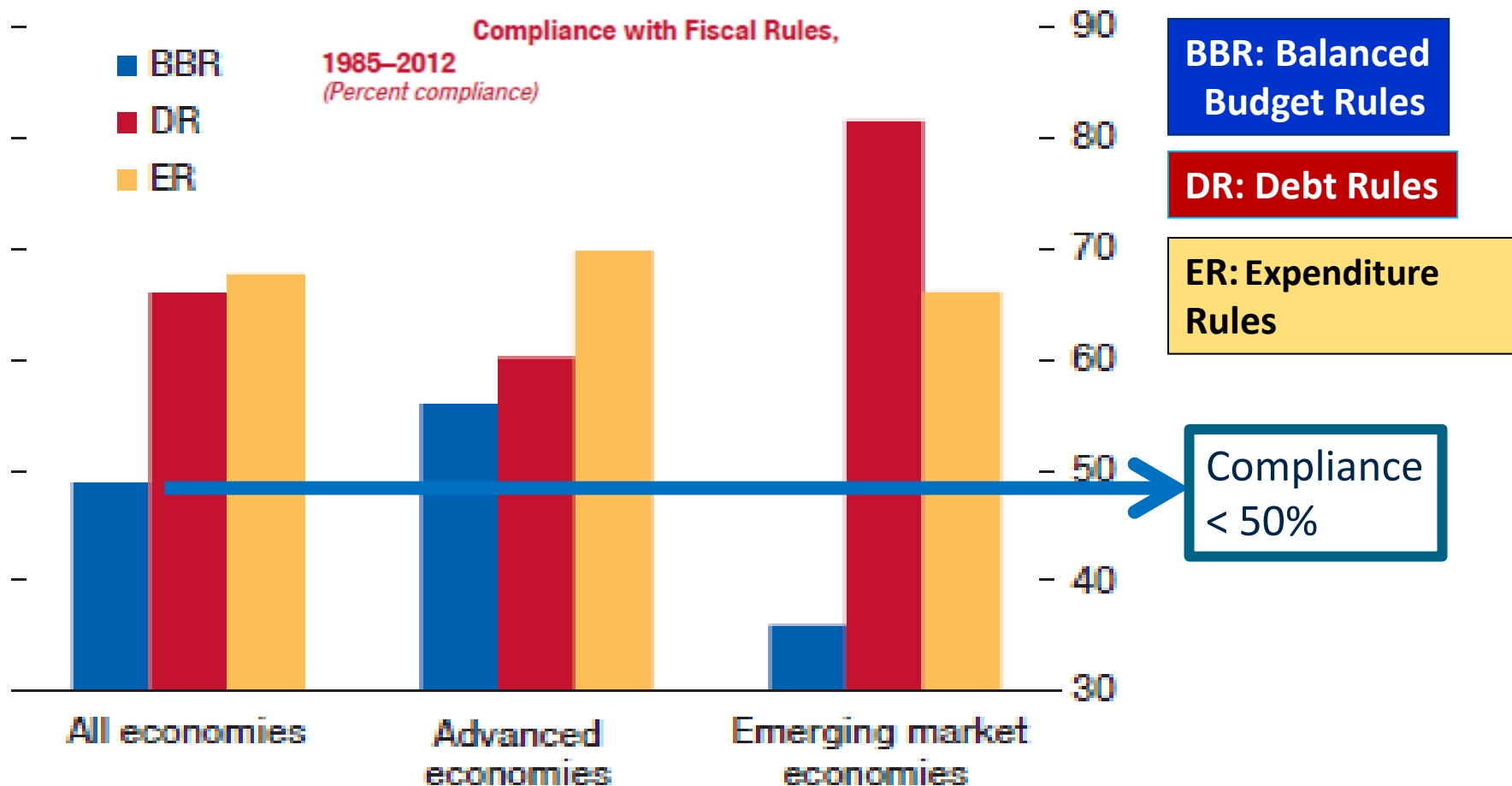
	Belief	Optimistic policy action	Unintended consequence
Commodity exporters	Booms will continue into the future	Can afford to run deficits during boom.	Pro-cyclical fiscal policy.
Euro-crisis Troika	“Expansionary austerity”	Spending cuts would not hurt GDP much.	Debt/GDP ↑.
American fiscal conservatives	Supply side economics	Tax cuts will boost GDP a lot: Budget deficit ↓.	Budget deficit ↑.

How can countries avoid pro-cyclical fiscal policy?

- What *are* “good institutions,” exactly?
- Rules?
 - Budget deficit ceilings (SGP) or debt brakes?
 - Have been tried by many countries:
 - > 97 IMF members.
 - Usually fail.
 - Rules for *cyclically adjusted* budgets?
 - Countries can more likely stick with them. But...
- Rules don't address a major problem:
 - Over-optimism in official forecasts
 - of GDP growth rates, tax receipts & budgets.

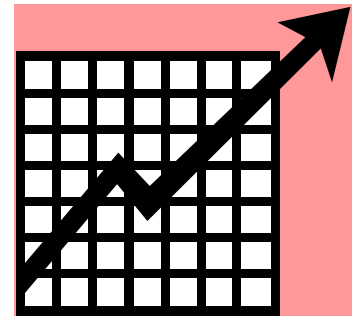


Countries with Balanced Budget Rules frequently violate them.



Over-optimism in official forecasts

- Statistically significant findings among 33 countries
 - Frankel (2011, 2012).
- Official forecasts on average are overly optimistic, for:
 - (1) GDP &
 - (2) budgets.
- The bias toward optimism is:
 - (3) stronger the longer the forecast horizon;
 - (4) greater in booms.



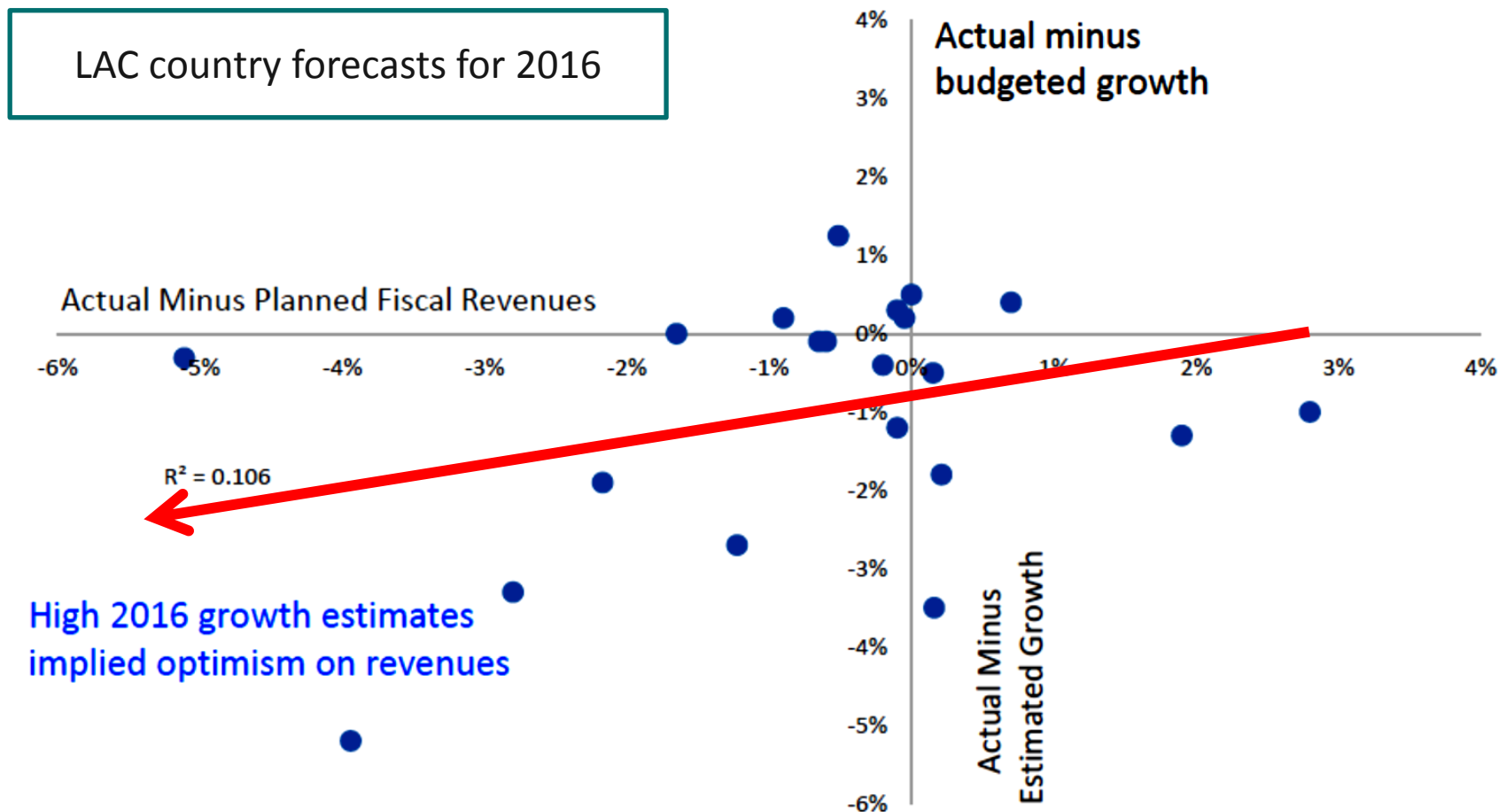


Implication of forecast bias for actual budgets

- Over-optimistic in growth forecasts leads to over-optimism in tax revenue
 - and so to over-optimism in budget forecasts.
- Can lead to pro-cyclical fiscal policy:
 - If the boom is forecast to last indefinitely, there is no apparent need to retrench.



Mistakes in GDP forecasts tend to cause mistakes in tax revenue forecasts



Andrew Powell, IDB, Nov. 2017 LACEA, Buenos Aires.
“Fiscal Challenges in Latin America and the Caribbean.”

The optimism bias is significantly greater in booms and at longer horizons.



Budget balance forecast error as % of GDP

Variables	1 year ahead	2 years ahead	3 years ahead
GDP gap	0.093*** (0.019)	0.258*** (0.040)	0.289*** (0.063)
Constant	0.201 (0.197)	0.649*** (0.231)	1.364*** (0.348)
Observations	398	300	179
R ²	0.033	0.113	0.092
RMSE	2.25	2.73	3.10

*** $p < 0.01$ (Robust standard errors in parentheses, clustered by country.)
GDP gap is lagged: it lines up with the year in which forecast was made, not the year being forecast.

What institutions might help address the problem of bias in fiscal forecasts?

- BD rules don't help.
 - Europe's SGP *worsens* forecast bias for euro members.
 - Frankel & Schreger (2013)
- Evidence suggesting possible solutions:
 - (1) Private sector forecasts can help.
 - (2) The case of Chile's fiscal institutions.

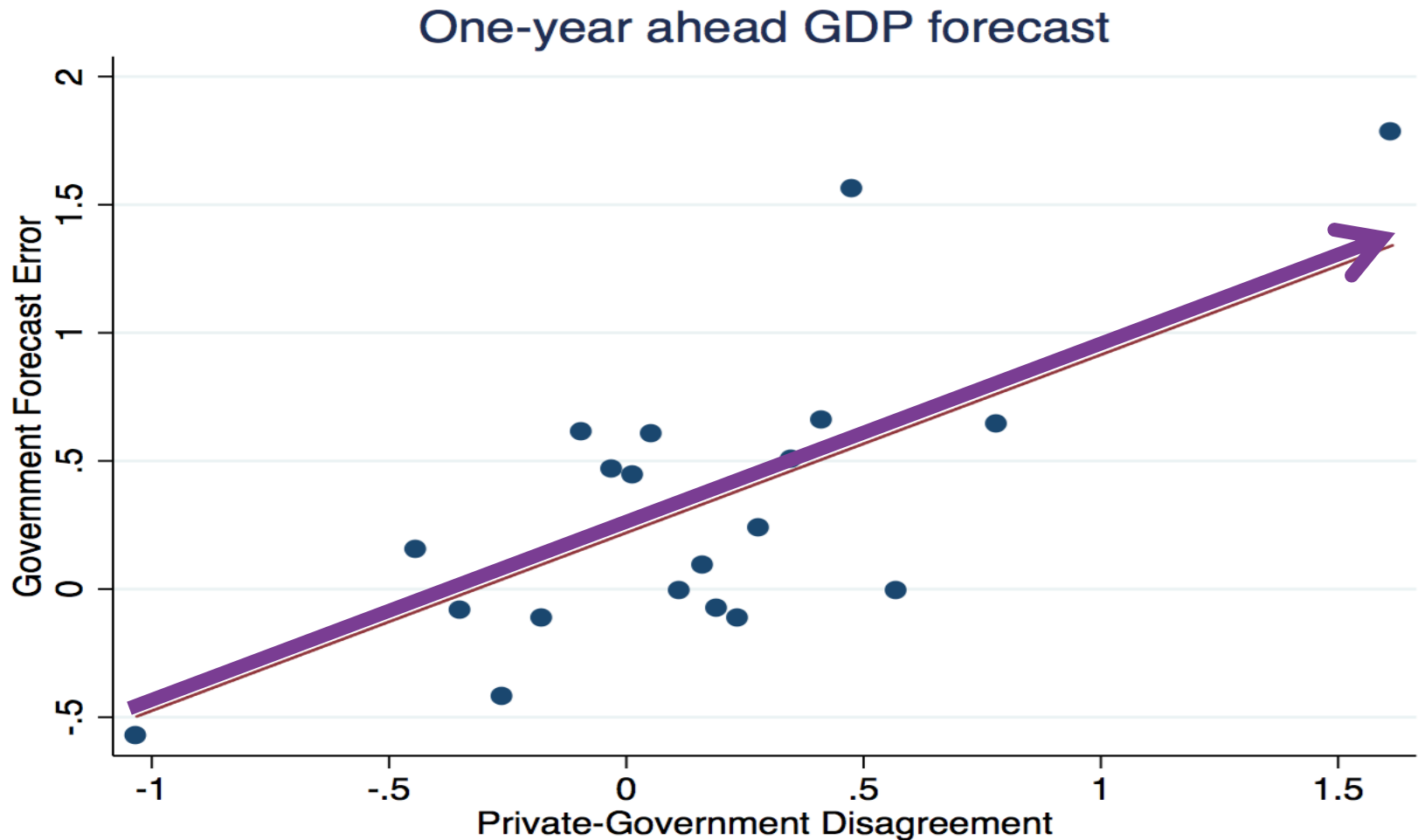


(1) Private forecasts can help

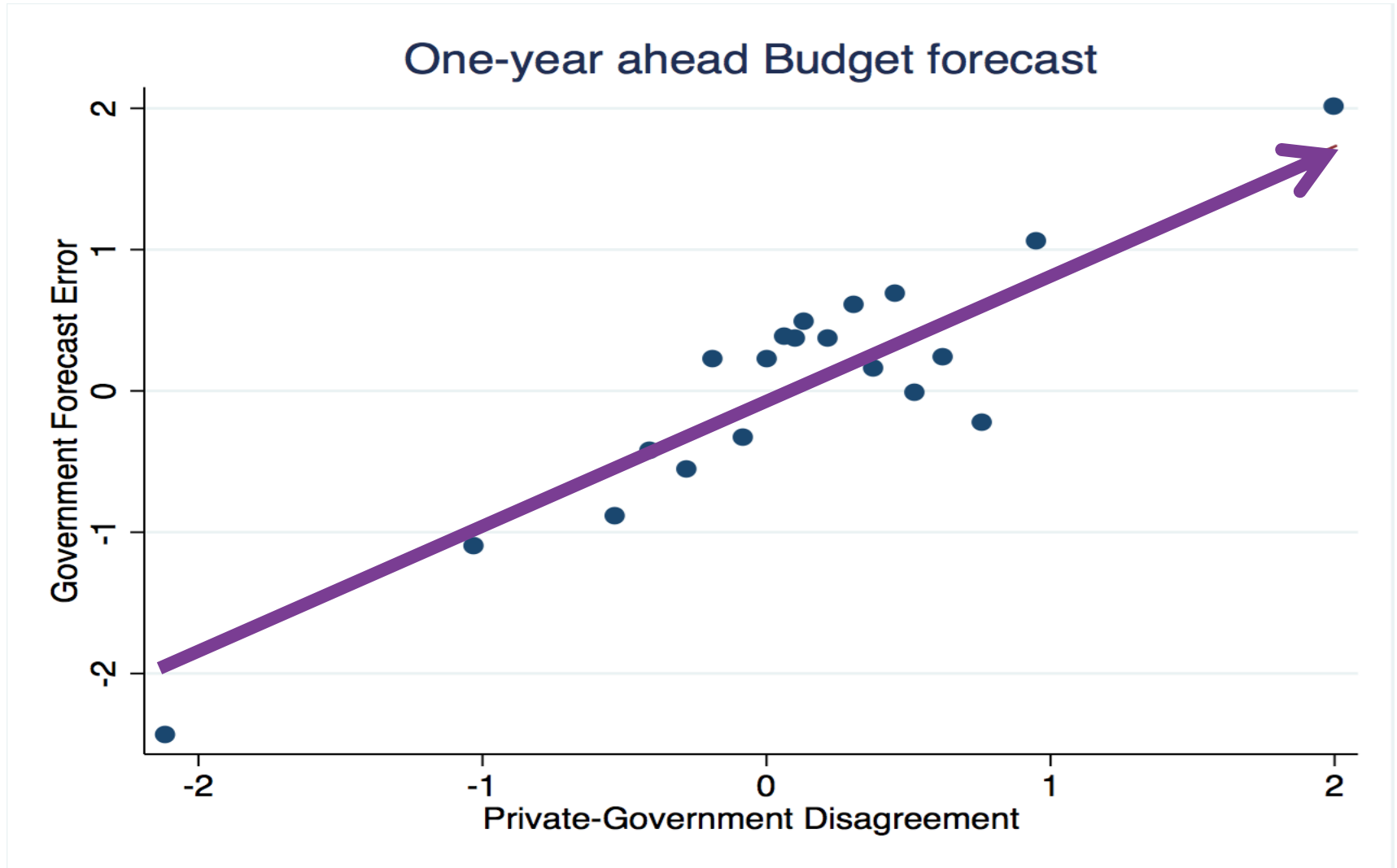
Frankel & Schreger (2016)



When official forecasts of GDP are more optimistic than private forecasts, on average they are too optimistic.



When official forecasts of budget balance are more optimistic than private forecasts, on average they are too optimistic.



Frankel & Schreger (2016)
conclusions regarding private forecasts:

Incorporating private sector forecasts into the budget process could help countries stick to fiscal rules.

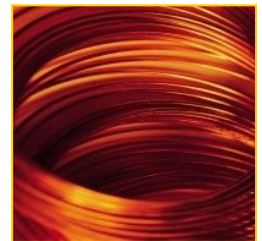
1. Official forecasters are more over-optimistic than private forecasters judged by average outcomes for budget balances & real GDP.
2. While euro area governments would never forecast violations of the 3% deficit/GDP cap in the SGP during the period 1999-2009, private sector forecasters would.
3. Official forecasts could do better over time by putting some weight on private forecasts.

(2) The case of Chile



Chile's fiscal institutions appear to have overcome the problem of over-optimism - Frankel (2013)

- In 2000 Chile instituted its structural budget rule.
- The institution was formalized in law in 2006.
- The structural budget surplus must...
 - be targeted, at 0 as of 2008,
 - where structural is defined by output & copper price equal to their long-run trend values.
- I.e., in a boom the government can only spend increased revenues that are deemed permanent; any temporary copper bonanzas must be saved.





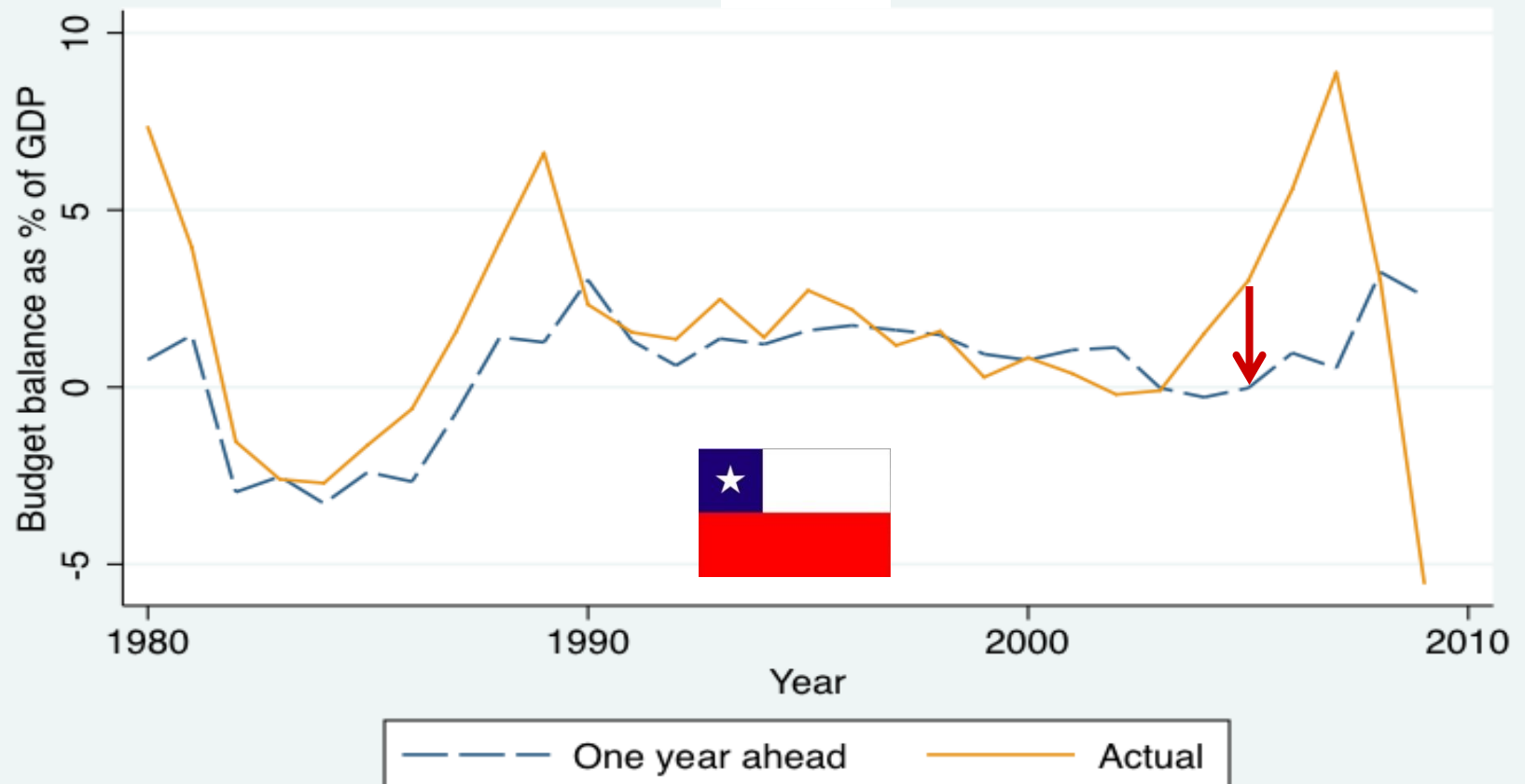
- Chile did not show bias toward optimism in forecasts of the budget, growth or copper price.
- The key innovation that allowed Chile to achieve countercyclical fiscal policy:
 - not just a structural budget rule in itself,
 - but rather a regime that entrusts to two panels of independent experts estimation of the long-run trends of copper prices & GDP.



Unlike the rest of the panel of 33 countries, Chile's official forecasts were *not* over-optimistic.

Forecasts of budget balance vs. actual

Year indicates year that forecast is made



The Pay-off



- Chile's fiscal position strengthened immediately:
 - Public saving rose from 2.5 % of GDP in 2000 to 7.9 % in 2005
 - allowing national saving to rise from 21 % to 24 %.
- Government debt fell sharply as a share of GDP and the sovereign spread gradually declined.
- By 2006, Chile achieved a sovereign debt rating of A,
 - several notches ahead of Latin American peers.
- By 2007, it had become a net creditor.
- By Dec. 2007, Chile's sovereign rating had climbed to A+,
 - ahead of some advanced countries.
- => It was able to respond to the 2008-09 recession
 - via fiscal expansion.

List of relevant references by the author

- “Bias in Official Fiscal Forecasts: Can Private Forecasts Help?” with Jesse Schreger, NBER Working Paper 22349, 2016.
- “On Graduation from Fiscal Pro-cyclicality,” with Carlos Végh & Guillermo Vuletin, *Journal of Development Economics*, 100, 1, 2013; pp. 32-47.
- “A Solution to Fiscal Pro-cyclicality: The Structural Budget Institutions Pioneered by Chile,” in *Fiscal Policy and Macroeconomic Performance*, Luis Felipe Céspedes & Jordi Galí, eds. (Central Bank of Chile: Santiago), 2013, pp. 323-391.
- “Over-optimistic Official Forecasts and Fiscal Rules in the Eurozone,” with J. Schreger; *Review of World Economy*, 2013.
- “Over-optimism in Forecasts by Official Budget Agencies and Its Implications,” *Oxford Review of Economic Policy*, 2011, 536-562.
- “A Lesson From the South for Fiscal Policy in the US and Other Advanced Countries,” *Comparative Economic Studies*, 2011, 407-430.
- “Snake-Oil Tax Cuts,” 2008, HKS RWP 08-056.