

On graduation from procyclicality*

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Abstract

In the past, industrial countries have tended to pursue countercyclical or, at worst, a-cyclical fiscal policies in sharp contrast to emerging and developing countries that have followed procyclical fiscal policy, thus exacerbating the underlying business cycle. We show that, over the last decade, about a third of the developing world has been able to escape the procyclicality trap and actually become countercyclical. We trace this critical shift in fiscal policy to the quality of institutions.

JEL Classification: To be added

Keywords: business cycle, institutional quality, cyclicity, graduation.

*Preliminary draft; comments most welcome.

1 Introduction

The cyclical behavior of fiscal policy differs across income groups. In the past, while industrial countries have tended to pursue fiscal policy that is countercyclical or at worst acyclical, developing countries tended to follow procyclical fiscal policy: they increased spending (or cut taxes) during periods of expansion and cut spending (or raised taxes) during periods of recession. Many authors have documented that fiscal policy has tended to be more procyclical in developing countries, in comparison with industrialized countries.¹ Most studies look at the procyclicality of government spending, because tax receipts are particularly endogenous with respect to the business cycle. Indeed, an important reason for procyclical spending is precisely that government receipts from taxes or mineral royalties rise in booms, and the government cannot resist the temptation or political pressure to increase spending proportionately, or even more than proportionately.

A similar procyclical pattern can be found on the tax side by focusing on tax rates rather than revenues, though cross-country evidence is harder to come by. Végh and Vuletin (2011) find that tax rate policy has been mostly procyclical in developing countries, and acyclical in industrialized countries

In terms of government spending, the contrast between the two groups of countries can be clearly seen in Figure 1, which updates evidence presented in Kaminsky, Reinhart, and Végh (2004). The figure depicts the correlation between (the cyclical components of) government spending and GDP for 94 countries for the period 1960-2009: 21 developed and 73 developing countries. Black bars represent industrial countries while yellow (light) bars represent developing countries. A positive (negative) correlation indicates procyclical (countercyclical) government spending.² The visual image tells the whole story: yellow bars lie overwhelmingly on the right hand side (positive correlations) while black bars dominate the left hand side (negative correlations). Indeed, more than 90 percent of developing countries (67 out of 73) show procyclical government spending, while around 80 percent of industrial

¹Gavin and Perotti (1997), Tornell and Lane (1999), Kaminsky, Reinhart, and Végh (2004), Talvi and Végh (2005), Mendoza and Oviedo (2006), Alesina, Campante and Tabellini (2008), and Ilzetski and Végh (2008).

²Needless to say, correlations do not tell us anything about causality which, in principle, could go in either direction. Ilzetski and Végh (2008), however, show that, even when properly instrumented, output does cause government spending, as emphasized by the fiscal procyclicality literature.

countries (17 out of 21) show countercyclical government spending.

Why would policymakers pursue procyclical fiscal policy? After all, such policy cannot be optimal since it will tend to reinforce the business cycle, exacerbating booms and aggravating busts. The most convincing explanations in the literature fall in two, not necessarily inconsistent, camps: (i) imperfect access to international credit markets (Gavin and Perotti, 1997, and Riascos and Vegh, 2003) and (ii) political distortions (Tornell and Lane, 1999, and Talvi and Vegh, 2005).³ Lack of access to credit markets in bad times will naturally leave governments with no choice but to cut spending and raise taxes, whereas political pressures for additional spending in good times are hard to resist particularly when there may exist a genuine need for more government spending in critical social areas. Improving access to credit in bad times (including official financial assistance from institutions such as the IMF) and designing rules and institutions that aim at ensuring that fiscal revenues are saved in good times so that they are available in bad times would go a long way to alleviate the scourge of procyclical fiscal policy.

In fact – and as we will argue in this paper – over the last decade several developing countries have been able to “graduate” in the sense of overcoming the problem of procyclicality and actually becoming countercyclical. Chile is undoubtedly the poster child of this graduation movement. As discussed in Frankel (2010), since 2001 Chile has followed a fiscal rule that has a structural (i.e., cyclically-adjusted) fiscal balance as its target.⁴ By construction, such a rule ensures that temporarily high fiscal revenues are saved rather than spent. But, as we will show below, Chile is not the only country that seems to have escaped the procyclicality trap. And, in fact, the quality of institutions seems to be a key determinant of a country’s ability to graduate.

The paper proceeds as follows. Section 2 shows the shift in fiscal policy in many emerging and developing countries over the last decade. Section 3 traces this shift to the quality of institutions.

Concluding remarks can be found in Section 4.

³Calderon and Schmidt-Hebbel (2008) provide evidence for the empirical relevance of these two channels.

⁴The original target was a structural surplus of 1 percent, reflecting the need to repay Central Bank debt associated with the bailout of private banks in the 1980s. As this debt was paid off over time, the targeted structural balance was reduced to 0.5 percent in 2008 and 0 percent in 2009.

2 Graduating class

This section shows that, over the last decade, there has been an important shift in the cyclical behavior of fiscal policy, particularly in the developing world. To this end, we divided the 1960-2009 sample used in Figure 1 into two sub-samples: 1960-1999 and 2000-2009. Figure 2 replicates Figure 1 for the period 1960-1999 and conveys essentially the same message. Figure 3, on the other hand, focuses on the period 2000-2009. Once again, the visual image conveyed by 3 is striking when compared to Figure 2. Specifically, the number of yellow bars on the left-side of the picture (i.e., negative correlations) has greatly increased. In fact, around 35 percent of developing countries (26 out of 73) now show a countercyclical fiscal policy, up from 8 percent (6 out of 73) in Figure 1.

To illustrate the issue of graduation more broadly, Figure 4 presents a scatter plot with the 1960-1999 correlation on the horizontal axis and the 2000-2009 correlation on the vertical axis. By dividing the scatter plot into four quadrants along the zero axes, we can classify countries into four categories:

1. Established graduates (bottom-left): These are countries that have always been countercyclical. Not surprisingly, 87 percent of the countries in this category are industrial countries, including the United States, United Kingdom, and Australia.
2. Still in school (top-right) These are countries that continued to behave procyclically over the last decade. Again not surprisingly, 96 percent of these countries are developing countries, including Venezuela, Peru, and India.
3. Back to school (top-left): These are countries that were countercyclical during the 1960-1999 period and turned procyclical over the last decade. This small group of countries is split fairly evenly between developed and developing countries. It includes Greece and Jamaica.
4. Recent graduates (bottom-right): These are countries that used to be procyclical and became countercyclical over the last decade. They are mostly represented by developing countries (24 out of 26, or 96 percent) and include Chile, Brazil, and Botswana.

In sum, the evidence suggests that about a third of the developing world (24 out of 73 countries) has recently “graduated” from procyclicality.

The evidence of countercyclicality among many emerging market and developing countries matches up with other criteria for judging maturity in the conduct of fiscal policy: debt/GDP ratios, rankings by rating agencies, and sovereign spreads. Low income and emerging market countries in the aggregate have achieved debt/GDP levels around 40 percent of GDP over the last four years. The IMF estimates the 2011 ratio at 43 per cent among emerging market countries and 35 per cent among low-income countries. This is the same period during which debt in advanced countries has risen from about 70 per cent of GDP to 102 percent. The financial markets have ratified the historic turnaround. Spreads are now lower for many emerging markets than for some “advanced countries.” As of mid-2011, rating agencies rank Singapore as more creditworthy than Belgium, Korea as more creditworthy than Portugal, Mexico ahead of Iceland, and just about everybody ahead of Greece. Euromoney ranks Chile as less risky than Japan, Korea less risky than Italy, Malaysia less risky than Spain, and Brazil less risky than Portugal.

Largely as a result of their improved fiscal situations during the period 2000-2007, many emerging markets were able to bounce back from the 2008-2009 global financial crisis more quickly than advanced countries.⁵

3 Graduation and institutional quality

What explains the ability of some countries, particularly emerging market and developing countries, to escape the trap of procyclical fiscal policy? Many researchers have pointed to the importance of institutions.⁶ This section shows that institutional quality (IQ) indeed explains some of the most recent changes in cyclicity of fiscal policy. To this effect, we construct an index of institutional quality by calculating the average of four normalized variables from the International Country Risk

⁵E.g., Didier, Hevia, and Schmukler (2011).

⁶In the case of fiscal policy, the importance of institutions has been emphasized by Buchanan (1967), von Hagen and Harden (1995), Alesina and Perotti (1996), Poterba and Von Hagen (1999), Persson and Tabellini (2004), and Calderón and Schmidt-Hebbel (2008), among many others.

Guide dataset:

- Investment profile: This is an assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The risk rating assigned is the sum of three subcomponents: contract viability/expropriation, profits repatriation, and payment delays.
- Corruption: This is an assessment of corruption within the political system.
- Law and order: This is an assessment of the strength and impartiality of the legal system and the popular observance of the law.
- Bureaucracy quality: This is an assessment of the strength and expertise to govern without drastic changes in policy or interruptions in government services.

The IQ index ranges between 0 (lowest institutional quality) and 1 (highest institutional quality).

We first establish a link between the four way classification in Figure 4 and institutional quality. To this effect, Table 1 reports the average institutional quality for each of these groups. As expected, the highest average institutional quality is for the “established graduates” group. Next is the “recent graduates” group with an average index of 0.55. The “still in school” countries have the lowest average institutional quality (0.48).⁷

We then construct a scatter plot relating IQ and procyclicality, shown in Figure 5. We can see a clearly negative relationship between institutional quality and cyclicity of fiscal policy. The higher (lower) the institutional quality in a country, the more countercyclical (procyclical) is fiscal policy. Based on the estimated regression, an institutional quality level of 0.79 supports acyclicity. A higher (lower) level of institutional quality supports countercyclicity (procyclicality).⁸

Although one thinks of institutions as slow-moving, they can change over time. Figure 6 provides some examples of the within-country relation between IQ and cyclicity of fiscal policy by plotting

⁷All these IQ differences are statistically significant at the 5 percent level.

⁸In work in progress, we instrument for institutions (and control for other determinants of procyclicality) and show that the causality indeed goes from institutions to the cyclical stance of fiscal policy.

for three different countries the correlation between government spending and GDP computed over a 20-year rolling window and the level of IQ. Panel A shows the case of the United States, an “established graduate”. IQ levels have been consistently around 0.80 and fiscal policy has been always countercyclical. At the other extreme, Panel B shows the case of Venezuela, a “still in school” country. IQ levels have ranged between 0.24 and 0.58 and fiscal policy has been consistently procyclical. Panel C shows the case of Chile, a “recent graduate”. The IQ increased remarkably from values close to 0.5 in the early 1980s to more than 0.8 since mid 2000s. In line with our arguments, fiscal policy shifted from being strongly procyclical – with values close to Venezuela’s – to countercyclical.

Chile’s experience is a good illustration of how a country with good institutional quality in the general sense of rule of law can help lock in countercyclical fiscal policy through specific budget institutions. Frankel (2011a) explains how Chile did it, with the structural budget reforms of 2000 and 2006. Fiscal rules, such as euroland’s Stability and Growth Pact, may accomplish little in themselves, because they are not necessarily enforced and are not necessarily credible. Rules can even worsen the general tendency of governments to make overly optimistic forecasts for economic growth and budget balance.⁹ Chile’s key innovation was to give responsibility for forecasting to independent expert commissions, insulated from politicians’ wishful thinking. Its approach could be emulated by others.

4 Conclusions

We have shown that, over the past decade, a significant number of emerging and developing countries has been able to shift from procyclical to countercyclical fiscal policy. Saving during expansions such as 2001 to 2006 is critical for weathering the storm in recessions such as 2008-09. Otherwise there may be no way out but to adjust at the worst possible time.

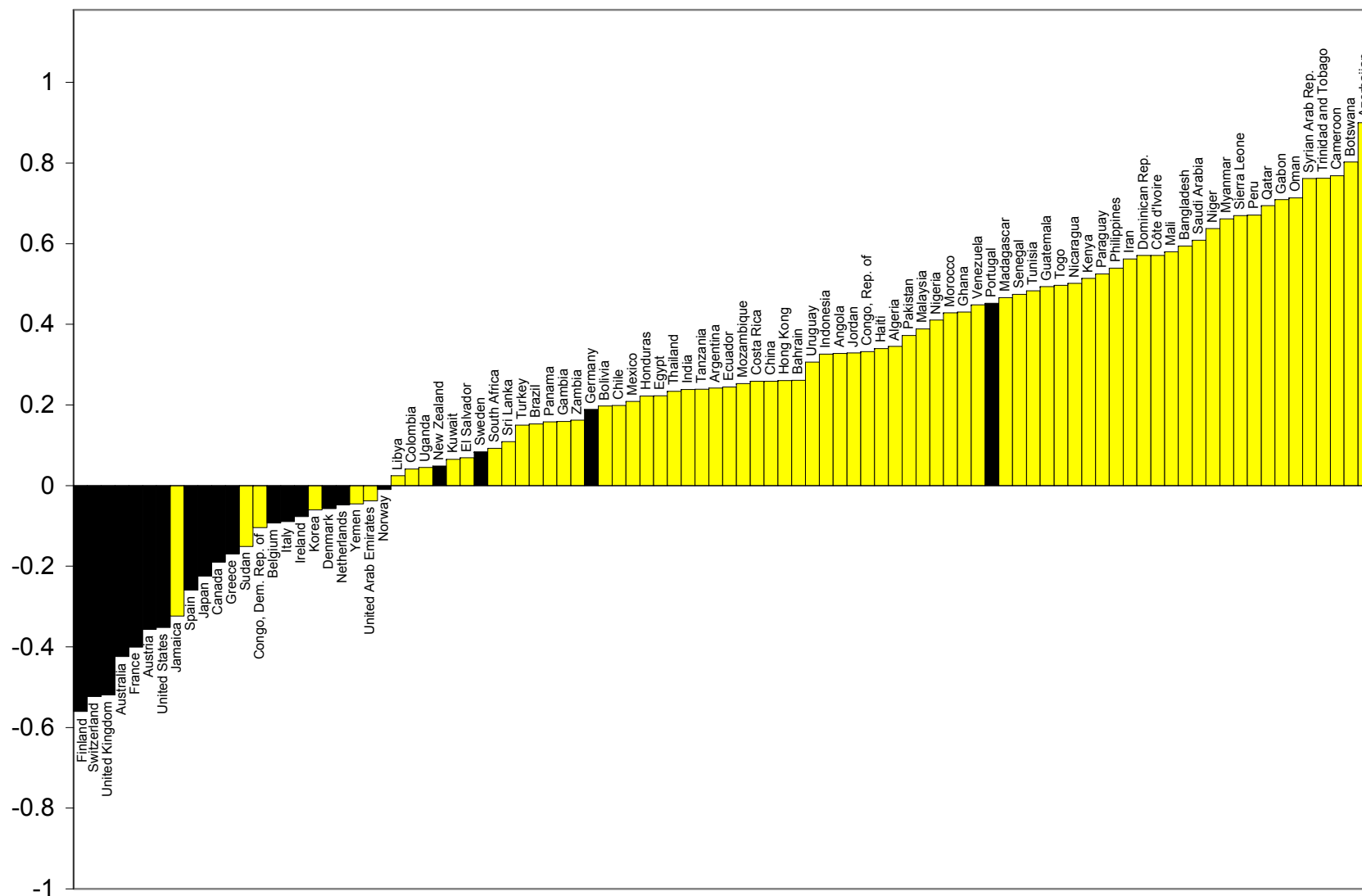
⁹Frankel (2011b).

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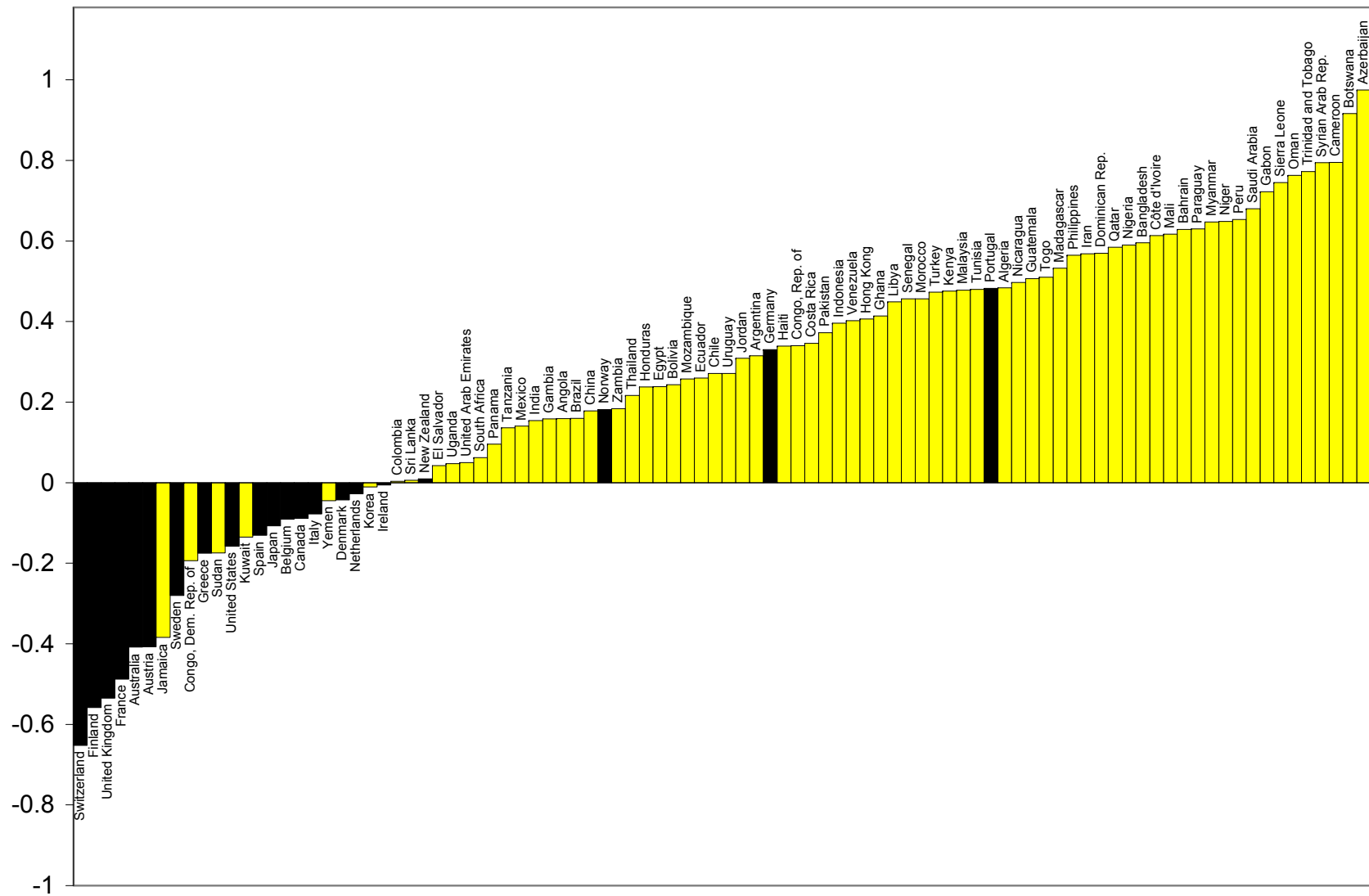
Figure 1. Country correlations between the cyclical components of the real government expenditure and real GDP, 1960-2009



Notes: Dark bars are OECD countries and light ones are non-OECD countries. 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.

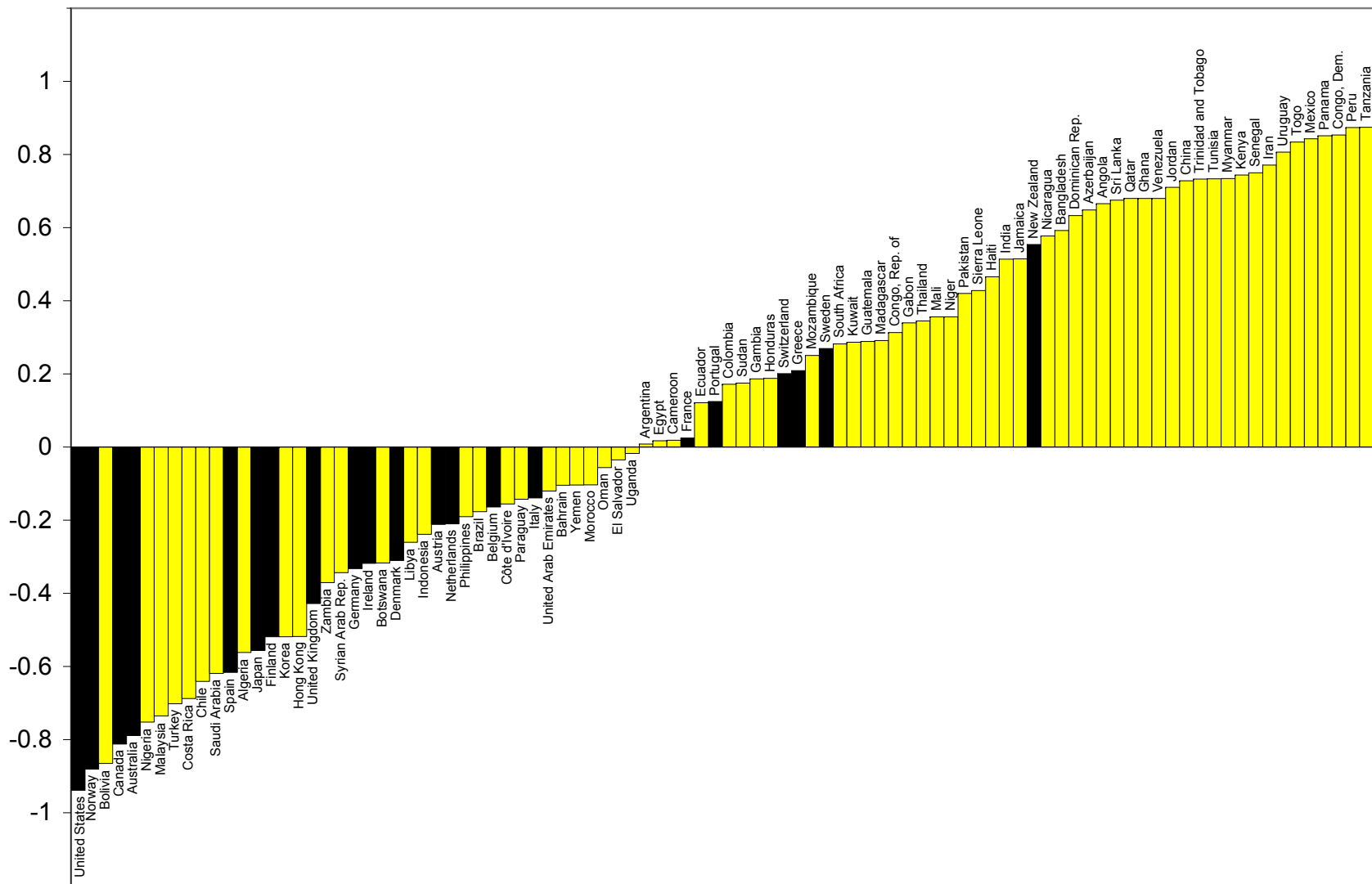
Source: World Economic Outlook and International Financial Statistics (IMF).

Figure 2. Country correlations between the cyclical components of the real government expenditure and real GDP, 1960-1999



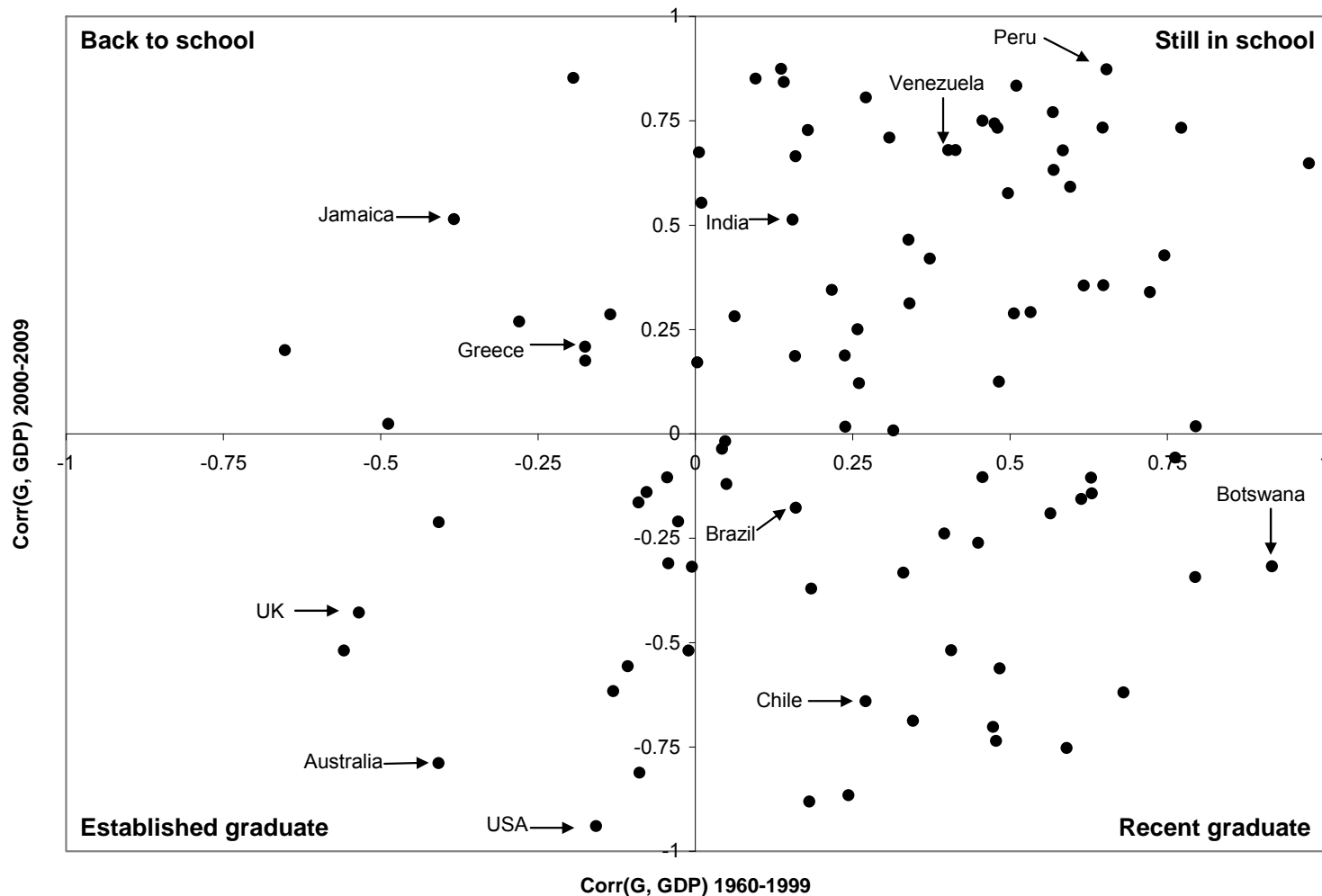
Notes: Dark bars are OECD countries and light ones are non-OECD countries. The cyclical components have been estimated using the Hodrick-Prescott Filter. A positive (negative) correlation indicates procyclical (countercyclical) fiscal policy. Real government expenditure is defined as central government expenditure and net lending deflated by the GDP deflator.
Source: World Economic Outlook and International Financial Statistics (IMF).

Figure 3. Country correlations between the cyclical components of the real government expenditure and real GDP, 2000-2009



Notes: Dark bars are OECD countries and light ones are non-OECD countries. 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.
 Source: World Economic Outlook and International Financial Statistics (IMF).

Figure 4. Country correlations between the cyclical components of the real government expenditure and real GDP. 1960-1999 vs. 2000-2009



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.

Established graduates: Australia, Austria, Belgium, Canada, Denmark, Finland, Ireland, Italy, Japan, Korea, Netherlands, Spain, United Kingdom, United States, and Yemen.

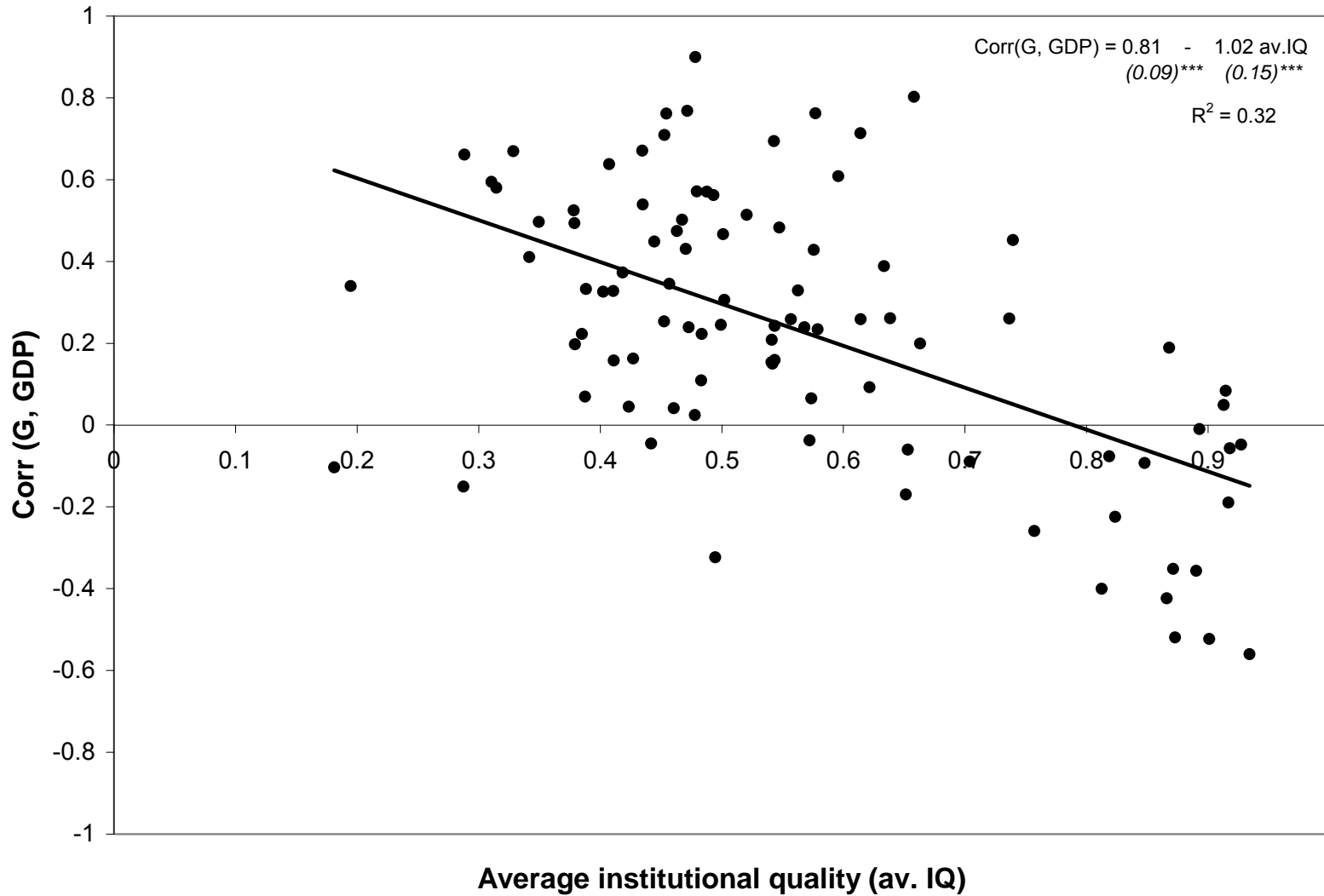
Never graduated: Angola, Argentina, Azerbaijan, Bangladesh, Cameroon, China, Colombia, Congo, Rep. of, Dominican Rep., Ecuador, Egypt, Gabon, Gambia, Ghana, Guatemala, Haiti, Honduras, India, Iran, Jordan, Kenya, Madagascar, Mali, Mexico, Mozambique, Myanmar, New Zealand, Nicaragua, Niger, Pakistan, Panama, Peru, Portugal, Qatar, Senegal, Sierra Leone, South Africa, Sri Lanka, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Uruguay, and Venezuela.

Back to school: Congo, Dem. Rep. of, France, Greece, Jamaica, Kuwait, Sudan, Sweden, and Switzerland.

Recent graduates: Algeria, Bahrain, Bolivia, Botswana, Brazil, Chile, Costa Rica, Côte d'Ivoire, El Salvador, Germany, Hong Kong, Indonesia, Libya, Malaysia, Morocco, Nigeria, Norway, Oman, Paraguay, Philippines, Saudi Arabia, Syrian Arab Rep., Turkey, Uganda, United Arab Emirates, and Zambia.

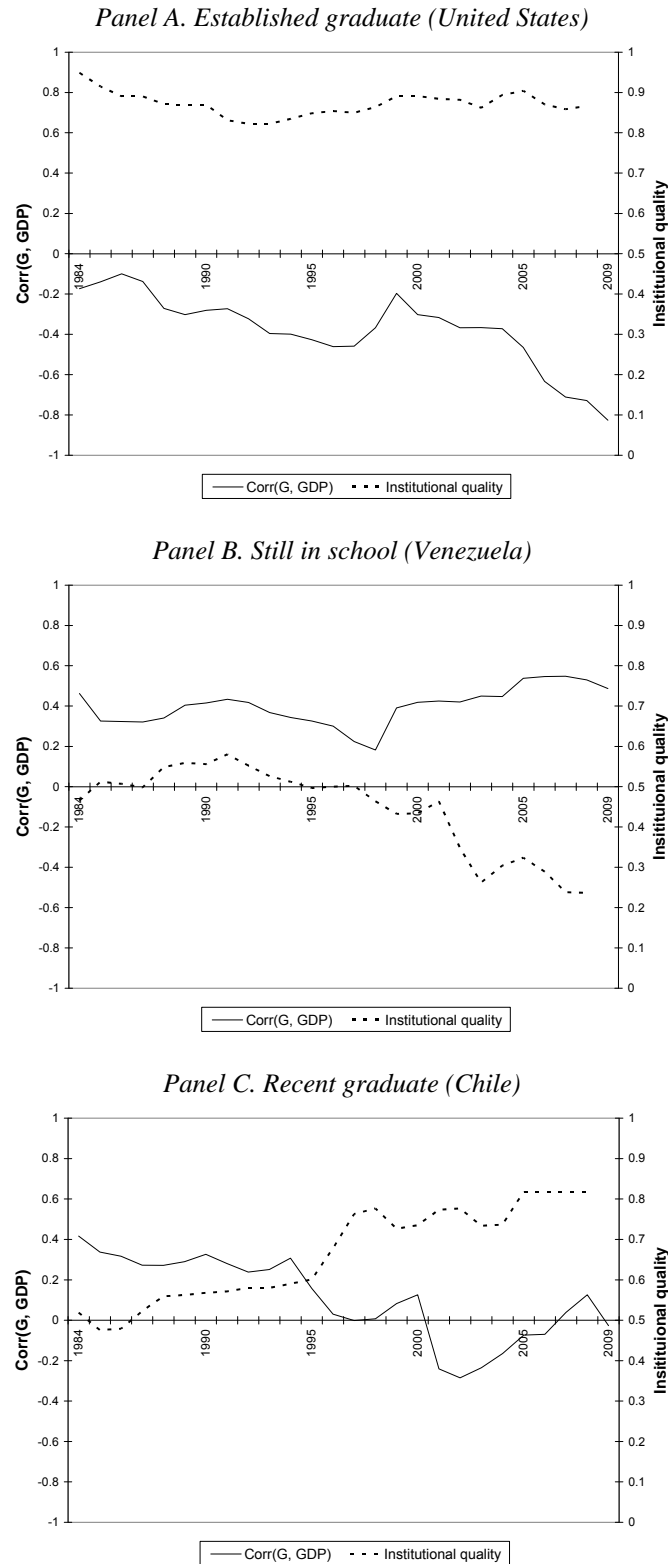
Source: World Economic Outlook and International Financial Statistics (IMF).

Figure 5. 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 by the authors 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. Source: International Country Risk Guide (ICRG), World Economic Outlook and IFS (IMF).

Figure 6. Graduation examples. Country correlations between the cyclical components of the real government expenditure and real GDP (20 years rolling windows) vs. institutional quality



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., Corr(G, GDP)) are calculated as 20 years 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 by the authors calculated as the average of four components: investment profile, corruption, law and order, bureaucracy quality. Institutional quality for each year (i.e., actual) is used. Source: World Economic Outlook and International Financial Statistics (IMF).

Table 1. Institutional quality statistics by graduating class

	IQ (1)	IQ(initial) (2)	Δ IQ (3)
Group means			
Established graduates (EG)	0.82	0.84	-0.02
Still in school (SS)	0.48	0.43	0.05
Recent graduate (RG)	0.55	0.47	0.07
Mean tests (p-value)			
EG vs. SS	1.9×10^{-251}	1.8×10^{-12}	2.3×10^{-25}
EG vs. RG	2.1×10^{-120}	1.5×10^{-6}	7.7×10^{-33}
SS vs. RG	3.1×10^{-19}	0.35	1×10^{-4}

Notes: Institutional quality is a normalized index that ranges between 0 (lowest institutional quality) and 1 (highest institutional quality). The index is by the authors calculated as the average of four components: investment profile, corruption, law and order, bureaucracy quality. IQ refers to the actual IQ value. IQ(initial) refers to earliest IQ value available for each country; in most cases it correspond to 1984's IQ value. The only exceptions are Rep. of Congo (1985), Gambia (1985), Niger (1985), Sierra Leone (1985), Yemen (1990), and Azerbaijan (1998). Δ IQ \equiv IQ-IQ(initial). The mean test is a t-test on the equality of means for two groups; the null hypothesis is that both groups have the same mean.
Source: International Country Risk Guide (ICRG).