

# Examining the cyclicity of capital controls

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## Introduction

- **Capital controls** are **controls** on **inflows** and **outflows**, often used as a stabilization tool to address capital volatility
- **Theory: countercyclical capital controls** are beneficial as they (i) **reduce frequency, severity of financial crises** (Bianchi 2011, Korinek 2018) and (ii) **reduce adjustment costs during contractions** arising from wage-price rigidities, suboptimal monetary & exchange-rate policies (Farhi & Werning 2016)
- But Fernandez (2015) finds that capital controls (for both inflows and outflows) are **acyclical**, not correlated with boom/bust cycles in GDP, current account or exchange rates. Other studies (e.g. Eichengreen 2014) also find that historically, capital controls generally **do not respond** to fluctuations in macroeconomic indicators
- We examine whether this acyclical behavior holds when we classify countries by the cyclicity of their **fiscal and monetary policy regime** – does capital control acyclicity hold, even for countries with **otherwise countercyclical regimes**?

## Data

- **Data:** We use a dataset with **yearly capital restrictiveness indices** for **100 countries** from **1995-2019** compiled by Fernandez (2015). The indices are coded from the IMF's AREAER annual reports for each country, with record the presence of inflow and outflow restrictions for 10 asset categories. These are aggregated into 3 indices: restrictiveness on inflows, outflows, and overall restrictiveness (average)

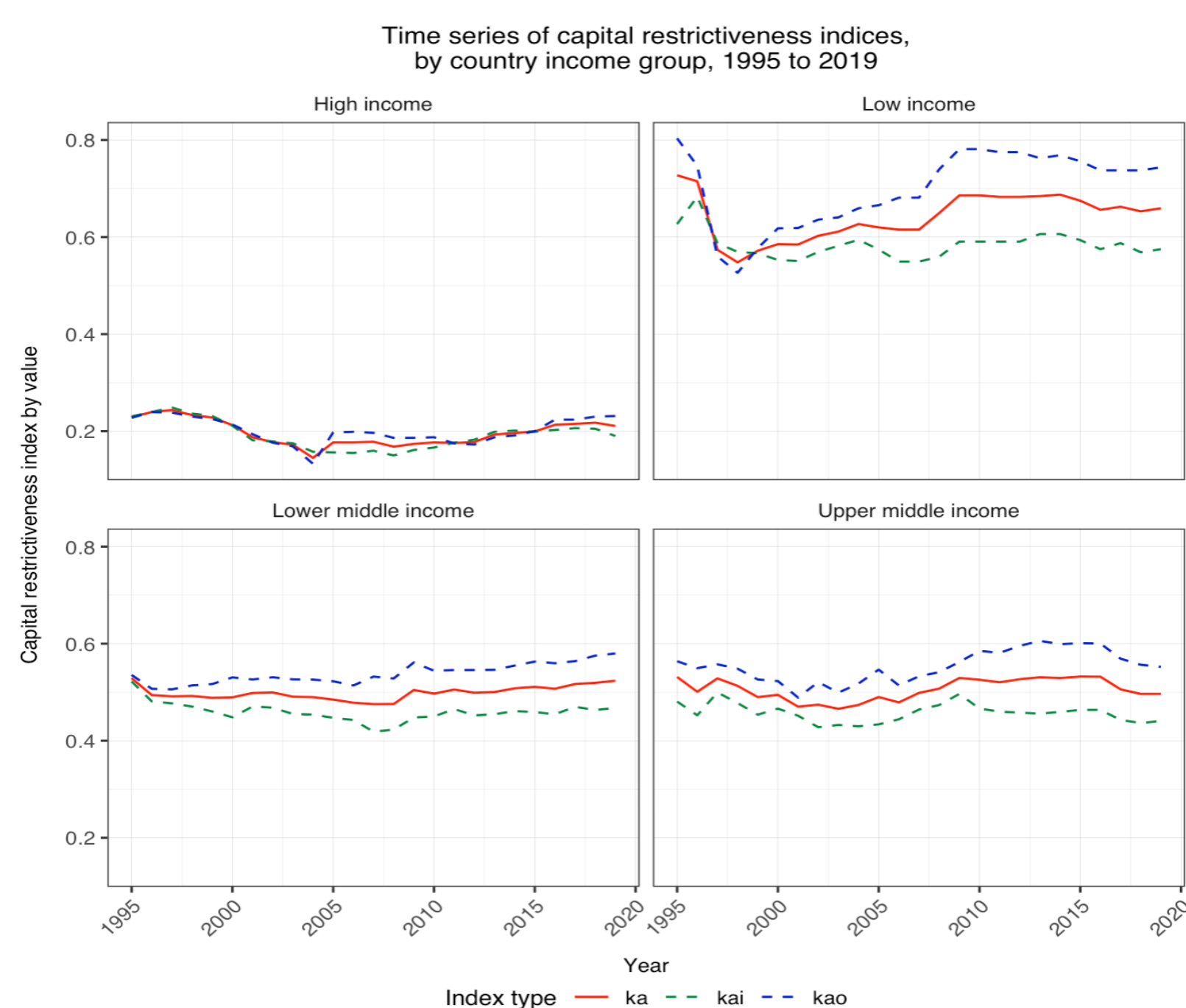


Figure 1: time series of inflow, outflow and average restrictiveness by country income, 1995 - 2019

## Methods & exploratory analysis

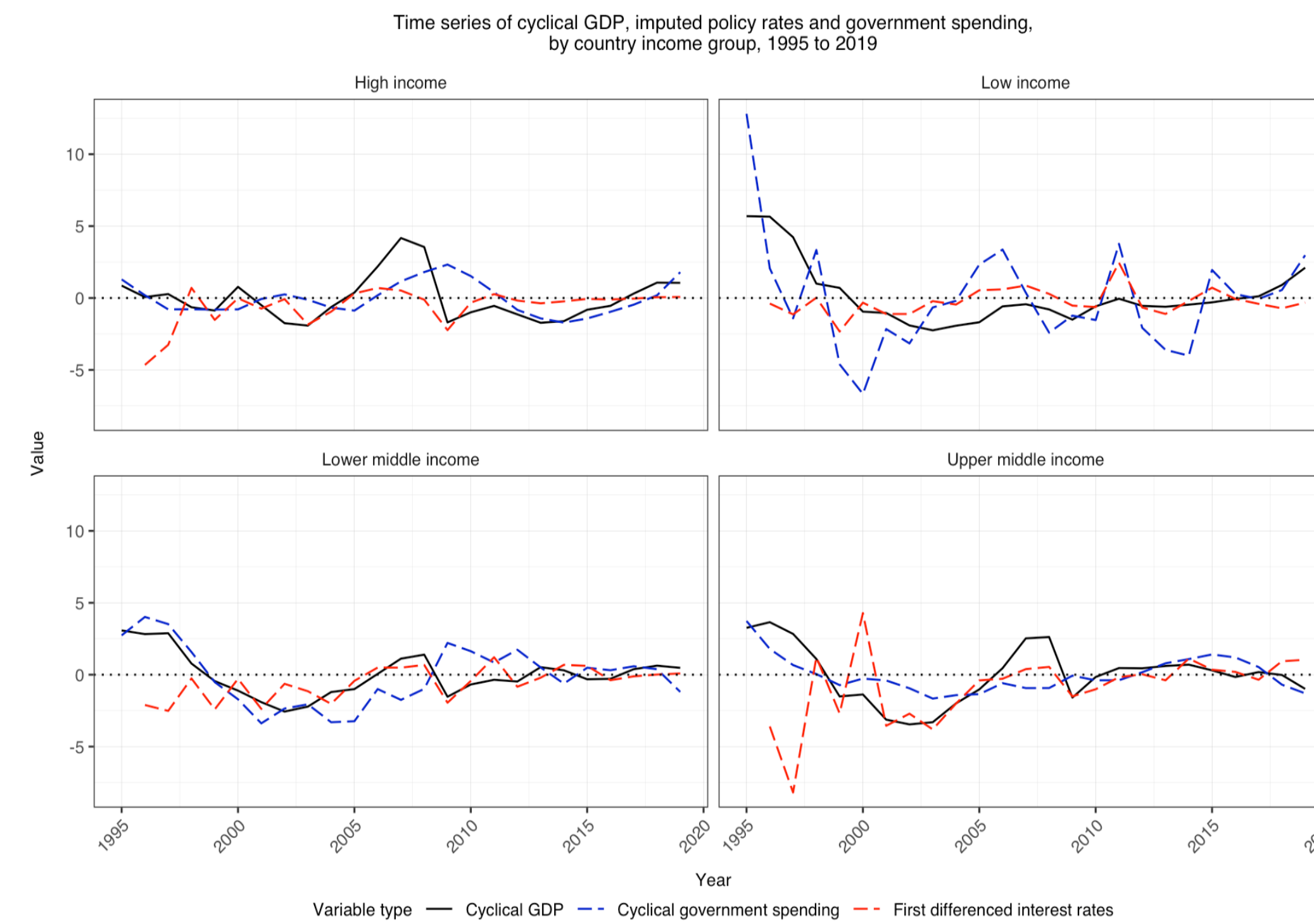


Figure 2: cyclicity regime classification

- **Fiscal policy cyclicity:** for each country, we take the **correlation** between the cyclical component of **log GDP** and the cyclical component of **log government spending** (decomposed using a HP filter) across all time periods. We classify countries as fiscally countercyclical if this correlation  $< 0$ , procyclical if  $> 0$
- **Monetary policy cyclicity:** we take the correlation between the cyclical component of **log GDP** and the first difference of actual and imputed central bank **policy rates** (year-on-year) across all time periods. We group countries as monetary countercyclical if this correlation  $> 0$ , procyclical if  $< 0$

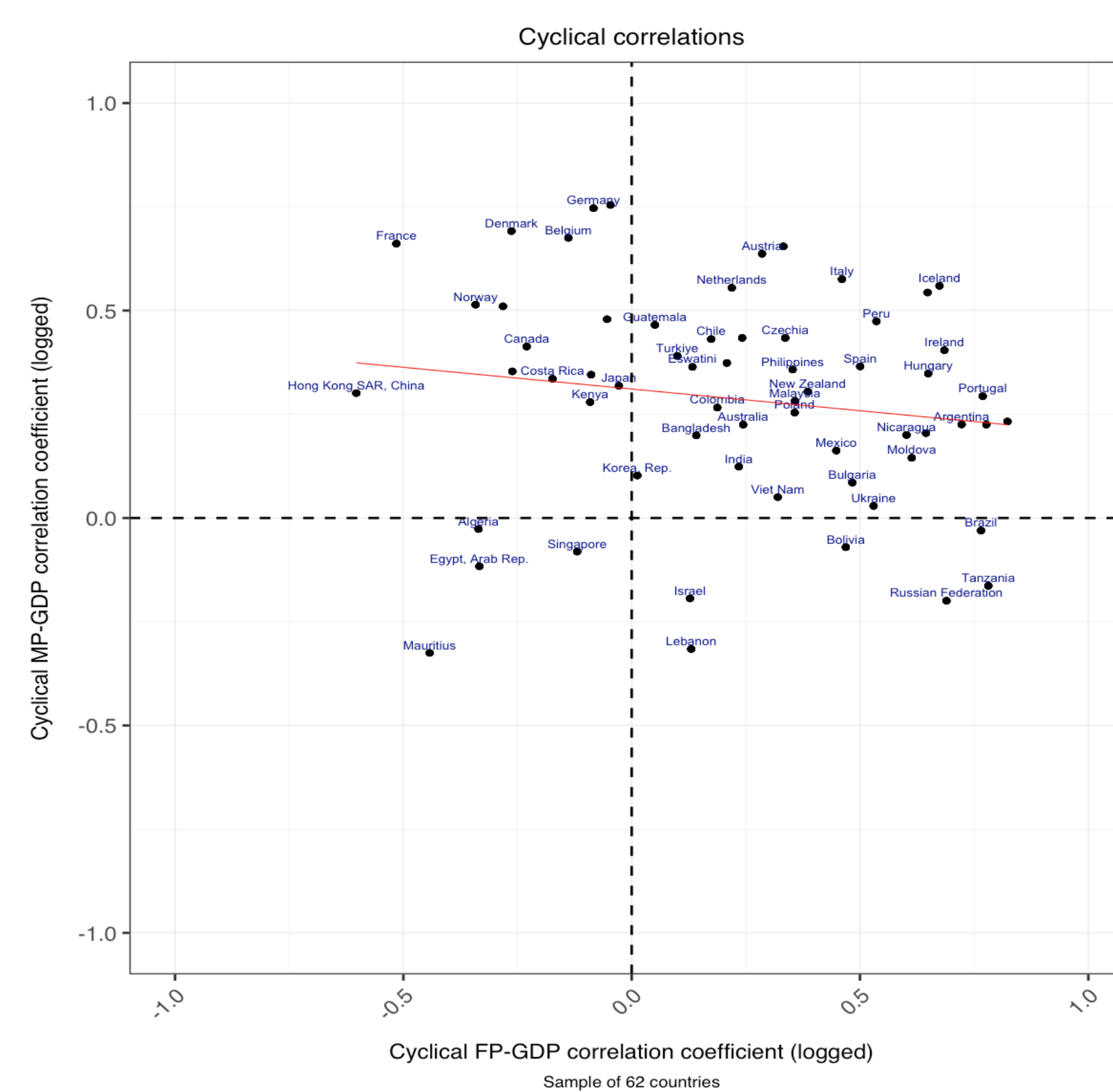


Figure 3: cyclicity regime classification

## Empirical model

- For each group (procyclical / countercyclical) of countries within each regime classification (fiscal / monetary), we run the following pair of panel regressions:

$$y_{it,k} = \beta_0 + \beta_1 \text{cyclical GDP}_{it} + \beta_2 (\text{expansion}_{it} \times \text{cyclical GDP}_{it}) + \mathbf{X}_{it} + \alpha_i + \gamma_t + \epsilon_{it}$$

$$\tilde{y}_{it,k} = \beta_0 + \beta_1 \text{cyclical GDP}_{it} + \beta_2 (\text{expansion}_{it} \times \text{cyclical GDP}_{it}) + \mathbf{X}_{it} + \alpha_i + \gamma_t + \epsilon_{it}$$

where  $y_{it,k}$  is the capital restrictiveness index of type  $k$  (inflows or outflows) for country  $i$  at time  $t$ ,  $\mathbf{X}_{it}$  is a vector of control variables,  $\alpha_i$  represents country fixed effects,  $\gamma_t$  controls for time fixed effects, and  $\epsilon_{it}$  is the error term. As an alternative specification, we use  $\tilde{y}_{it,k}$ , the linearly detrended capital restrictiveness index as our outcome variable.

- The **controls** we include are: cyclical component of log government spending, inflation, foreign reserves, institutional quality, change in real effective exchange rate, log GDP per capita, net IIP, policy rate, exchange rate regime dummy and banking crisis dummy
- We cluster standard errors by country as residuals are heteroskedastic, and verify that time fixed effects are needed for most regressions with joint F tests

## Preliminary results & extensions

Table 3: By cyclicity of fiscal regime

Capital restrictiveness	Countercyclical		Procyclical	
	Inflows	Outflows	Inflows	Outflows
cyclical GDP	0.19*	0.08	0.17	0.06
	(0.08)	(0.17)	(0.13)	(0.16)
expansion × cyclical GDP	-0.18	0.07	-0.22	-0.14
	(0.17)	(0.29)	(0.16)	(0.20)
Observations	447	447	1000	1000
Number of countries	20	20	47	47
Controls	✓	✓	✓	✓
Country FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Clustered standard errors	✓	✓	✓	✓

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 4: By cyclicity of monetary regime

Capital restrictiveness	Countercyclical		Procyclical	
	Inflows	Outflows	Inflows	Outflows
cyclical GDP	0.16	0.12	0.13	0.06
	(0.12)	(0.12)	(0.13)	(0.28)
expansion × cyclical GDP	-0.32	-0.22	-0.50	-0.09
	(0.18)	(0.19)	(0.28)	(0.22)
Observations	1105	1105	217	217
Number of countries	49	49	10	10
Controls	✓	✓	✓	✓
Country FE	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
Clustered standard errors	✓	✓	✓	✓

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

- For our primary level specification, we find a statistically significant positive effect of cyclical GDP on level inflows only for **fiscally countercyclical regimes**. This suggests that countries whose government are **actively engaged in demand management policies** use capital controls countercyclically
- However, in our alternative specification (not shown), we find **no significant effect** of cyclical GDP on **detrended inflows** (or any other detrended flow) across all fiscal regimes, possibly suggesting that cyclical GDP only has a long-term effect on capital restrictiveness. **Potential issues with our model:** hidden interaction effects, lagged dependent values, simultaneity, measurement error (imputed policy rates)
- Methodological extensions: use **high-frequency** (quarterly/monthly) data for all variables, dynamic panel data methods (e.g. Arellano – Bond, MLE)
- Topical extensions: electoral cycles (Gavoille 2023, Muller 2019), global financial cycle (Rey 2015)