APPENDIX C

Rule-based Fiscal Frameworks, Public Investment, and Fiscal Consolidations[1]

The way flexible fiscal rules affect changes in public investment changes is estimated using the following empirical specification:

$$y_{i,t} - y_{it-1} = \beta_1 FR_{i,t} + \beta_2 FC_{i,t} + \beta_3 FR_{i,t} * FC_{i,t} + \sum \gamma' x_{i,t} + \mu_i + \theta_t + \varepsilon_{i,t}$$

in which $y_{i,t}$ is the log of real public investment, $FR_{i,t}$ is a dummy variable that equals one when country i has a flexible fiscal rule in place, $FC_{i,t}$ is a dummy that equals one for the starting year t of the fiscal consolidation in each country i and zero otherwise, γ is a vector of coefficients for our control variables x (growth rate of GDP, and growth rate of population). Finally, μ_i and θ_t denote country and time effects, and the overall error term is given by $\varepsilon_{i,t}$. The model's key variables and sources are described below:

Public investment: Proxied by gross public fixed capital formation measuring the total value of acquisition less disposals of fixed assets plus certain specified expenditure on services that adds to the value of non-produced assets. Source: IMF (2018).

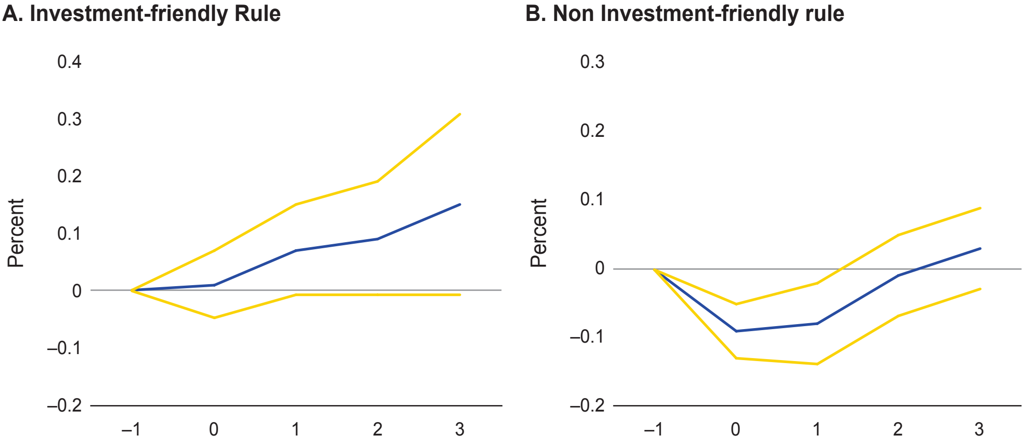
Flexible rule: Dummy equaling 1 if a flexible rule—in the form of an investment-friendly rule, cyclically-adjusted budget balance rule, or rules with well-defined escape clauses—is in place at time t; 0 otherwise. Sources: IMF (2017) and Schaechter et al. (2012).

Fiscal consolidation: Dummy equaling 1 in year in which the cyclically adjusted primary balance improves at least 1.5% of GDP, 0 otherwise (based on criteria in Alesina and Ardagna, 2010). Source: IMF (2018).

[1] Based on Ardanaz et al. (forthcoming).

Based on the above specification but restricting the comparison to countries with and without investment-friendly rules, we obtain similar results to those reported in Figure 5.8 (see Figure C.1).

FIGURE C.1 ▶ Effect of Fiscal Consolidation on Public Investment Growth, Conditional on Fiscal Rule Design



Source: Ardanaz et al. (forthcoming).
Note: In both panels, $t = 0$ is the year of the fiscal consolidation, solid lines are local projection responses using OLS, dashed lines denote 95% confidence bands. A country is considered to have an investment friendly rule when a numerical constraint is imposed on fiscal aggregates and public investment is excluded from the perimeter of the rule.

References

Alesina, A., and S. Ardagna. 2010. "Large Changes in Fiscal Policy: Taxes versus Spending." In J. R. Brown, ed., *Tax Policy and the Economy*. Volume 24. Chicago, IL: University of Chicago Press.

Ardanaz, M., E. Cavallo, A. Izquierdo, and J. Puig. Forthcoming. "Growth-Friendly Fiscal Rules? Understanding the Link between Rule-Based Fiscal Frameworks and Public Investment." Inter-American Development Bank, Washington, DC. Unpublished.

IMF (International Monetary Fund). 2017. "Fiscal Rules Dataset: 1985–2015." Available at https://www.imf.org/external/datamapper/FiscalRules/map/map.htm. Accessed February 2019.

_____. 2018. *World Economic Outlook: Challenges to Steady Growth*. October. Washington, DC: IMF.

Schaechter, A., T. Kinda, N. Budina, and A. Weber. 2012. "Fiscal Rules in Response to the Crisis—Toward the 'Next-Generation' Rules: A New Dataset." IMF Working Paper no. 12/187. International Monetary Fund, Washington, DC.