The Erosion of Central Bank Independence

Technical Appendix

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The analysis uses data from the following sources:

- For all countries except Argentina, the price level used for the calculation of the inflation rate is the Consumer Price Index (CPI) from the World Bank's *World Development Indicators* (code FP.CPI.TOTL).
- Argentina's official CPI statistics were manipulated from 2007 through 2015. The official statistics were used for the pre-2007 and post-2015 periods (available from https://www.indec.gob.ar/indec/web/Institucional-Indec-InformacionDeArchivo and https://www.indec.gob.ar/indec/web/Nivel4-Tema-3-5-31. Data for the 2007-2015 period are the unofficial *Inflación Verdadera* index: http://www.inflacionverdadera.com/argentina/english/.
- The inflation rate for country i in year t is $\pi_{i,t} = 100 \cdot (\frac{CPI_{i,t}}{CPI_{i,t-1}} - 1)$.
- The Government Effectiveness indicator is from the World Bank's *Worldwide Governance Indicators* (code GE.EST).
- The central bank independence data are Garriga's updates of the Cukierman-Webb-Neyapti (1992) indexes, https://sites.google.com/site/carogarriga/cbi-data-1. The analysis uses the weighted score, lvaw.

A cross-sectional dataset is created from the means of each variable for the 2000-23 period. Eight microstates are dropped (Vanuatu, Tuvalu, St. Kitts and Nevis, St. Vincent and the Grenadines, Solomon Islands, Samoa, Fiji and Nauru).

The figure plots the inverse hyperbolic sine of the inflation rate, controlling for the effects of central bank independence, as a function of the average of the Government Effectiveness indicator, both averaged over 2000-23.

- The inverse hyperbolic sine (asinh) function $\ln ln (\pi + \sqrt{\pi^2 + 1})$ is used to "compress" extremely high values of the inflation rate without the large negative numbers that the natural log function would generate for inflation rates close to zero. (The asinh function of a variable is approximately equal to the value of the variable for small values, and approximately equal to the log for large values.)

- To control for central bank independence, the transformed inflation rate is regressed on an intercept and Garriga's lvaw index,

$$\left(\pi_i\right) = \beta_0 + \beta_1 lvaw_i + \epsilon_i$$

- The variable on the vertical axis of the plot is transformed inflation rate minus the estimated contribution of the lvaw term, $\hat{\beta}_0 + \hat{\epsilon}_i$.

To verify that higher Government Effectiveness (GovEffect) is associated with lower inflation, controlling for central bank independence, the transformed inflation rate is regressed on lvaw and GovEffect:

$$\left(\pi_i\right) = \beta_0 + \beta_1 lvaw_i + \beta_2 GovEffect_i + \epsilon_i$$

The results are as follows:

Regressor	Estimated coefficient	t statistic (using robust SE)
Intercept	2.47	13.31
Central bank independence (lvaw)	−0.38	1.30
Government effectiveness (GovEffect)	−0.46	8.65
Number of observations = 150. Adjusted R-squared = 0.325.		