Polarisation, Populism and Hyperinflation*[s]*: Some Evidence from Latin America

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1 Introduction and Motivation

- *Some* Latin American countries presented periods of high political *polarisation*, or periods of political dictatorships, in the 1970s and 1980s,

- which were *followed* by long episodes of high inflation and even bursts of *hyper-inflation* in the 1980s and 1990s, [e.g. Brazil, Argentina, Peru and Bolivia, to mention a few].

- More specifically, these hyperinflationary episodes occurred right after re-democratisation, or a reduction in political polarisation, took place in those countries,

- and macroeconomic stabilisation came only after a long *delay*, [i.e. roughly ten years after the implementation of more democratic institutions].

- Hence, this paper uses data from Brazil, Argentina, Peru and Bolivia from 1970 to 2003, and the sample captures periods of high polarisation, re-democratisation, high inflation, hyperinflation, and then macroeconomic stabilisation.
  - We therefore test for the *populist view* of state capture in Latin America.

- The empirical results suggest that polarisation presented a negative and significant impact on inflation, which indicates that the reduction in polarisation seen in the 1980s was, in fact, *detrimental* to macroeconomic stability.

- Therefore, the evidence allows us to speculate that the recently-elected governments in those countries pursued populist, or the so-called *[re]*distributive, policies that led to poor macroeconomic performance.

- All in all, the populist view hypothesis of state capture is *accepted* by the data.

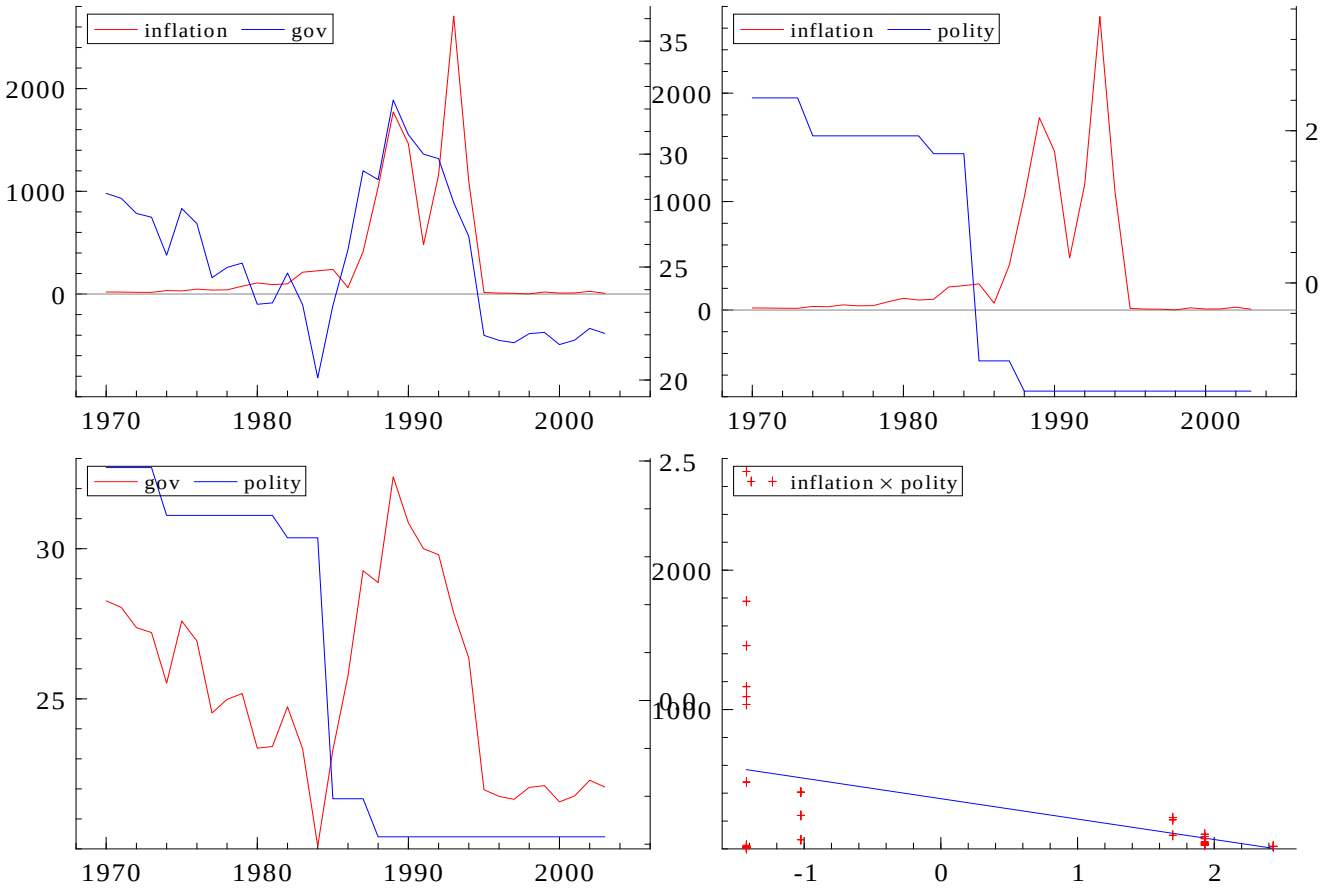

Figure 1: Inflation and Political Polarisation, Brazil 1970-2003. Sources: Brazilian Bureau of Census, Centre for Global Policy, Penn World Table, and author's own calculations.

1.1 Related Literature

- Paldam [Public Choice, 1987] presents some early evidence from Latin America, which suggests that civilian governments tend to generate higher inflation than military ones.

- Sachs [NBER, 1989], and Dornbusch and Edwards [JDE, 1990] rather descriptively highlight the issue of recently-elected governments pursuing populist policies in Latin America, in the name of *[re]*distribution.

- Alesina and Drazen [AER, 1991] suggest that in more polarised societies stabilisations are delayed, [i.e. stabilisations come only after some *'political consolidation'* takes place, or after an agreement on which group pays for the stabilisation is

reached]. Cukierman et al. [AER, 1992] suggest that more politically unstable societies rely more on seigniorage, [i.e. it takes time, or some sort of *'political consolidation'*, to achieve a better tax system or central-bank independence].

- Beetsma and Van der Ploeg [Public Choice, 1996] argue that in excessively unequal societies, Latin America fits the bill well, the government tries to please the medium voter, the poor in this case, via *[re]*distribution. Veiga [Economics and Politics, 2000] provides some evidence that in more fragmented and polarised societies, or in societies with a large number of political parties in congress, stabilisations are delayed.

- Acemoglu, Johnson, Robinson and Thaicharoen [JME, 2003] suggest that distortionary macroeconomic policies, [e.g. in the role of high inflation], are symptoms

of *'weak institutions'*. Desai, et al. [American Political Science Review, 2003] suggest that it all depends on how unequal a country is, [i.e. democratisation taking place in unequal countries leads to populist policies, and hence high inflation].

- Aisen and Veiga [Journal of Money, Credit, and Banking, 2006] suggest that political instability, exemplified by the number of government crisis, leads to higher inflation, particularly in developing countries,

- Furthermore, Acemoglu, Johnson and Querubín [NBER, 2008] suggest that policy reforms are only successful when the *'political context'* is right, [e.g. Zimbabwe *implemented* central bank independence in 1995, however ...] Dutt and Mitra [EJ, 2008] suggest that excessive inequality leads to political instability, which in turn leads to *policy volatility*, and lower investment and growth.

1.2 The road ahead:

1. We briefly discuss the data set used and present the correlation matrix to see if there is any statistical relationship amongst the variables.

2. We then present the econometric strategy and an *unbiased* selection of the main empirical results obtained.

3. Finally, we conclude and suggest some future avenues to be explored.

2 The Data

- The data set covers the period between 1970 and 2003, and four countries, Brazil, Argentina, Peru and Bolivia, [i.e. $T = 34$ and $N = 4$].

- The data on inflation *(INFLAT)* come from the Bureaux of Census, Brazil, Argentina, Peru and Bolivia respectively, and

- the data on the government's share of the real gross domestic product *(GOV)* come from the Penn World Table (PWT) data set mark 6.2.

- To construct the measures of political polarisation we use the Polity IV variables democracy *(DEMOC)*, which ranges from 0, a less democratic polity, to 10, a

more democratic one; constraints on the executive *(XCONST)*, which ranges from 1, a less constrained executive, to 7, a more constrained one; and political competition ($POLCOMP$), which ranges from 1, a less competitive polity, to 10, a more competitive one, which are compiled and provided by the Centre for Global Policy.

  - In addition, we extract the principal components of the above measures, so that we end up with one aggregated measure of polarisation [$POLITY$], which captures the common factors amongst these three variables. All in all, we use *XCONST* and $POLITY$ for the empirical analysis.

- The control variables used include the ratio of exports and imports over the real GDP *(OPEN)*, and the growth rate of the real GDP *(GROWTH)*, which are provided by the PWT 6.2 data set.

- Given the above, Table 1 presents the correlation matrix, and it can be seen that both measures of polarisation present negative statistical correlations with *INFLAT*. This suggests that when polarisation decreased, macroeconomic performance deteriorated. *GOV* presents the expected positive correlation with *INFLAT*.

Table 1: The Correlation Matrix: Brazil, Argentina, Peru and Bolivia, 1970-2003.

	INFLAT	GOV	XCONST	POLITY	OPEN	GROWTH
INFLAT	1					
GOV	.0932	1				
XCONST	-.2074*	.0773	1			
POLITY	-.1886*	.0404	.9851*	1		
OPEN	-.0722	-.2121*	-.2472*	-.2214*	1	
GROWTH	-.2657*	.0889	.2088*	.1656	.0053	1

Sources: Bureaux of Census, Centre for Global Policy, Penn World Table, and author's own calculations.

* represent statistical significance at the 5% level.

3 Empirical Strategy and Results

- Firstly, we test for unit roots in this $T > N$ panel using the Im, Pesaran and Shin [(IPS) JoE, 2003] test, which allows for *heterogeneous* parameters and serial correlation. The stats suggest that we can reject the null of a unit root in favour of the alternative that at least *one* country of each variable is, in fact, stationary.

  - In addition, most of the variables used are stationary by default, [i.e. the Polity variables are within closed intervals, therefore the polarisation measures are bounded to be stationary]. *GOV* and *OPEN* are ratios, again, somehow bounded to be stationary. *GROWTH*, given its erratic nature in those countries, revolving around the mean, is also stationary. Finally, *INFLAT*, according to the IPS test, is stationary.

- Furthermore, in $T > N$ dynamic panels the issue of *heterogeneity* bias might be important—caused for under wrongly assumed homogeneity of the slopes the composite disturbance term is serially correlated and the explanatory variables x_s are not independent of the lagged dependent variable y_{t-1}.

- For the above, the one-way Fixed Effects (FE) estimator provides consistent estimates in dynamic models when $T > N$, but only when the slopes are *homogeneous*. Moreover, Swamy's (1970) Random Coefficients (RC) estimator, which assumes heterogeneity of intercepts *and* slopes, gives consistent estimates of the expected values.

- Given the above, we then estimate static and dynamic models with different estimators, [i.e. the benchmark Pooled OLS (POLS), Fixed Effects and Random

Coefficients]. The estimated heterogeneous dynamic equation looks like,

$$\begin{aligned} INFLAT_{it} &= \alpha_i + \beta_i GOV_{it} + \gamma_i POLITY_{it} + \delta_i OPEN_{it} + \\ &\quad + \epsilon_i GROWTH_{it} + \varepsilon_i INFLAT_{it-1} + \upsilon_{it}. \end{aligned}$$

- Furthermore, some would justly argue that these countries are somewhat related to each other. Therefore, we account for between-country dependence by using Zellner's (1962) Seemingly Unrelated Regressions (SUR) estimator.

- The static models, using POLS and FE, all suggest that *XCONST* and $POLITY$ present a negative and significant impact on *INFLAT*. *GOV*, as expected, presents positive and significant effects on *INFLAT*. The F tests* suggest the presence of fixed effects, which validates the use of the FE estimator.

- The dynamic models confirm the above, suggesting that the measures of polarisation present negative and significant effects on *INFLAT*. Interestingly enough, *GOV* does not present clear-cut effects on $INFLAT$ this time. The LR tests suggest that the coefficients are heterogenous, which justifies the use of the RC estimators here.

- Finally, the SUR estimates confirm the fact that both measures of political polarisation present a negative impact on inflation. Argentina is the only exception though, perhaps picking up the fact that Argentina is the least unequal country in the sample.

Table 2: Panel Unit-Root Tests

Variables	IPS Statistics
INFLAT	-3.06
GOV	-2.35
XCONST	-2.50
POLITY	-2.14
OPEN	-2.07
GROWTH	-2.95

The moments of the mean E and variance var of the average $\bar{t}$ are respectively: -1.43 and .62. Source: Im, Pesaran and Shin (2003) and author's own calculations.

Table 3: Static Estimates of XCONST and POLITY on Inflation, 1970-2003.

	Static Models			
INFLAT	POLS (1)	FE (2)	POLS (3)	FE (4)
GOV	.1136 (3.26)	.1236 (2.05)	.1115 (3.16)	.1199 (1.97)
XCONST	-1.5262 (-2.72)	-2.44 (-5.03)		
POLITY			-.1576 (-1.94)	-.3477 (-4.84)
OPEN	-.0886 (-7.50)	-.2373 (-9.46)	-.0859 (-7.21)	-.2449 (-9.45)
GROWTH	-.1560 (-5.42)	-.1060 (-4.28)	-.1631 (-5.64)	-.1096 (-4.42)
Constant	4.50 (4.98)	8.33 (5.02)	3.61 (4.35)	7.19 (4.48)
F test	28.96	50.44	27.32	49.36
F test*		19.88		20.74
R^2	.46	.39	.44	.37

T-ratios in parentheses. Number of observations: $NT = 136$.

	Dynamic Models			
INFLAT	FE (1)	RC (2)	FE (3)	RC (4)
GOV	.0709 (1.60)	.0085 (.09)	.0698 (1.57)	.0152 (.17)
XCONST	-.7473 (-1.95)	-1.04 (-2.16)		
POLITY			-.0960 (-1.71)	-.1426 (-1.93)
OPEN	-.1159 (-5.47)	-.1130 (-4.03)	-.1159 (-5.29)	-.1146 (-3.88)
GROWTH	-.0819 (-4.44)	-.0829 (-3.29)	-.0835 (-4.53)	-.0845 (-3.40)
$INFLAT_{(-1)}$	.5846 (10.82)	.5613 (6.11)	.5905 (10.92)	.5630 (6.21)
Constant	3.36 (2.63)	4.41 (1.94)	2.93 (2.41)	3.72 (1.66)
F test	101.28		100.37	
F test*	8.39		7.97	
Wald test		211.28		209.73
LR test		46.21		46.48
R^2	.68		.68	

T-ratios in parentheses. Number of observations: $NT = 136$.

Table 5: SUR Estimates of XCONST and POLITY on Inflation, 1970-2003

	SUR			
INFLAT	BRAZIL	ARGENTINA	PERU	BOLIVIA
GOV	.1367 (1.74)	1.12 (3.72)	-.1970 (-1.68)	.2443 (1.42)
XCONST	-4.11 (-3.65)	-1.16 (-1.22)	-2.52 (-3.72)	-2.19 (-2.38)
OPEN	-.2401 (-4.33)	-.3997 (-8.42)	-.2609 (-7.38)	-.1383 (-2.06)
GROWTH	-.0626 (-1.26)	-.0842 (-2.20)	-.1039 (-3.85)	-.0723 (-.66)
LM test	2.97			
GOV	.1435 (1.85)	1.16 (3.87)	-.1899 (-1.63)	.2632 (1.52)
POLITY	-.5583 (-3.69)	-.1522 (-1.09)	-.3457 (-3.84)	-.3709 (-2.42)
OPEN	-.2367 (-4.36)	-.4080 (-8.22)	-.2740 (-7.76)	-.1368 (-2.06)
GROWTH	-.0701 (-1.42)	-.0861 (-2.25)	-.1018 (-3.80)	-.0751 (-.70)
LM test	2.94			

T-ratios in parentheses. Number of observations: $NT = 136$.

4 Concluding Remarks

- All in all, the populist view of state capture is confirmed by the data. Governments coming into power after re-democratisation in Latin America generated, in the name of *[re]*distribution, poor macroeconomic performance in the role of high inflation and even hyperinflation.

- Stabilisation is achieved, however after a, roughly speaking, 10-year lag. *'Political consolidation'* and a better institutional framework—fiscal and monetary policies, not to mention central-bank independence—seems to require a mature democracy, or the *'right political context'* to work well.

- Given that the previous literature does not provide a clear-cut answer on the subject, it is therefore important to conduct single-country studies or studies with

groups of countries that present similar characteristics so that a more *disaggregated* and insightful view emerges.

- Final thoughts: it seems that Zimbabwe's inflation became hyperinflation after the ruling party reduced the constraints on itself, and also was faced with some political competition; is SA heading to a burst of populism, [i.e. high*[er]* inflation, via the channel of more political competition?].