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Are Latin America's New Left Regimes Reducing Inequality Faster?[1]
Addendum to *Poverty, Inequality and the New Left in Latin America*

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Latin America is the most unequal region in the world.[3] Since around 2000, however, inequality in most Latin American countries has declined (Figure 1).[4] As it happens, falling inequality coincided with the rise of leftist regimes in a growing number of countries. By 2009, ten countries accounting for two-thirds of the region's population had left-leaning or outright left governments in power (Table 1). Are these two phenomena related? Do left leaning regimes reduce inequality faster? Preliminary results for a panel of 17 countries with adequate data for the period 1988 to 2006 suggest political regimes do matter for inequality outcomes.

Based on the descriptive analysis presented in Lustig (2009)[5], leftist governments seem to have greater success in reducing poverty and inequality than governments of other political orientations. In fact, *left populist* governments appear to have reduced inequality faster than the *social democratic left* regimes.[6] However, an analysis based on descriptive statistics does not control for other factors that may also have affected the rate of inequality and poverty reduction. For example, Argentina and Venezuela were recovering from economic crises and benefited from sharp increases in the price of oil and other commodities during the 2002-2008 years. That is to say, one cannot conclude that it was the initiatives and policies of leftist governments (particularly, populist left governments) that caused a reduction in poverty and inequality unless one can control for other factors impacting inequality during this period.

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[1] This note documents the econometric results reported in Nora Lustig (2009) *Poverty, Inequality and the New Left in Latin America*, Woodrow Wilson International Center for Scholars and presented in the seminar co-sponsored with the Center for Global Development, July 21, 2009. (www.wilsoncenter.org/index.cfm?topic_id=1425&fuseaction=topics.event_summary&event_id=542295). The final draft of the paper was posted by the Woodrow Wilson Center for International Scholars, Latin American Program, July 25, 2009 (www.wilsoncenter.org/events/docs/LUSTIG_INEQ%20POV%20&%20LEFT%20GOV%20LAT_JULY%2025_09_Revised.pdf).

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[3] With a Gini coefficient of .53 (circa 2005), Latin America is 19 percent more unequal than Sub-Saharan Africa, 37 percent more unequal than East Asia and 65 percent more unequal than developed countries.

[4] Extreme poverty also declined rapidly during this period. See Lustig (2009).

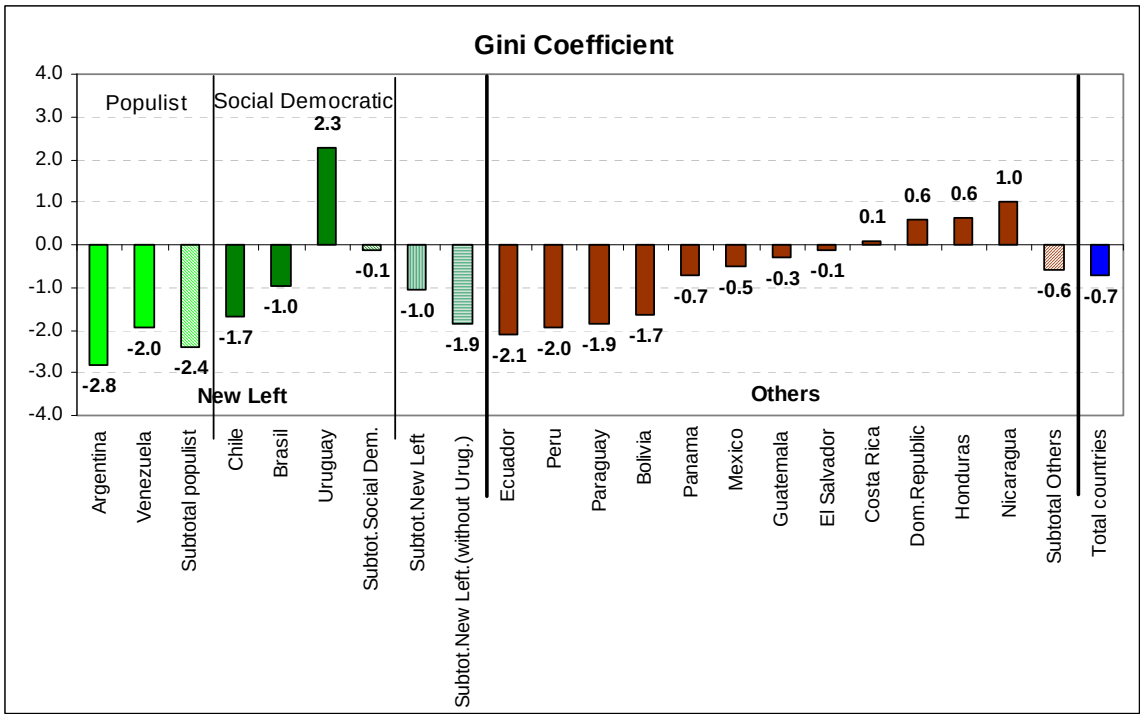
[5] Ibid.

[6] For the classification of leftist regimes see Arnson and Perales (2007).

One way to control for the impact of factors such as the rise in commodity prices and income per capita is to use regression analysis. Commodity prices and income per capita can be introduced directly as control variables while "fixed effects" can be used to estimate the impact of country-specific but time-invariant factors affecting inequality such as, for example, the initial distribution of land, the quality of education, latitude, and the share of indigenous population. The remainder of this note summarizes the estimation results and documents the key data sources.

Figure 1

Annual percentage change in the Gini coefficient, by type of government: 2003 - 2006



Source: Lustig (2009). Notes:

1. Data for Argentina and Uruguay are for urban areas only. Each country's urban population represents more than 80 percent of the total population.
2. The annual percentage change in the Gini coefficient for each country is equal to the difference between the Gini in 2006 (or closest available year) and the Gini in 2003 (or closest available year) divided by 3 (or the corresponding number of years). The changes by groups of countries are calculated as the simple average of the annual percentage change for each country belonging to the corresponding group.
3. The percentage change in inequality refers to changes from 2003 to 2006, except in cases where data were not available for those years. For El Salvador the change is calculated from 2003 to 2005; for Guatemala it is calculated from 2000 to 2006; for Mexico it is calculated from 2002 to 2006; for Nicaragua it is from 2001 to 2005, and for Uruguay it is from 2005 to 2006.
4. The period of 2003-2006 was selected because it included the most number of observations for poverty and inequality for the maximum number of countries under leftist governments. However, the years that the leftist governments were in power in each country varies: the new left has governed since 2003 in Argentina and Brazil, since 2000 in Chile, since 2005 in Uruguay, and since 1999 in Venezuela.
5. Using the bootstrap method, the author tested whether differences between Gini coefficients between a specified year and the year immediately prior were statistically significant. Statistical significance was

determined at a 95 percent level and with 100 replications. Results are presented in Table A.5 of Lustig (2009).

Table 1: New Left Leaning regimes in Latin America

					Cumulative years regime in power		
Country	Leader	Took Office	Effective year	Classification	1999-2001	2002-2004	2005-2007
Argentina	Kirchner	May-03	2004	Left Populist	0	1	4
Bolivia	Morales	Jan-06	2007	Left Populist	0	0	1
Brazil	Lula da Silva	Jan-03	2004	Social Democratic	0	1	4
Chile	Lagos	Mar-00	2001	Social Democratic	1	4	7
Uruguay	Vazquez	Mar-05	2006	Social Democratic	0	0	2
Venezuela	Chavez	Feb-99	2000	Left Populist	2	5	8

Source: Lustig (2009) following political regime classification of Arnson and Perales (2007). Note: "effective year" is a year after taking power assuming that new policies take time to implement.

Estimation results

Fortunately, Latin America's recent move to the left occurred in the middle of a period during which measures of inequality greatly improved. SEDLAC's survey-based poverty and inequality indicators-- computed from household survey data tabulated in a relatively uniform fashion-- represents a unique opportunity to test whether political regimes matter. [7] Household surveys became more abundant in the 1990s, but apart from a few countries (Argentina and Brazil) survey years are intermittent at best.[8] To deal with intermittent household surveys we follow Barro (2007) and select inequality measures every three years choosing the most recent available survey in each three year interval. Other control variables such as per capita income and the terms of trade are three year averages.[9] Using three year intervals in a panel also gives us a wider range of political regime measures to test. Political regime is measured in three ways. One regime measure simply puts a one for any three year period during which a left leaning government is in office for more than one year (see Table 1 for the initial effective regime year). A second measure counts the number of years a given regime has been in power skipping the initial year in office because it generally takes some time for a government to implement new policies. A third regime measure is reported in the last three columns of Table 1: it counts the cumulative years the regime is in power, again not including the year the government takes office

[7] This data is available online at http://www.depeco.econo.unlp.edu.ar/cedlas/sedlac/.

[8] Appendix Tables A-6 and A-7 in Lustig (2009) show survey based inequality and poverty estimates for 18 Latin American countries and the Dominican Republic as downloaded in June 2009. For the period 1989 to 2006, there are 166 available surveys which cover just over 50 percent of the years for 18 countries. Sampling over three year intervals generates a panel covering the same period but with only about 20% of the inequality measures missing.

(counting starts with the "effective year" reported in the fourth column). We report the results for the first measure only but results are also significant if one uses the years in power or cumulative years. [10]

Table 2 presents estimates of how the two political regimes (populist and social democratic left) affect inequality using the Gini coefficient as the dependent variable and per capita income as the key control variable (as with the classic Kuznet's curve). Changes in net barter terms of trade and fuel exports as a percent of merchandise trade are included as control variables too. Equations 1.1 to 1.3 are panel estimates without unobserved fixed effects, equations 1.4 to 1.6 include both country and period fixed effects. Political regimes are included as a separate 0,1 dummy in equations 1.2 and 1.4. The effect of public spending on inequality reduction is measured in equations 1.2 and 1.5 by multiplying public consumption spending by the same 0,1 regime dummy. Finally, equations 1.3 and 1.6 multiply the same dummy by terms of trade to take into account how each regime uses terms of trade windfalls to reduce inequality.[11]

[10] This suggests that these regime dummies are capturing the effect of government policies. Using Chile's social democratic government as an example, the Lagos government took office in March 2000 so the first regime measure would 1,1,1 (using the dates shown in the last three columns of Table 1). The second method counts the years in power during each interval so this regime indicator would be 1,3,3 for Chile. The last three columns of Table 1 reports the third measure, 1,4,7 for the three intervals during 1999-2007.

[11] Both the public spending and net barter terms of trade variables were obtained directly from the World Bank's World Development Indicators as downloaded in June 2009.

Table 2: Political regimes and inequality in Latin America

Dependent Variable:	3 year panel Gini Coefficient			with fixed effects[1/] Gini Coefficient		
(t-statistics in parentheses)	1.1	1.2 [3/]	1.3	1.4	1.5 [3/]	1.6
Per capita GDP $ppp 2005 (log)[4/]	**-3.2** *-(3.4)*	**-3.2** *-(3.4)*	**-3.2** *-(3.4)*	**-0.5** *-(0.1)*	**-1.2** *-(0.6)*	**-0.8** *-(0.2)*
Net barter terms of trade (log level)[4/]	**2.8** *(0.9)*	**2.9** *(1.0)*	**2.9** *(1.0)*	**-4.1** *-(2.7)*	**-3.6** *-(2.6)*	**-4.2** *-(2.7)*
Government spending % GDP (log)[4/]	**8.3** *(6.7)*	**8.4** *(6.7)*	**8.4** *(6.8)*	**3.5** *(2.8)*	**4.0** *(3.5)*	**3.5** *(2.8)*
Social Democratic (SD) Regimes (0,1)	**1.1** *(0.9)*			**-2.5** *-(2.5)*		
Public spending by SD regimes		**0.4** *(0.8)*			**-1.1** *-(4.0)*	
Terms of trade for SD Regimes			**0.21** *(0.84)*			**-1.0** *-(2.9)*
Left Populist (LP) Regimes (0,1)	**-3.3** *-(2.4)*			**1.0** *(0.8)*		
Public spending under LP regimes		**-1.3** *-(2.5)*			**0.0** *(0.1)*	
Terms of trade for LP Regimes			**-2.9** *-(2.4)*			**0.4** *(0.8)*
Fuel exports as a % of merch exports[4/]	**-0.07** *-(0.3)*	**-0.06** *-(0.3)*	**-0.06** *-(0.3)*	**0.62** *(3.8)*	**0.59** *(4.2)*	**0.63** *(3.8)*
Constant	**48** *(3.1)*	**47** *(3.1)*	**47** *(3.0)*	**66** *(2.1)*	**69** *(4.1)*	**69** *(2.3)*
Number of Observations	78	78	78	85	85	85
Number of Countries 2/	16	16	16	17	17	17
Adjusted R^2	0.35	0.35	0.35	0.84	0.84	0.84
Std Error of Regression	*3.8*	*3.8*	*3.8*	*2.1*	*2.0*	*2.1*
Mean dependent variable	53	53	53	52	52	52

1/ Includes both period and cross section fixed effects, t-stats based on White diagonal robust errors in all estimates.

2/ Including Uruguay in eqs 1-3 makes the SD regime sign positive, but adding or omitting Uruguay has no effect on any of the fixed effects coefficient estimates so Ururguay is included in eqs. 1.4-1.6.

3/ Eqs. 1.2 and 1.5 allow public spending coeffients to vary by regime, eqs. 1.3 and 1.6 do the same for the terms of trade.

4/ Net barter terms of trade, government consumption spending, fuel exports and per capita GDP data all obtained from the World Bank World Development indicators database as downloaded June 2009.

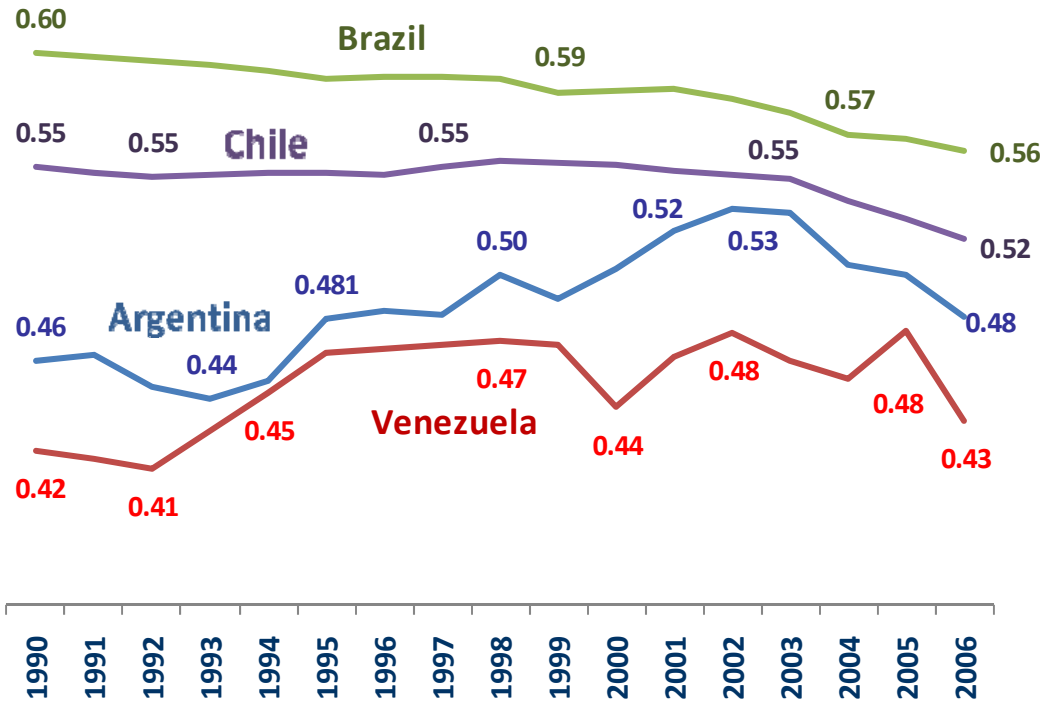
In all cases the pattern is the same. Without fixed effects, left populist regimes appear to reduce inequality but social democratic regimes do not. With fixed effects the impact of political regime is reversed: the social democratic regimes reduce inequality significantly using all three measures while left populist regimes have no impact on inequality. Note also that terms of trade and the composition of trade become much more significant with the fixed effects estimates. The impact of per capita income, which does not change dramatically over this period, gets lost in the fixed effects as well. Public spending overall in Latin America remains regressive with or without fixed effects, though having a social democratic regime tempers these regressive impacts somewhat.

Why does introducing fixed effects reverse the impact of social democratic vs. left populist regimes? The longer lived social democratic regimes are Chile and Brazil while the main left populist regimes are Argentina and Venezuela. The actual fixed effects estimates from Table 2 regressions are provided in Table 3. Note that Chile and Brazil's Gini coefficients are about 6 percentage points higher than expected during the period 1990-2006 as reflected by their high and positive country fixed effects (see Table 3). That is, compared to other Latin American countries and controlling for Table 2 RHS variables such as per capita income and terms of trade, Chile and Brazil had higher than expected inequality. Argentina and Venezuela, on the other hand, had lower than expected Gini coefficient's (about 4 to 7 percentage points lower according to the fixed effects reported in Table 3). Hence the observed post 2000 fall in inequality for Argentina and Venezuela can be interpreted as a return to typically lower levels of inequality in these countries. For Brazil and Chile, on the other hand, falling inequality represents a descent from historically higher levels of inequality, partially offsetting the impact of unobserved factors that have made inequality higher than average (given the RHS variables in these regressions).

Table 3 Fixed Effects (from Table 2 equations)			
Coutry Fixed effects:	**1.4**	**1.5**	**1.6**
Argentina	-3.9	-3.3	-3.8
Bolivia	3.5	3.2	3.3
Brazil	6.0	5.9	6.1
Chile	5.7	5.8	5.8
Colombia	-4.3	-4.5	-4.3
Costa Rica	3.1	3.1	3.0
El Salvador	-0.1	-0.2	-0.2
Guatemala	2.7	2.1	2.5
Honduras	2.7	2.0	2.5
Mexico	0.0	0.4	0.1
Nicaragua	-0.2	-0.6	-0.5
Panama	3.0	2.8	3.0
Paraguay	6.7	6.2	6.5
Peru	-1.4	-1.5	-1.5
Dominican Republic	-1.3	-1.0	-1.4
Uruguay	-9.8	-9.0	-9.7
Venezuela, RB	-6.8	-6.8	-6.7
	Period Fixed Effects		
1988-90	0.03	-0.03	-0.03
1991-93	-0.66	-0.70	-0.70
1994-96	0.24	0.23	0.23
1997-99	1.06	1.07	1.07
2000-02	-0.01	-0.02	-0.02
2003-05	0.13	0.17	0.17
2004-08	-0.80	-0.72	-0.72

Figure 2 confirms this pattern: in both Argentina and Venezuela inequality rises and then falls back toward levels observed in the early 1990s: inequality in both countries falls after 2002 but remains higher that it was in the early 1990s. In both Chile and Brazil inequality ends lower than it was in the early 1990s: hence the social democratic countries appear to have broken with the past while Venezuela and Argentina have returned toward past lower levels of inequality. As it happens, post 2000 terms of trade trends were also much more favorable for Argentina and Venezuela: Chile and Brazil also experience favorable movements in their terms of trade, but ones that were not nearly as dramatic: in both cases terms of trade movements contributed to reduced inequality, at least according to the fixed effects estimates reported in Table 2.

Figure 2: Inequality rises and then falls in Argentina and Venezuela (Gini coefficient)



Source: SEDLAC data downloaded July, 2009.

Conclusion

To summarize, these results for a panel of 17 countries with adequate data for the period 1988 to 2006 suggest political regimes do matter for inequality outcomes. However, the results for populist and social democratic regimes are quite different: even controlling for the commodity price boom, inequality fell faster under social democratic regimes in Brazil, Chile and Uruguay. However, the inequality-reducing impact of public spending in the populist regimes of Argentina and Venezuela vanishes as the coefficient becomes statistically insignificant once one controlls for unobserved effects and the commodity price boom that started in 2002. Historically, Argentina and Venezuela had lower levels of inequality than other Latin American countries, so a return to "normal" levels of inequality also helps explain part of the sharp post-2003 fall in inequality both countries (as measured by the Gini coefficient). Further analysis may allow us to separate out the impact of public policy (via education spending for example), but for now the

jury is still out on whether the populist regimes have been able to reduce poverty faster than other countries in the region (experiencing the same boom in commodity prices). Even controlling for other factors, the evidence for social democratic regimes is more conclusive: they have been more effective than non-leftist Latin American governments at reducing inequality and poverty.

References

Arnson, Cynthia with José Raúl Perales (2007) *The 'New Left' and Democratic Governance in Latin America* .Washington, D.C.: Woodrow Wilson International Center for Scholars, August. www.wilsoncenter.org/topics/pubs/NewLeftDemocraticGovernance.pdf.

Barro, Robert (2008) "Inequality and Growth Revisited," *Working Paper Series on Regional Economic Integration No. 11*, Asian Development Bank, Philipphines, January. http://aric.adb.org/pdf/workingpaper/WP11_%20Inequality_and_Growth_Revisited.pdf

Lustig, Nora (2009) *Poverty, Inequality and the New Left in Latin America*, Washington, D.C.: Woodrow Wilson International Center for Scholars, Latin American Program, October.

SEDLAC (Socio-Economic Database for Latin America and the Caribbean), CEDLAC and the World Bank. La Plata, Argentina y Washington DC. http://www.depeco.econo.unlp.edu.ar/cedlas/sedlac/