

Barriers to Egalitarianism- Online Appendix

Online Appendix 1: Formalization of the Argument

Citizens face a decision about two policy instruments, namely the level of interpersonal redistribution (t), and the level of interregional transfers of resources among members of the union, the level of interregional redistribution (T). Individual redistribution t is a function of the individual's position within the income distribution. Individuals wealthier than average have a negative transfer, individuals poorer than average have a positive transfer. Interregional transfers (T) are a function of the regional average income vis-à-vis the union. For regions wealthier than the average, the transfer is negative (and vice versa).

The union's budget constraint is given by $\alpha w^u t = (1 - \alpha)b$ in which α represents the probability of individuals receiving redistributive transfers, and b representing the value of individual redistributive transfers. The term $\left(\frac{\beta}{2}\right)t^2$ captures the inefficiency cost of taxation, typically assumed to operate through the reduction in supply of labor.

Given these assumptions and a status quo of centralization, citizens in any given region, R , have the following utility

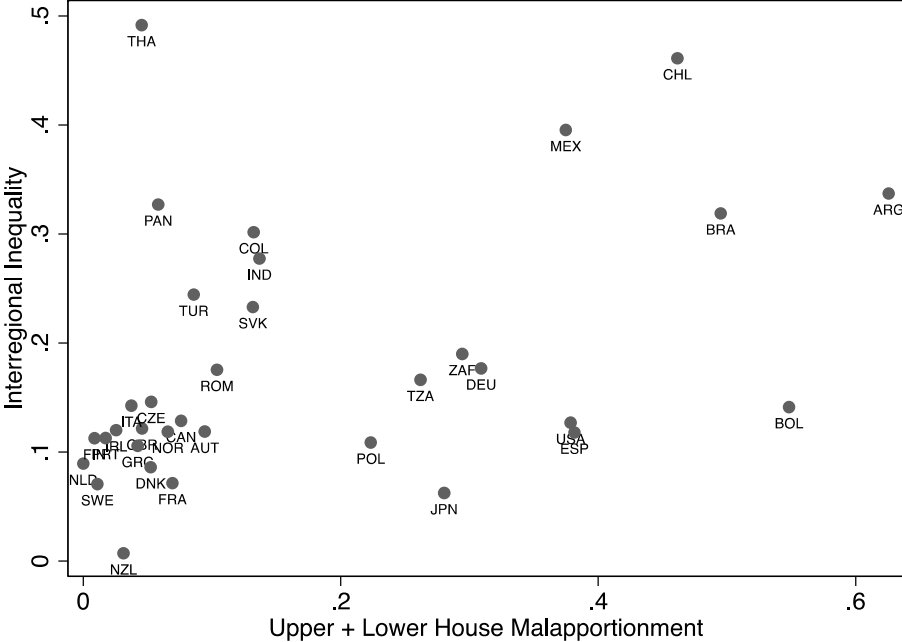
$$\begin{aligned} V_{iR} &= \alpha(w_{iR}(1-t)b - \left(\frac{\beta}{2}\right)t^2 - T(w_R - w^u)) \\ &\quad s.t. (1 - \alpha)b = \alpha w^u t \\ \rightarrow V_{iR} &= \alpha(w_{iR}(1-t)) + \alpha w^u t - \left(\frac{\beta}{2}\right)t^2 - T(w_R - w^u) \\ &\rightarrow \left(\frac{\partial V_{iR}}{\partial t}\right) = \alpha(w^u - w_{iR}) - \beta t \geq 0 \\ &\quad I \geq t^* = \frac{\alpha}{\beta}(w^u - w_{iR}) \geq 0 \end{aligned}$$

Insights from this expression:

- (i) any citizen in any region with income above w^u will want zero union-wide income tax rate (implying zero t and T)
- (ii) any citizen anywhere with income at or below $w_{iR} \geq \bar{w}_{iR} \equiv w^u - \frac{\beta}{\alpha}$ will want $t^* = I$
- (iii) $\frac{\partial t}{\partial w_{iR}} < 0$ for $w^u \geq w_{iR} \geq \bar{w}_{iR}$
- (iv) the more citizens below w^u the greater the demand for redistribution;
- (v) a rise in average income in the country raises the demand for redistribution $\frac{\partial t}{\partial w^u} = \frac{\alpha}{\beta} > 0$
- (vi) It is also clear that all citizens in regions with $w_R < w^u$ will support the highest value of T feasible, and those where $w_R > w^u$ will want $T=0$.

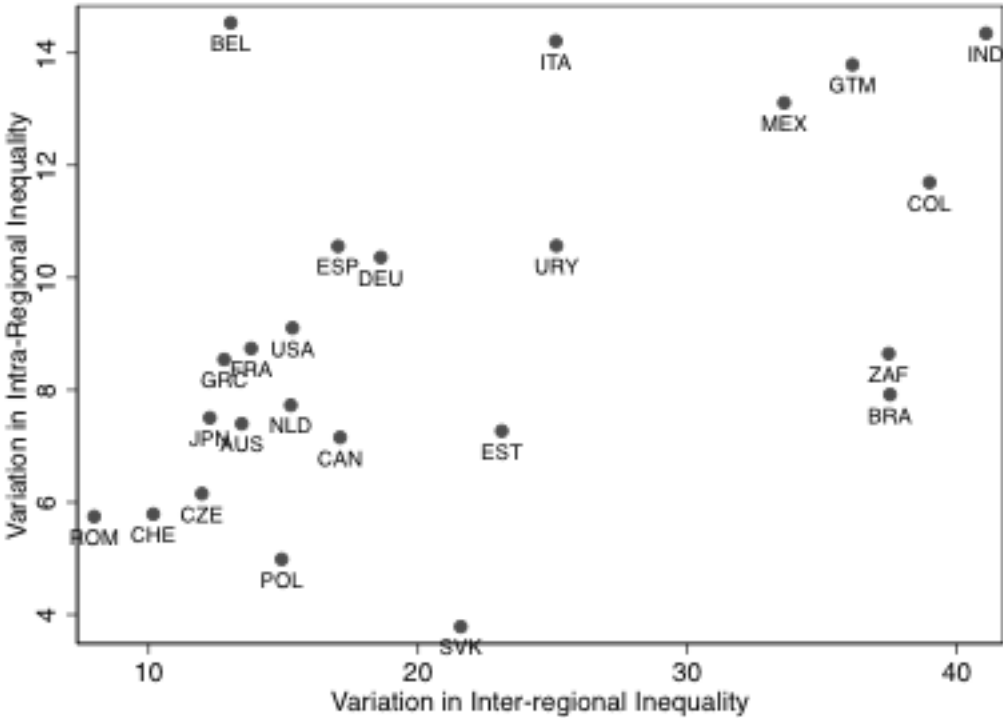
Online Appendix 2: The Territorial Structure of Inequality and Malapportionment in Global Perspective

The figure below shows the level of interregional inequality and legislative malapportionment (upper and lower houses) in our full sample of countries. The three Latin American federations have extreme values of both variables central to our theory.



Online Appendix 3

Constructed using the LIS data, this figure further demonstrates the clustering of our case studies that supports our selection for the small N analysis. The y-axis shows values on the coefficient of variance in intra-regional market income inequality (within region Gini coefficient). The x-axis shows the coefficient of variation in inter-regional market income levels. Again, Brazil and Mexico are high on both measures in comparative perspective. Argentina does not participate in the LIS, so does not appear in the figure.



Online Appendix 4

Our theoretical argument relates inter-regional inequality, intra-regional inequality, and legislative malapportionment to redistributive effort. As discussed in Appendix 2, data on intra-regional inequality are not available for a large sample of countries. We use the data at the regional level from the Luxembourg Income Study (LIS) as our best available data source to show the relationship between intra-regional inequality and redistribution, and all three variables in the same model. In this limited sample, we show consistent evidence that regional variation in intra-regional income inequality and region variation in inter-regional income are both associated with lower social spending, and especially with lower redistribution. The effect of malapportionment is also negative and significant in this sub-sample. Although the sample is small, these variables have consistently negative relationships with redistributive effort, and in most cases the effects are significant.

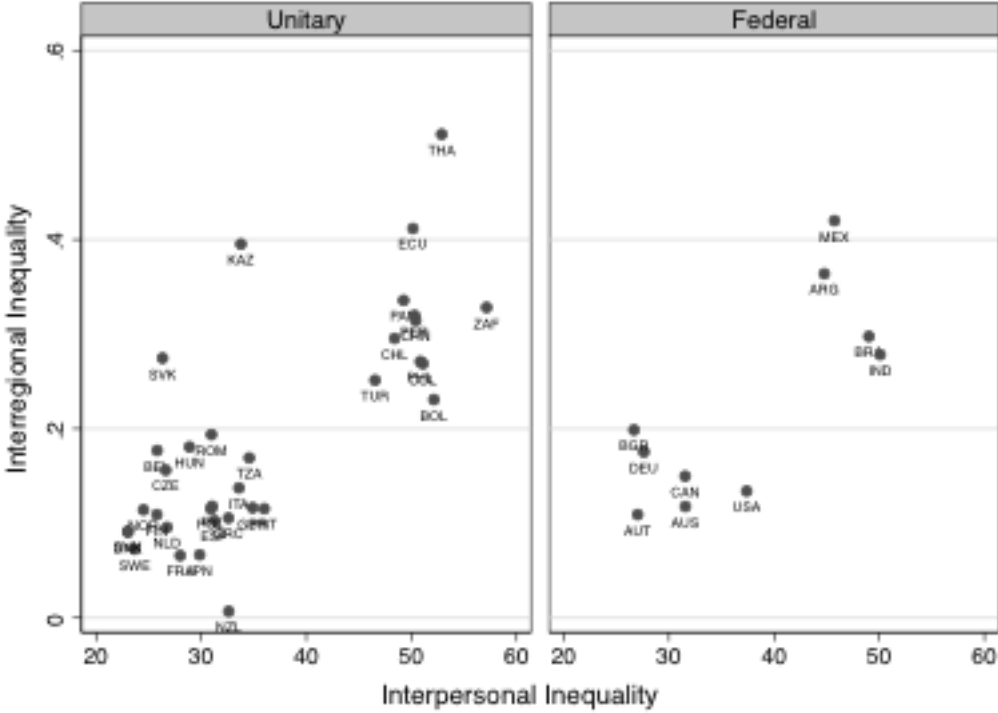
Effects of Variation in Intra and Inter-regional Inequality on Redistributive Effort, Global Sample

	Social Expenditure (% GDP)		Redistribution	
	(7)	(8)	(9)	(10)
Variance in Intraregional Inequality	-0.021 (0.199)	-0.132 (0.197)	-0.528* (0.274)	-0.566** (0.280)
Variance in Interregional Income	-0.226*** (0.075)	-0.194*** (0.072)	-0.325*** (0.097)	-0.318*** (0.105)
Malapportionment		-17.277*** (6.595)		-23.731** (9.577)
Constant	21.681*** (2.307)	25.266*** (2.501)	30.812*** (3.126)	36.286*** (3.518)
Observations	71	70	83	81
R-squared	0.397	0.621	0.526	0.686
# of Countries	17	16	21	19

Notes:*** p<0.01, ** p<0.05, * p<0.1. Data Constructed from LIS income surveys.

Online Appendix 5

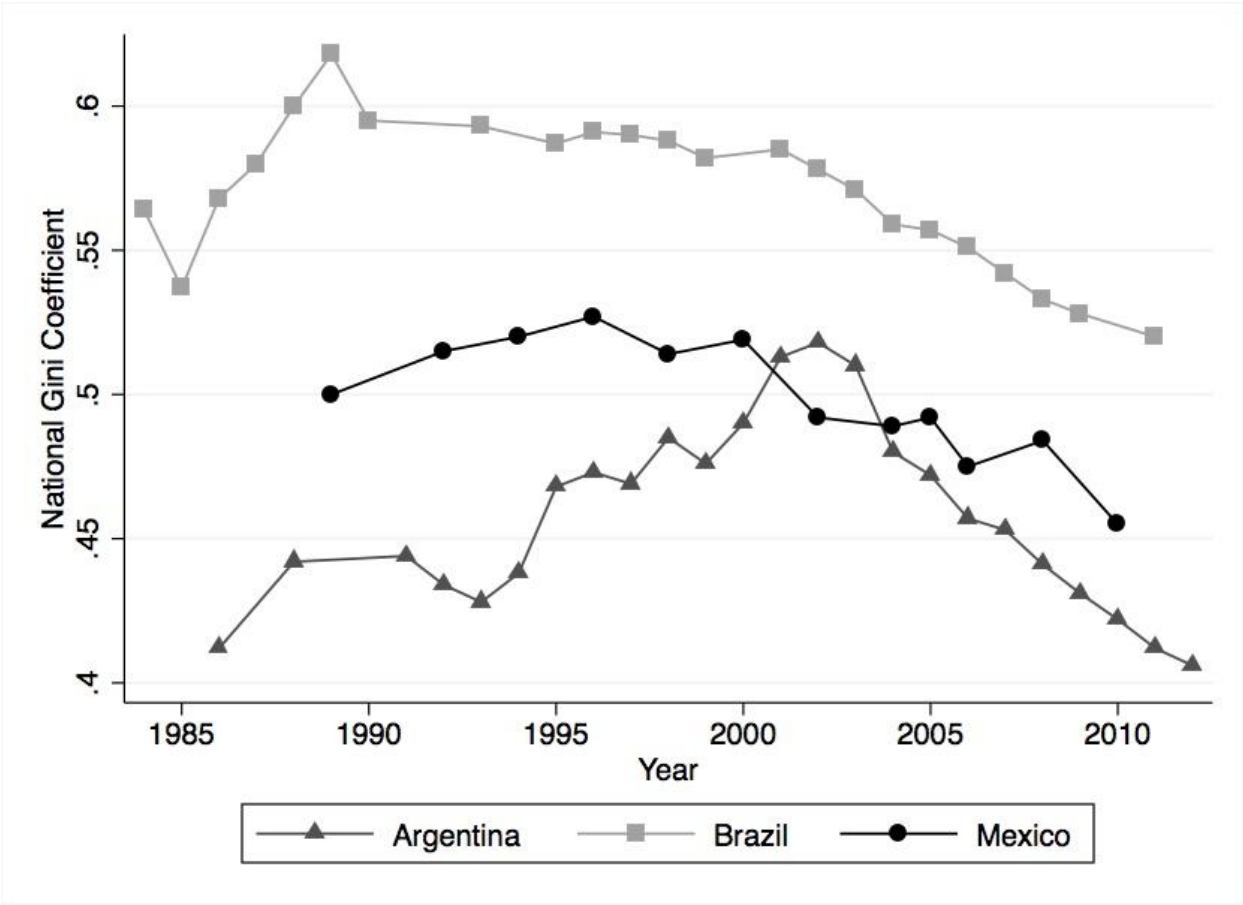
Latin American countries stand out as having very high levels of both inter-personal (Gini Net) and inter-regional inequality in comparative perspective. As shown in both panels of the figure below, Latin American countries cluster at high levels both in federal and unitary countries. The right-side panel of the figure shows, again, that the Latin American federations cluster together on these relevant dimensions. This provides additional support for our case selection—these are directly comparable cases that stand apart for their high values on the variables of interest.



Online Appendix 6: Data descriptions and sources for Appendix Empirical Analysis

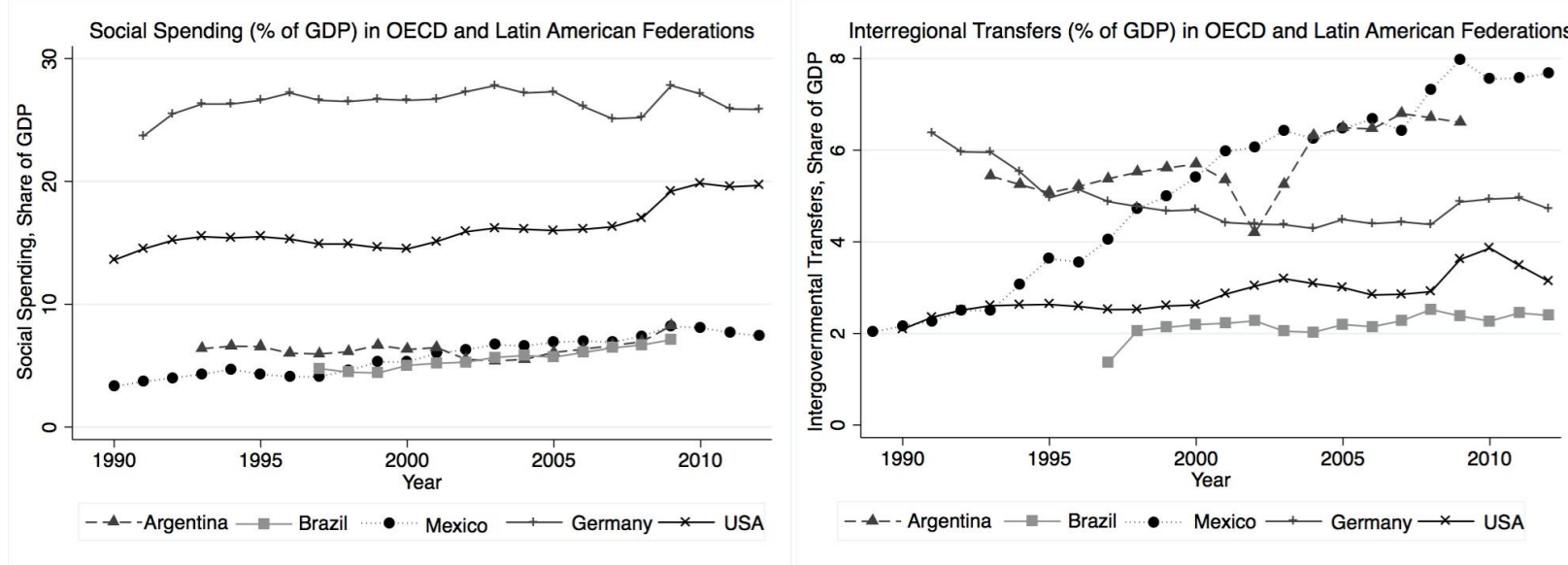
Variables	Descriptions	Sources
Figures and Tables in the Appendix		
<i>Key Independent Variables</i>		
Interregional Inequality	Gini coefficient of region-level GDP per capita	Beramendi and Rogers (2015)
Malapportionment	Upper + Lower House Malapportionment	Samuels and Snyder (2001)
Variation in Interregional Income	Coefficient of variation in region-level household market income. Regions are defined as states, provinces, departments, or NUTS2 level.	Luxembourg Income Study (LIS)
Variation in Intraregional Inequality	Coefficient of variation in the gini coefficient of region-level household market income inequality. Regions are defined as states, provinces, departments, or NUTS2 level.	LIS
% of Seats Above National Gini	Percentage of lower house legislative seats held by regions with income inequality above the national level gini coefficient	Income Inequality (LIS), Legislative Seats (authors' calculations from electoral data)
% of Seats Above National Income	Percentage of lower house legislative seats held by regions with average income above the median national level income	Income Inequality (LIS), Legislative Seats (authors' calculations from electoral data)
Federalism	1 if country has federal political structures, 0 otherwise	Persson and Tabellini (2003)
<i>Dependent Variables</i>		
Social Expenditure (cross-national sample)	% of GDP spent on: "old age, survivors, incapacity-related benefits, health, family, active labor market programs, unemployment, housing, and other social policy areas."	World Development Indicators (WDI)
Redistribution	Estimated percentage reduction in market income inequality due to taxes and transfers: the difference between the gini_market and gini_net, divided by gini_market, multiplied by 100	Solt (2009)
<i>Control Variables</i>		
GDP per Capita	Logged GDP per capita, PPP adjusted	WDI
Market Inequality	Gini Coefficient of Market Household Income	Solt (2014)
Trade Openness	Logged Openness at 2005 Constant Prices	Penn World Tables
Left Head of Government	1 if head of government is a member of a leftist party, 0 otherwise	Brambor and Lindvall (2014)
Proportional Representation	1 if legislative elections in at least one branch are conducted using proportional rules	Database of Political Institutions
Ethnic Heterogeneity	Cross-sectional index of ethnic heterogeneity	Alesina et al. 2003

Online Appendix 7: Inequality Trends in Argentina, Brazil, and Mexico



Source: SEDLAC (2013)

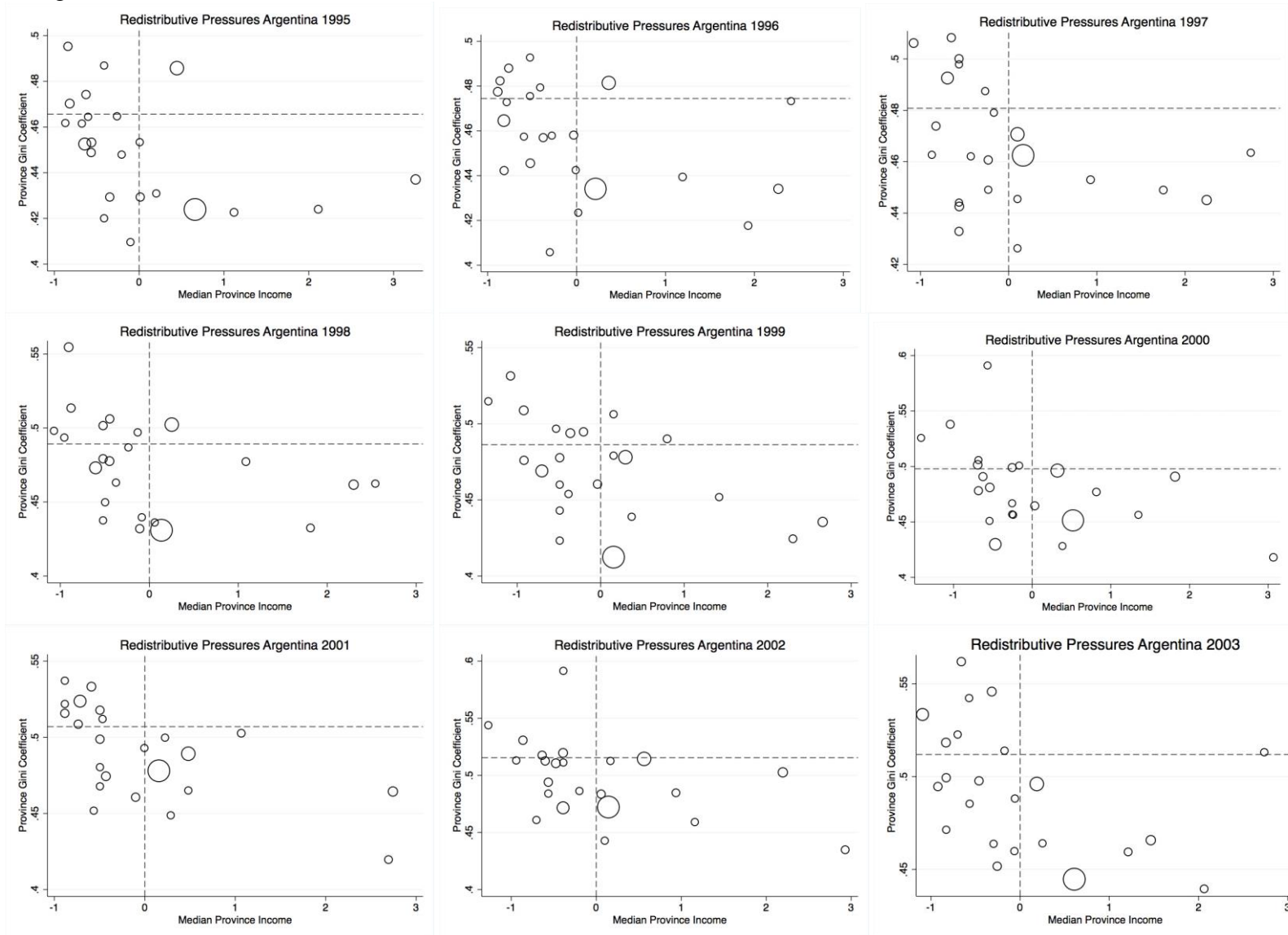
Online Appendix 8: Social Spending and Interregional Transfers (% of GDP) in OECD and Latin American Federations

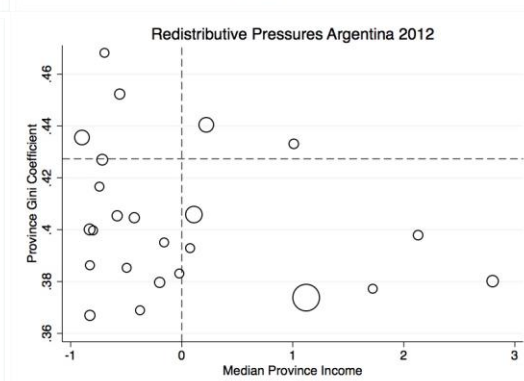
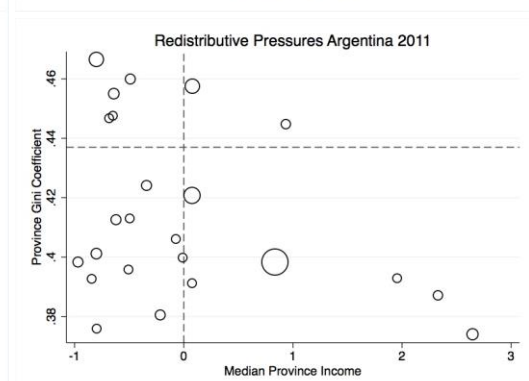
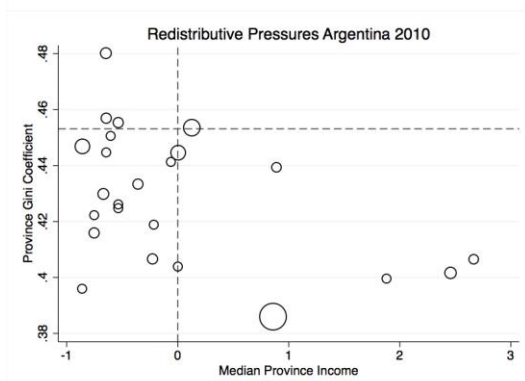
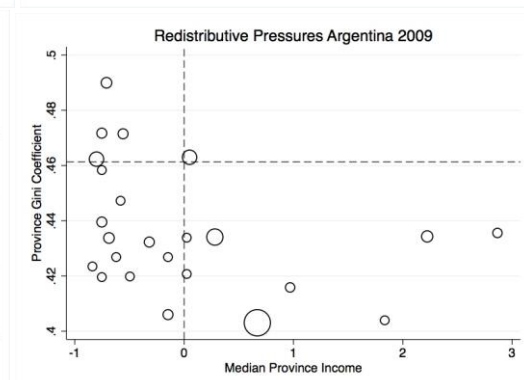
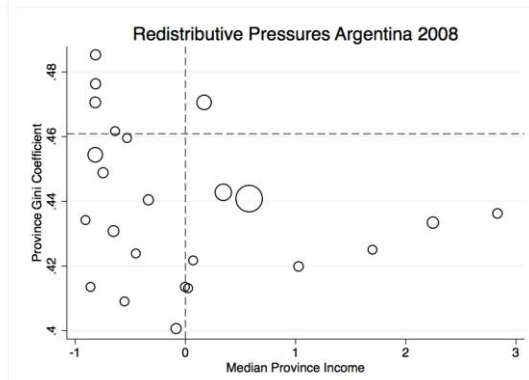
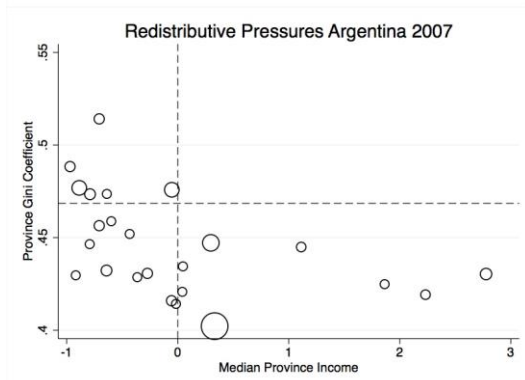
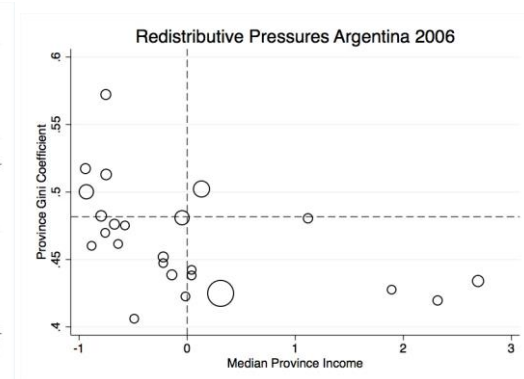
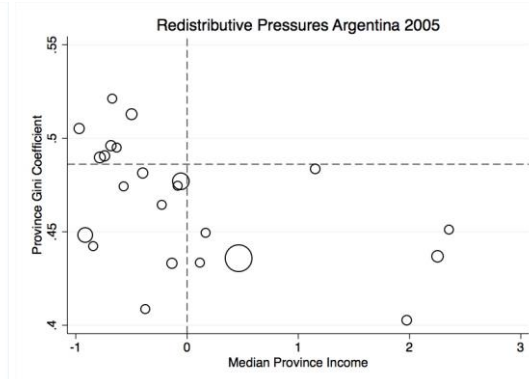
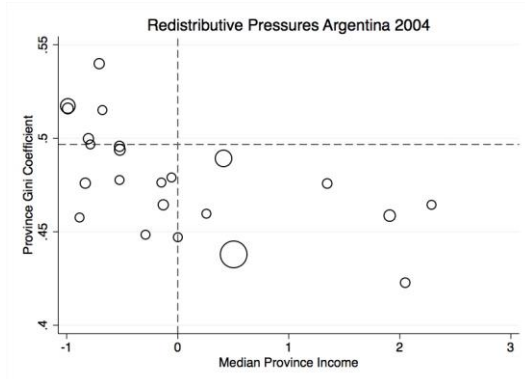


Sources: Social Spending- OECD (Germany, Mexico, USA), ECLAC (Argentina, Brazil); Intergovernmental Transfers- OECD (Germany, USA), National Accounts (Argentina, Brazil, Mexico)

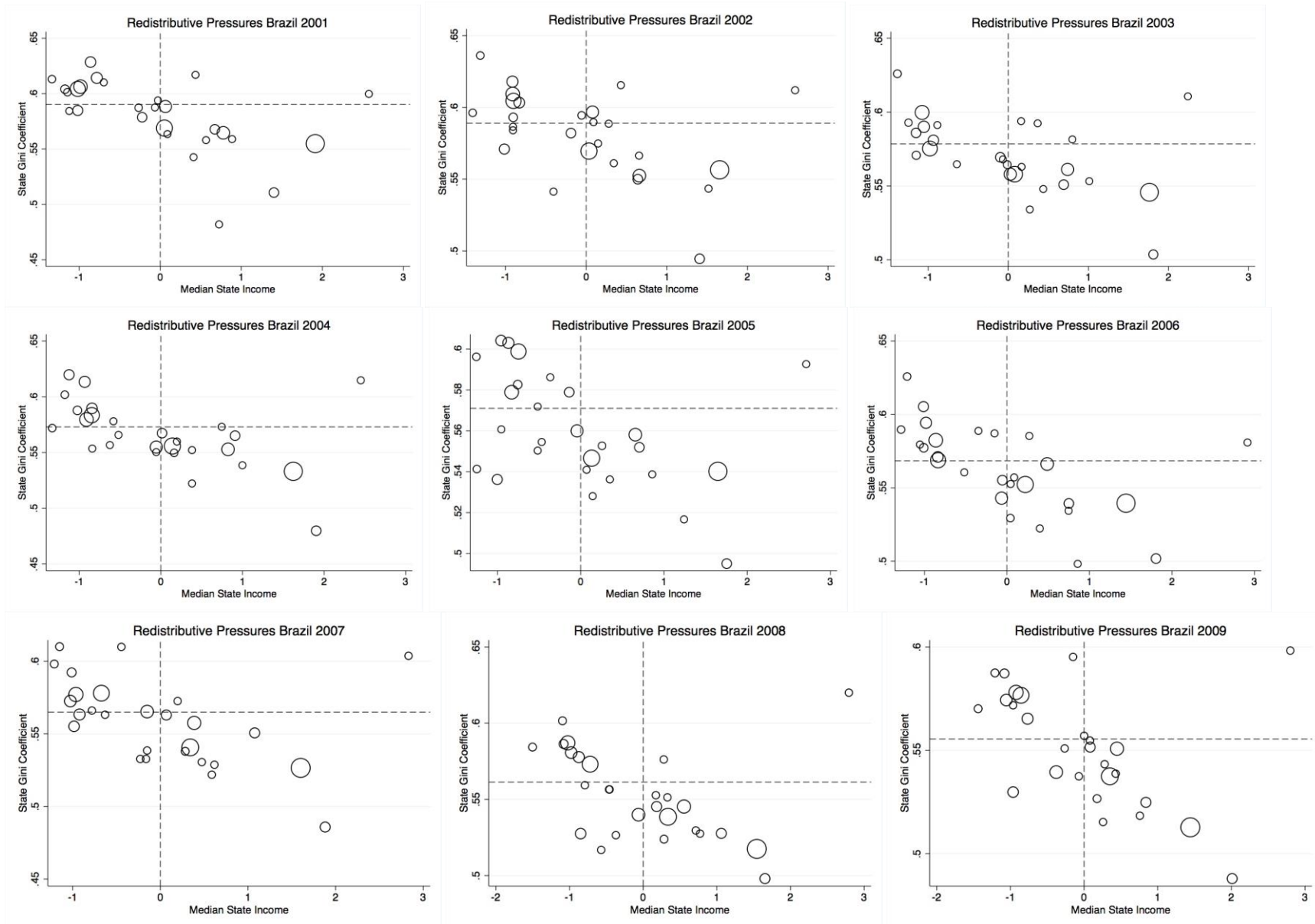
Online Appendix 9: Yearly Inequality Patterns

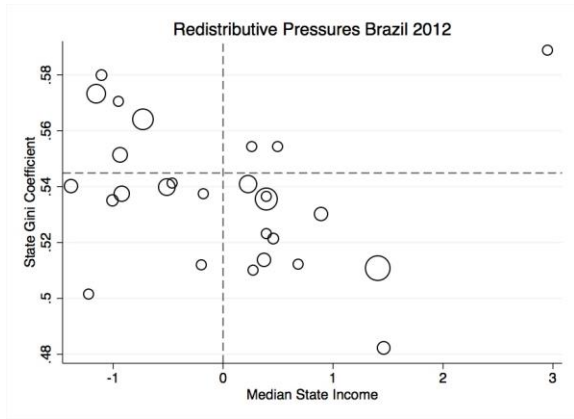
a) Argentina



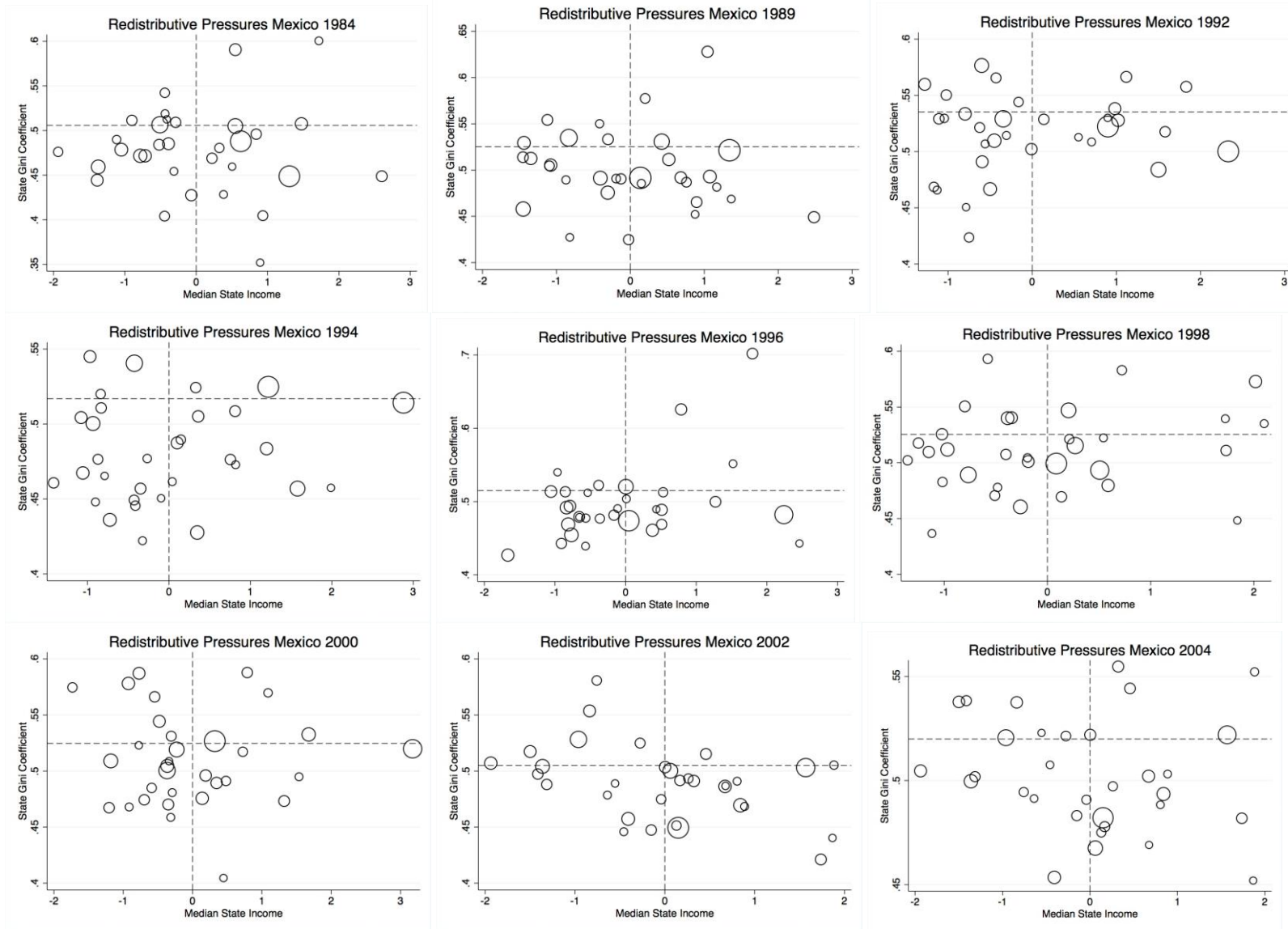


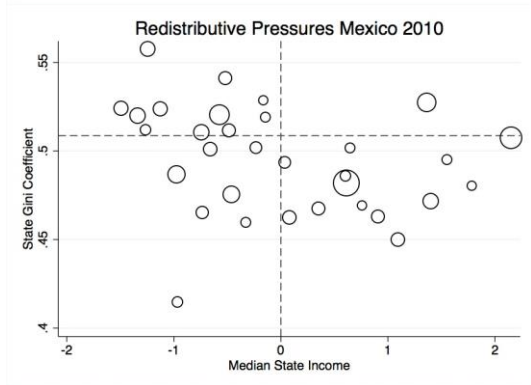
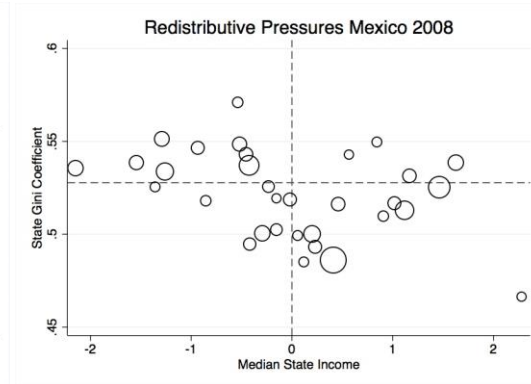
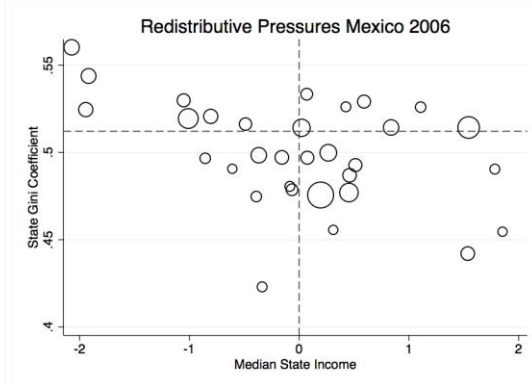
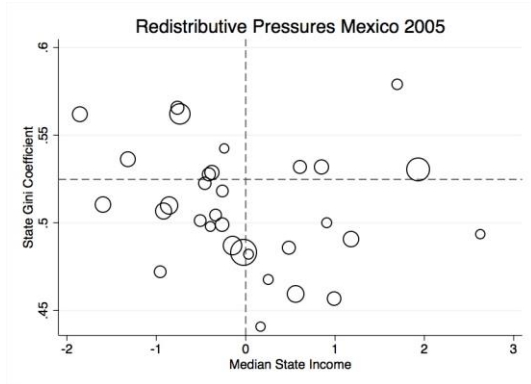
b) Brazil





c) Mexico





Online Appendix 10: References

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