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Abstract: What is our understanding of the relationship between democracy and income inequality in the Western Hemisphere? This paper specifies a nonlinear relationship between democracy and income inequality in multivariate non-linear models across different regions and time points of the Western Hemisphere as well as the hemisphere based on a common literature (Acemoglu and Robinson 2006, Barro 1999, Boix 2003, Burkhart 1997, Houle 2009). While the literature has rigorously tested these relationships within Latin America (Huber et al. 2006), there has not been a similar test of all of the Western Hemispheric countries, including the industrialized economies of Canada and the United States. This paper will utilize the best extant income inequality measure, the Solt (2009) corrections to the UNU-WIDER project. This comparative exercise should be instructive in both a modeling sense and a better understanding of consequences of using income inequality measures across hemispheric subregions.

INTRODUCTION

What is the relationship between democracy and income inequality in the Western Hemisphere? While cross-national research on the topic of income inequality has become rather extensive (Ansell 2010, Houle 2009), and some regional work in Latin America has been published (Huber et al. 2006), extant work on the Western Hemisphere as a whole is rather sparse. Reasons accounting for this lack of interest in a hemispheric perspective include the tendency to divide the hemisphere into distinct entities: North America, Central America, South America, Latin America, and the Caribbean. These regions have their own separate identities, histories, and trajectories of political and economic development.

However, there is an appreciable connection between these sub-regions that also makes analysis of these areas as a whole be potentially fruitful. From the days of the Monroe Doctrine, international interpretation of the region as an aggregate has on occasion made sense. For instance, many of the nation-states in the Western Hemisphere belong to common international organizations such as the Organization of American States, and thus can have a common perspective on issues of interest to the hemisphere. Also, as the global recession hit the developed world hard, less well-expressed was the even greater ferocity with which the developing world felt the effects of the loss of about 1/3 of the global wealth. (It should be added that some countries were able to escape the most pernicious effects of the "Great Recession", including Canada, which experienced continuous economic growth during the 2007-2010 period.)

Thus, we have some cause to analyze the political and economic fortunes of the entire Western Hemisphere as a globalized whole. My paper proposes just such a

preliminary effort at estimating a common model that seeks to explain variation in income inequality and democracy across countries. The model has had some previous publication success (Burkhart 1997, Burkhart 2007), but has been estimated on data from countries around the world. Whether or not the model will apply to the Western Hemisphere is in doubt, because there have been relatively common historical development features to the region, such as religious affiliation (Latin America's Catholicism), that could negate the impact of key control variables in the model.

Scholarship on the causes and consequences of income inequality continues to advance. The reasons for this momentum are several, but perhaps the most important ones are theoretical interest in the topic and technical improvements to the enterprise. In particular, scholars have made notable efforts to clean and systematize the data, as well as create more sophisticated modeling approaches to produce more robust conclusions (Ansell 2010, Houle 2009). The greatest improvements have come in the developing world, where two organized efforts have been particularly fruitful: the United Nations University WIDER dataset on inequality (2008), and Frederick Solt's standardization of the WIDER dataset in his Standardized World Income Inequality Database (2009).

Cross-national work on income inequality and democracy has continued apace over the in recent years. Better data and methods have spurred researchers toward more definitive findings. The relationship between income inequality and democracy does seem more secure as the data advance into the 2000s decade. The data support the specification of nonlinear models explaining variation in both income inequality and democracy. And the results of those specifications allow for some optimism that a truer

reading is possible of a critical relationship in political economy: the distribution of income and the distribution of freedom.

This very brief paper attempts to advance the literature through a more focused comparison of economic and political distribution in the Western Hemisphere. In addition, this paper also takes as a starting point recent work that specifies a nonlinear relationship between income inequality and democracy in multivariate models (Acemoglu and Robinson 2006, Burkhart 1997, Houle 2009), and shows how that nonlinear form translates across the Western Hemisphere. The nonlinear specification goes against the grain of the majority of the literature, which has generally specified a linear relationship between inequality and democracy / democratization (Barro 1999, Boix 2003, Bollen and Jackman 1985). Yet the more recent evidence suggests the nonlinear relationship, either in an inverted U-shaped curve or a more subtle logarithmic sloping, to be more representative and promising. To compare this relationship in a more fully-specified model with the latest income inequality data from the UNU-WIDER project, corrected by Professor Solt, across the Western Hemisphere over several time periods should be an illuminating exercise for purposes of determining the relationship's stability. In particular, the quadratic form of democracy and income inequality as independent variables explaining each other will be utilized in these preliminary tests.

DATA

The dependent variables for these analyses are derived from the POLITY project (for the measure of democracy) and the UNU-WIDER income inequality project as corrected by Solt (for the Gini measure of income inequality). The POLITY project has estimated the extent to which a country possesses democratic institutions and procedures

on an annual basis since 1800, on a zero (no democracy) to ten (comparatively full democracy) and the measure has to be both reliable and valid. The UNU-WIDER World Income Inequality project (2008), from the United Nations University in Helsinki, has sought to evaluate the notoriously shaky income inequality data for consistency and has compiled consistent measures for roughly 120 countries over the 1950-2007 time period. Solt (2009) has endeavored to standardize the UNU-WIDER data for the 1960-2007 time period through use of an algorithm to reduce the amount of missing data that are endemic to most income inequality research. I utilize the Solt-corrected version of the UNU-WIDER income inequality data. In this analysis, 29 Western Hemispheric countries were analyzed over various annual time points in a pooled cross-section time-series, focusing on the 1960-2004 time period.

[TABLE ONE ABOUT HERE]

The independent variables are standard ones in the income inequality-democracy modeling literature. Gross domestic product per capita is derived from the World Bank. Semi-peripheral and peripheral world-system status is derived by Burkhart and Lewis-Beck (1994) based on theorizing by Frank (1969) and Wallerstein (1974), among others. British colonial status is theorized to be connected to both democratization, due to the tradition of organized and coherent colonial rule leaving a legacy conducive to democratization upon independence (Burkhart 1997) and the relatively greater opportunity for voice and eventual more even distribution of resources (Smith 1978). Protestantism is theorized to present greater opportunity for individual advancement, voice and demand for even distribution (Burkhart 1997, Lipset 1959). The Protestant percentage of population measure comes from Barrett, Kurian and Johnson (2001).

Government share of income is likely to be increased in instances of fairer income distributions to a widely expansive social safety net (Aalberg 2003). In a similar vein, trade openness has the potential to provide an expansive and enhanced distribution of spoils (de Soysa . Both the government share of income and trade openness measures are taken from the World Bank. Finally, a time-trend independent variable is placed in the model to capture any secular movement in inequality.

MODELS

The models to be tested are as follows:

- Democracy = f (Solt-corrected Gini coefficient, Solt-corrected Gini coefficient^2, logged GDP/capita, semieripheral world-system status, peripheral world-system status, British colonial status, share of population Protestant, government share of spending, trade openness, year of observation)
- Solt-corrected Gini coefficient = f (POLITY democracy score, POLITY democracy score^2, logged GDP/capita, semieripheral world-system status, peripheral world-system status, British colonial status, share of population Protestant, government share of spending, trade openness, year of observation)

The models will be estimated using Stata, version 9. For maximum accounting of the panel heterogeneity and autocorrelation inherent in pooled datasets, the models will be estimated using a generalized least squares approach, correcting for both panel heteroskedasticity and an AR1 autocorrelation process within the panels. This conservative modeling approach will also reduce the likelihood of Type I errors of inference taking place, as statistical significance will be less likely with strong statistical controls in place.

[TABLE TWO ABOUT HERE]

ANALYSIS

The model estimates as presented in Table Two demonstrate, above all, the secular trend in income inequality. The year slope coefficient is positive and statistically significant in five of the six panel regressions, indicating an upward trend in income inequality over time. This is true even in the most advanced industrialized countries in the dataset, the U.S. and Canada. (Models 1.1 and 2.1 isolate the North American countries alone, while Models 1.3 and 2.3 include all countries in the Western Hemisphere for which annual data are available across the 1960-2004 time period.) In the U.S., according to the UNU-WIDER data, income inequality climbed by approximately 25% during the 1960-2004 time period. In Canada, income inequality increased by 14% during that time period. Thus, time serves as a fairly powerful and consistent control in these multivariate models.

Turning to the more substantive independent variables, the results are fairly startling for the main variables of interest, POLITY democracy and UNU-WIDER inequality. The linear specification of POLITY has an initial negative effect on inequality in North American countries, meaning that increases in democracy lead to decreases in the Gini coefficient (and thus of income inequality). Yet the quadratic specification of POLITY is also significant in North American countries, meaning that very high levels of democracy are associated with increases in inequality, which is counter to theoretical expectations. This result appears to be driven by U.S. and Canadian increases in inequality. However, the quadratic specification of POLITY is

significant and negative in the Caribbean and Latin America, suggesting that substantial adavances in democracy result in substantial decreases in inequality.

Equally important, there is no evidence that either rises or declines in income inequality affect democracy in the Western Hemisphere in a causal manner. Nor is there any evidence of an impact of economic development on democratic development in the Western Hemisphere as a whole, as the logged GDP per capita variable fails to reach statistical significance in Models 2.1, 2.2 and 2.3. In North America, democratic development may well have predated economic development, rather than the other way around. In the Caribbean and Latin America, we may be witness to a similar phenomenon. However, higher levels of economic development do negatively affect the Gini coefficient, whether the sample is of North American countries (Model 1.1), Caribbean and Latin American countries (Model 1.2), and the Western Hemisphere as a whole (Model 1.3). That is, the wealthier the country, the lower the Gini coefficient. This result is well-predicted by Kuznets (1955), among others.

Of the other control variables, both a semiperipheral and peripheral world-system status increases income inequality in the Caribbean and in Latin America and a semiperipheral status decreases democratic performance in the Western Hemispheric countries, as predicted by world-system theory. British colonial status reduces income inequality in the Western Hemisphere, while countries with larger Protestant populations see significant increases in income inequality in North American and Caribbean countries (not surprising due to the relatively larger Protestant populations in the U.S. and Canada as well as several former British colonies in the Caribbean), as well as increasing income inequality in Latin America (more surprising). Government spending decreases

democracy in the Caribbean and in Latin American countries, which comports well with neoclassical economic thought that advocates a state that is relatively free of government spending also has a freer polity.

Finally, trade openness, a common proxy for globalization, appears to reduce income inequality in North American countries, which counters North American critics of globalization who maintain that the rising tide of global financial integration far from equally lifts all North American economic boats. Yet those critics have more ammunition in the Caribbean and Latin American countries, where trade openness yields higher income inequality.

CONCLUSION

What do these results mean? The Western Hemisphere appears to be a rich mosaic of various stages of democratic development and redistributed income. North America, in particular the U.S. and Canada, seem to have different factors affect their rising levels of income inequality over time, in comparison to the Caribbean and Latin America. The performance of the models is strong, though the models explaining income distribution have slightly better fit than the models explaining democratic achievement. Despite the models' apparent strength, there are several variables missing from these models, such as more general international factors as delineated in Huber et al. (2006). Yet some basic elements to the explanation in variation in income inequality and democracy reveal themselves in these models, even with the secular control of time in place as a control variable. Not surprisingly, the underlying political economy of the country has the most consistent independent effect on democratic development and income distribution in countries throughout the Western Hemisphere.

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TABLE ONE: COUNTRIES ANALYZED

Antigua (c)	Argentina (l)	Bahamas (c)	Barbados (c)
Belize (l)	Bolivia (l)	Brazil (l)	Canada (n)
Chile (l)	Colombia (l)	Costa Rica (l)	Cuba (c)
Dominican Rep. (c)	Ecuador (l)	El Salvador (l)	Guatemala (l)
Guyana (l)	Haiti (c)	Honduras (l)	Jamaica (c)
Mexico (n)	Nicaragua (c)	Panama (c)	Paraguay (l)
Peru (l)	Trinidad & Tobago (c)	United States (n)	Uruguay (l)
Venezuela (l)			

c = Caribbean country

l = Latin American country

n = North American country

TABLE TWO: INCOME INEQUALITY AND DEMOCRACY IN THE WESTERN HEMISPHERE

Dependent Variable, Models 1.1-1.3 = Income inequality; Models 2.1-2.3 = Democracy

Stata 9, Generalized Least Squares, with correction for both heteroskedastic panels and panel-specific AR(1) autocorrelation processes employed

IVs⇩	Model 1.1 North America	Model 1.2 Caribbean & Latin America	Model 1.3 Western Hemisphere	Model 2.1 North America	Model 2.2 Caribbean & Latin America	Model 2.3 Western Hemisphere
POLITY	**-.30 (6.08)**	.003 (.38)	.003 (.39)	—	—	—
POLITY^2	**.04 (2.17)**	**-.01 (3.74)**	**-.02 (4.23)**	—	—	—
SoltGini	—	—	—	.08 (.43)	.03 (.13)	-.13 (1.00)
SoltGini^2	—	—	—	-.002 (.51)	-2.77e-07 (0.00)	.001 (1.00)
Loggdpcap	**-11.96 (3.78)**	**-8.57 (8.45)**	**-9.45 (9.37)**	-.67 (1.50)	1.65 (1.33)	.85 (.78)
Semi	—	**2.63 (3.67)**	**8.84 (4.41)**	**-18.37 (83.17)**	—	**-4.30 (2.38)**
Per	—	—	**7.90 (3.94)**	—	.20 (.21)	-3.19 (1.92)
Britcolony	—	-.47 (.29)	**-6.77 (6.02)**	—	**3.23 (1.99)**	.57 (.65)
Protestant	**.18 (3.64)**	**.30 (3.33)**	**.34 (5.36)**	-.005 (.65)	.06 (.71)	.09 (1.64)
Govtshare	-.008 (.10)	.008 (.52)	.01 (.85)	-.009 (.59)	**-.08 (2.79)**	-.01 (.40)
Openness	**-.03 (3.46)**	**.01 (2.03)**	**.01 (1.96)**	-.006 (1.79)	-.003 (.43)	.001 (.24)
Year	**.48 (5.36)**	**.21 (7.20)**	**.26 (8.84)**	.02 (1.71)	**.21 (5.57)**	**.15 (4.28)**
Intercept	**-879.58 (5.26)**	**-341.90 (6.19)**	**-448.94 (8.08)**	-35.96 (1.36)	**-426.55 (5.98)**	**-285.58 (4.42)**
Wald Fit Statistic	**102.46, p=.00**	**120.57, p=.00**	**329.68, p=.00**	**9605.4, p=.00**	**226.73, p=.00**	**99.75, p=.00**
N	102	552	654	102	552	654

Bold results = statistically significant at .05, two-tailed test;
figures in parentheses = absolute t-ratios.