

## The Economic Origins of Democracy Reconsidered

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## ABSTRACT

The effect of economic changes sparked by globalization on democracy and autocracy is a central research question in the social sciences. We review the prevailing arguments about the links among inequality, financial integration and democratization, focusing in particular on the contributions of Acemoglu and Robinson (2006) and Boix (2003). In contrast to the arguments of these scholars, we propose that, because financial globalization is associated with increasing income inequality and increasing capital taxation, the relationship between inequality and democratization is a “U.” Countries with lower and higher levels of income inequality are more likely to democratize. Our test employs the most current and reliable income inequality and financial globalization measures available. Despite employing the same design as Acemoglu and Robinson recently employed in Acemoglu, Johnson, Robinson, Yared (2008), we find no support for Acemoglu and Robinson’s main causal claims. Rather the hump-shape predicted by Acemoglu and Robinson or the declining linear relationship in Boix (2003), we find a U-shaped pattern between these inequality and democratization. We also find little support for the claim that financial globalization promotes democracy either directly or indirectly. In fact, contrary to Acemoglu and Robinson and Eichengreen and Leblang (2008), we find that more inward capital account openness produces lower levels of democratization.

The economic origins of democracy and dictatorship continue to be debated. A prominent theme is that a society's level of income inequality, joined to elite and citizen expectations about how political liberalization will influence future changes in income inequality, are important determinants of political liberalization or retreat.

One well-developed argument is that transitions to democracy are most likely to occur under moderate levels of income inequality. Democracies are also more likely to consolidate when income inequality is moderate as well. Democracy is a credible commitment to income distribution and so, when the poor demand (enjoy) democracy, they are, in effect demanding (realizing) a change in income inequality. How elites respond to this demand then determines whether a transition (coup) occurs. Because of the way international financial globalization affects factor prices, it and other forms of economic globalization supposedly enhance the prospects for democracy. To be more specific, financial openness increases wages. This makes the median voter prefer lower taxes. At the same time, financial integration enhances the ability of elites to exit the government's jurisdiction; knowledge of this fact, presumably leads the median voter to moderate her preferred tax rate. A recent version of this argument can be found in the book by Acemoglu and Robinson, *Economic Origins of Dictatorship and Democracy* (2006; AR hereafter). It was anticipated by Midlarsky (1999).<sup>1</sup>

A second well-developed argument is that transitions to democracy are most likely to occur under low levels of income inequality because lower levels of income inequality reduce the redistributive impact of democracy. While this line of argument has

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<sup>1</sup> The argument that the origins of democracy can be traced to income and other forms of inequality has been around for many years. T.H.Marshall made an argument of this kind to explain the piecemeal extension of democratic rights and privileges in Western societies.

a long antecedence, a recent statement with important analytic developments of this argument is Boix, *Democracy and Redistribution* (2003).<sup>2</sup> As with AR, Boix proposes that capital mobility (as the term is defined) enhances democratic prospects by limiting the ability to tax assets of either the ruler or the voters.

The implication in both arguments is that economic integration – particularly financial globalization – is a force for both democratization and democratic consolidation. As autocracies become more financially open to inward and outward capital flows, they ought to be more likely to democratize. Similarly, financial and other forms of economic integration should help young democracies consolidate. The mechanism at work in both AR and Boix is that highly mobile capital assets are somewhere between lightly taxed and untaxed because, with capital mobility, mobile capital assets will be located in countries offering “tax havens.” With the decreasing ability to tax (and hence redistribute) wealth from capital, the costs of democracy decrease, and elites are more likely to accept democratization.

Recent results by Eichengreen and Leblang (2008) offer support for this perspective. While Eichengreen and Leblang do not explicitly examine the democracy and inequality linkage, they do find that capital account openness is strongly associated with subsequent democratization.

Our paper offers a revised theory regarding relationships among inequality, financial globalization, and democratization, and tests this and other theories. Our test employs the soundest and most current income inequality and financial globalization measures available. The investigation is divided into three parts. We begin by briefly

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<sup>2</sup> Aristotle (*Politics*, Book V) is of course the progenitor of most of the “materialist” arguments about how desire for changes in the distribution of wealth within a polity spawned revolution and political turmoil.

reviewing and critiquing the prevailing arguments about the link between inequality and financial integration and democratization, in particular the contribution of Acemoglu and Robinson (2006) and Boix (2003). In the process, we illuminate several causal linkages that must exist if their thesis is to hold. We propose that, because financial globalization has effects on income inequality contrary to those proposed in Acemoglu/Robinson and Boix, countries with lower and higher levels of inequality are likely to either democratize or consolidate democracy. Given financial globalization, it is countries with intermediate levels of inequality, we propose, that are less likely to democratize.

Part two of the paper takes up the relevant measurement issues, especially the difficulties associated with gauging income distribution cross-nationally. Within this section, we also discuss some specification and estimation issues. In the end, we settle on essentially the same research design employed by Acemoglu, Johnson, Robinson and Yared in the recent article on income and democracy (2008).

The results are presented in part three. Simply put, despite the fact that we employ the same design as they recently employed (*ibid*), we find no support for Acemoglu and Robinson's main causal claims. We do not find that the intermediate ranges of income inequality promote democracy. Rather than the hump-shape predicted by Acemoglu and Robinson or the downward sloping line predicted in Boix, we find a U-shaped relationship between these inequality and democratization. We also find little support for the claim that financial integration promotes democracy either directly or indirectly. In fact, contrary to Acemoglu and Robinson and Eichengreen and Leblang 2008, we find that capital account liberalization is negatively associated with democratization.

*The Microfoundations of the Arguments*<sup>3</sup>

The arguments of AR and Boix are similar, though their conclusions differ. AR partition society into two groups, the poor and the rich (p, r), an architecture that Boix 2003 closely follows from earlier AR published work.<sup>4</sup> The poor outnumber the rich by a considerable margin.<sup>5</sup> The two groups have complete information. They struggle over the distribution of resources; redistribution is accomplished by means of a common proportional tax, the proceeds of which are transferred (in equal shares) to all members of society. Democracy is an institution that makes commitments to redistribution more credible than the promises to redistribute by the rich (in autocracy). The questions are: 1) Do the poor accept the policies and promises offered by the rich or do they choose to revolt?; and, concomitantly, 2) Do the rich offer tax rates that are their most preferred policy (zero taxation), “concessionary” rates that are nonzero but also not the rates most preferred by the poor, or choose to democratize?

AR and Boix use game theory to derive the best responses (strategies) of the rich and poor under a variety of conditions pertaining to democratic and autocratic societies. Their account of democracy is based on previous work by Meltzer and Richard (1981) and others.

The core intuition is that the median voter’s preferences are determinative, and that the median voter is a poor individual. Her most preferred tax policy takes into account the deadweight loss of taxation,  $C(\tau)$ . But, even then, unlike the rich, she still

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<sup>3</sup> In the interest of brevity we focus here on the explanation of the transition from autocracy to democracy. There is a parallel argument concerning democratic consolidation.

<sup>4</sup> See AR 2006, p. 87 for a discussion of the relationship of their work to Boix’s, and see Boix 2003, p. 11, for a discussion of the relationship of his work to theirs.

<sup>5</sup> In several places in their book AR consider more complex partitionings of society, including the possibility of a middle class. But their core argument is framed in terms of a distributional struggle between the poor and the rich.

favors a nonzero tax rate,  $\tau^p$ . Moreover, her preferred tax rate increases with the level of inequality in society; mathematically, this follows from the assumption that the share of income held by the rich,  $\theta$ , is greater than the share of the population that is poor,  $\delta$ . Therefore, in democracy, the median voter's preferences are always implemented and this leaves the poor better off and the rich worse off in terms of post-tax income.<sup>6</sup>

The situation in autocracy is a bit more complicated. AR's most simple static set-up implies that the rich have a choice between imposing a tax rate that is no better than  $\tau^p$  or suffering a revolution and losing all their wealth. For their part, the poor must choose between accepting the tax rate imposed by the rich or opting for revolution. A key assumption regarding the latter option is that revolutions destroy *forever* a share of societal resources,  $\mu$ . This means that after the revolution, while the rich have no income, the poor earn a reduced rate than what would be possible in a democracy where the preferences of the (poor) median voter were adopted.<sup>7</sup> So, for the poor, the question, in the simplest static model, is whether their post tax income is higher under the tax rate offered them by the autocratic rich relative to the post tax income they would obtain after losing a share of societal resources in the revolution. This is called the revolutionary constraint. AR show it is equivalent to the condition  $\theta > \mu$ .<sup>8</sup>

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<sup>6</sup>Pre tax incomes of the two groups are expressed as  $y^p = [(1-\theta) \bar{y} / (1-\delta)]$  and  $y^r = (\theta \bar{y}) / \delta$  where  $\theta$  is the share of the income accruing to the rich,  $\delta$  is the fraction of the population that is rich (assumed to be less than .50), and  $\bar{y}$  is the average income of individuals in the society. Post tax income is expressed as  $V(y^i | \tau) = (1 - \tau) y^i + T = (1 - \tau) y^i + (\tau - C(\tau)) \bar{y}$  where  $V$  denotes indirect utility,  $y^i$  is the income of individual  $i$ ,  $\tau$  is the tax rate,  $T$  is the transfer (from government collected taxes),  $C(\tau)$  is the deadweight loss of taxation, and  $\bar{y}$  is defined as before. AR show that the derivative of  $\tau^p$  with respect to the level of inequality in society,  $\theta$ , is positive.

<sup>7</sup> That is, after revolution the payoff to the rich,  $V^r(R, \mu) = 0$  and the payoff to the poor is  $V^p(R, \mu) = [(1-\mu) \bar{y}] / (1-\delta)$  where  $\mu$  is the share resources destroyed forever by the revolution,  $\bar{y}$  is average societal income and  $\delta$  is the share of the population that is poor.

<sup>8</sup> This derives from the condition  $V^p(R, \mu) > y^p$ .

Democratization occurs when revolution is relatively more attractive to the poor than the concessions the rich might offer and, for the rich, repression is more costly than democratization.<sup>9</sup> Given these results, AR then show that democratization is likely only under intermediate levels of inequality,  $\theta$ . For low levels of  $\theta$ , revolution is not a viable option for the poor. Hence, the rich may be able to implement their most preferred tax policy and; therefore, autocracy survives. Above a certain high threshold level of  $\theta$ , elites have more to lose from democracy than they do from repression (or from concessions). The rich, therefore, opt for repression and all agents suffer a loss in income. But this leaves the rich relatively better off than they would be if they agreed to democracy and the poor were able to choose their most preferred tax policy.<sup>10</sup>

AR produce causal propositions. The one they most highlight is:

<i>AR Proposition 1.</i>	There is a (convex) hump-shaped relationship between societal inequality and democratization within and across countries.
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Boix argues that lower levels of inequality or increasing capital mobility lead to democracy: “democracy prevails when either economic equality or capital mobility are high in a given country.” (2003, 3.) With lower levels of inequality, elites have fewer incentives to resist democracy as the costs of redistribution are lower.

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<sup>9</sup>See Proposition 6.2, AR p. 189.

<sup>10</sup>This essentially is AR’s Corollary 6.1. To derive this key corollary, AR examine the conditions relative to  $\theta$ , that (the promise of) concessionary taxation is just enough to prevent revolution, the condition relative to  $\theta$  under which the value of democracy is equal to that of revolution for the poor. They show there is a range of inequality levels where democracy can be conceded by the rich, the rich end up better off than if they had repressed (given the value of the cost of repression) and the poor do are satisfied with the tax policy of the median voter. There is, however, an upper threshold in equality that produces democracy, however. Beyond this upper threshold, democracy—the tax policy of the median (poor) voter—leaves the rich worse off than they would be under repression. Put another way, at this upper level of inequality, the cost of repression has to be very high before the rich would opt for democratization. At this upper level, either a) (promises of) concessionary taxation don’t work, the poor prefer revolution, and repression is the only option for the rich (to avoid a total loss of income) or b) the poor prefer democracy to revolution, but the rich still are better off repressing the poor than agreeing to democracy and accruing the post-tax income produced by the tax policy of the median (poor) voter,  $\tau^p$ .



How does economic globalization figure in the microfoundations of these arguments? International economic forces further enhance the prospects for democratization for both sets of scholars. AR assume that in most autocratic countries labor is abundant and capital is scarce. They also assume that trade encourages factor price equalization. The result is an increase in the returns to poor--an increase in the poor's income--and a *reduction* in the poor's preferred tax rate. After trade, a relatively lower income loss to the rich relative to the poor is sufficient to make democracy the preferred choice over repression (because democracy means a higher post-tax income when the poor (median voter) chooses the lower, post trade tax rate).

Capital mobility supposedly has some of the same effect as trade on the prospects for democratization. Capital inflows occur, before financial integration, in developing countries, because the return to capital is higher domestically than internationally; eventually these rates of return are assumed to equalize at which point capital inflows stop. The equalization (increase) in wage rates occurs at the same time and, again, this lowers the preferred tax rate of the poor, making democracy relatively more attractive than repression. This impact on wage rates is sufficient to make democracy more likely. One reason is that, in their analysis of the inflow case, AR assume there are no local taxes on foreign capital and no taxation of capital abroad.<sup>11</sup>

In regards to capital outflows, AR assume a global (post-tax) rate of return on capital that is higher than the domestic (post-tax) return. They contend that, in

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<sup>11</sup> AR also assume no cost to foreign capital from coups. They do not say if there is a cost to foreign capital from revolution. It appears this cost also ruled out by AR. This argument about capital inflows is for the developed country case. In the opening to the chapter on opening economies, AR point out that effects on wages and on capital are reversed in developed countries. In this case, wages fall and the returns to capital rise. But since these countries have "fully consolidated democracies" the implied, resulting "marginal increase in redistribution" will not provoke a coup. In other words, parameter values depend on the duration of democratic consolidation (see AR p. 323).

democracy, the poor are forced to equalize the two rates, or capital will flow out of the country (reducing post-tax income). As with trade, this lowers the preferred tax rate for the poor (median voter) to some  $\underline{\tau}^p < \tau^p$ . This, again, makes the payoff of democracy relatively higher to the rich than it would be without capital outflows. In turn, repression is less attractive. To be more specific, with capital outflow, repression has to be cheaper (because there is less of an income loss) for it to be preferred by the rich. Thus, democratization is encouraged by capital outflows.

AR's analysis of the impact of economic openness on democratization produces a clear causal expectation:

<i>AR Proposition 2.</i>	In developing countries, both inward capital account liberalization and outward capital account liberalization lead to democratization though the mechanisms differ; inward liberalization leads to reductions in inequality, and outward liberalization limits redistributive taxation.
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Boix does not discuss financial globalization in the more traditional sense of either capital account deregulation or inward and outward capital flows. Instead, Boix focuses on “the specificity of capital,” which is “a reduction a reduction in the cost of moving capital away from its country of origin.”<sup>12</sup> (2003, 12.) The less “specific” the asset, the more mobile is capital. The link between lower asset specificity (capital mobility) and democracy is straightforward:

....this book predicts that a decline in the extent to which capital can be either taxed or expropriated as result of its characteristics also fosters the emergence of a democratic regime. As the mobility of capital increases, tax rates necessarily decline since otherwise capital holders would have an incentive to transfer their assets abroad.

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<sup>12</sup> Readers of the literatures in international business and foreign direct investment will note immediately that scholars in these fields see the international investment assets of globalized firms as being highly specialized and “specific,” far more so than investments of purely domestic firms.

The “specificity” of an asset for Boix depends on its value outside the country of origin:

...capital can be thought of as being somewhat specific to the country in which it is being used. The extent to which an asset is specific is measured by its productivity at home relative to its productivity abroad. Whenever capital is moved abroad, it loses a share ( $\sigma$ ) of its value. More exactly, capital  $k$ , which at home would produce  $y=k$ , produces abroad  $y=k(1-\sigma)$ . Thus, the more specific the capital, that is the larger the  $\sigma$ , the less attractive the option of moving capital abroad becomes to its owners. The degree of specificity varies across types of capital: it is practically complete for land, yet extremely low for money or generic skills. (2003, 12)

As less specific assets are harder to tax, lower redistribution possibilities come with them, as does greater likelihood of democratization.

Recent studies of this subject by other scholars are noteworthy for their focus on the related, but different argument that it is capita income *levels* and GDP growth that determine democratization and consolidation (Barro 1999, Boix and Stokes 2003, Epstein et al 2006, Acemoglu, Johnson, Robinson, and Yared 2008). The use of income equality occasionally is included in the robust checks for the models relating income levels (growth) to democratization. This variable, however, is typically omitted. Sometimes the investigator says he would like to include income equality in the democratization (consolidation) model but data paucity prevents this (Svolik, 2008, 165).<sup>13</sup>

Of course a few scholars have examined the relationship between foreign investment and income equality. The results of their investigations, however, are contradictory.<sup>14</sup>

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<sup>13</sup> Barro (1999, S169-171) includes income and educational inequality in the robustness checks for his SUR model relating income levels and growth to democratization. He finds only weak evidence of relationships for this inequality measures. Acemoglu, Johnson, Robinson and Yared (2008) show Barro’s model is sensitive to the omission of fixed effects and some forms of endogeneity. AR cite the study of Epstein et al as support for their nonmonotonicity result (p. 193). But this is the working paper version of the Epstein et al. The published version of Epstein et al (2006) does not use income inequality as a regressor in explaining democratic transitions and(or) consolidations.

<sup>14</sup>Jensen and Rosas (2007), in a study of the Mexican experience find direct foreign investment (DFI) reduces income inequality. In cross-national, pooled analysis of a collection of 69 countries, Reuveny and

### Evaluation and Hypothesis Development

Both main arguments about the link between income inequality and democratization (democratic consolidation) rest on empirical footing worthy of reinvestigation, and on theoretical assumptions that are debatable. We focus in particular on four elements: 1) the absence of empirical support for AR's argument; 2) the possibility of endogeneity in relationships; 3) the role of financial globalization in influencing the democracy and inequality relationships; and 4) the soundness of the assumption about capital taxation under conditions of financial globalization. We propose that financial globalization has effects on income inequality such that inequality's effect on democratization is non-linear and "U" shaped – more equal and highly unequal societies are more likely to democratize or consolidate democracies than are nations characterized by intermediate levels of inequality.

**Evidence.** Little meaningful evidence has been provided in support of the AR argument in particular. AR offer a few scatterplots in support of the idea that income inequality and democracy are correlated (Figure 1). These scatterplots, however, actually show a curiously monotonic relationship (even though their central thesis is that the relationship is nonmonotonic).<sup>15</sup> In fact, the relationship in AR's Figure looks more like that predicted by Boix (2003). At no other place in their book do they produce any statistical analysis in support of their argument. In fact, in their analysis of the impact of international

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Li (2003) found democracy and trade reduce income inequality, DFI actually increases income inequality, and "finance capital" had no effect on income inequality.

<sup>15</sup>Later, in Chapter 6, AR report data on a single downturn in inequality in Korea-Taiwan and of a relatively flat trend in income inequality in Singapore (Figure 6.3, p. 192) as evidence of the nonmonotonic relationship. Needless to say, these data do not support the strong claim they make about nonmonotonicity. Below, we review the logic behind the thesis that income inequality of intermediate levels is only likely to produce democracy (2006, p. 37, 189-193).

economic forces on inequality and democracy, they admit that the evidence is “unsettled” or “equivocal” (2006, 344-5, 347; see also 325).

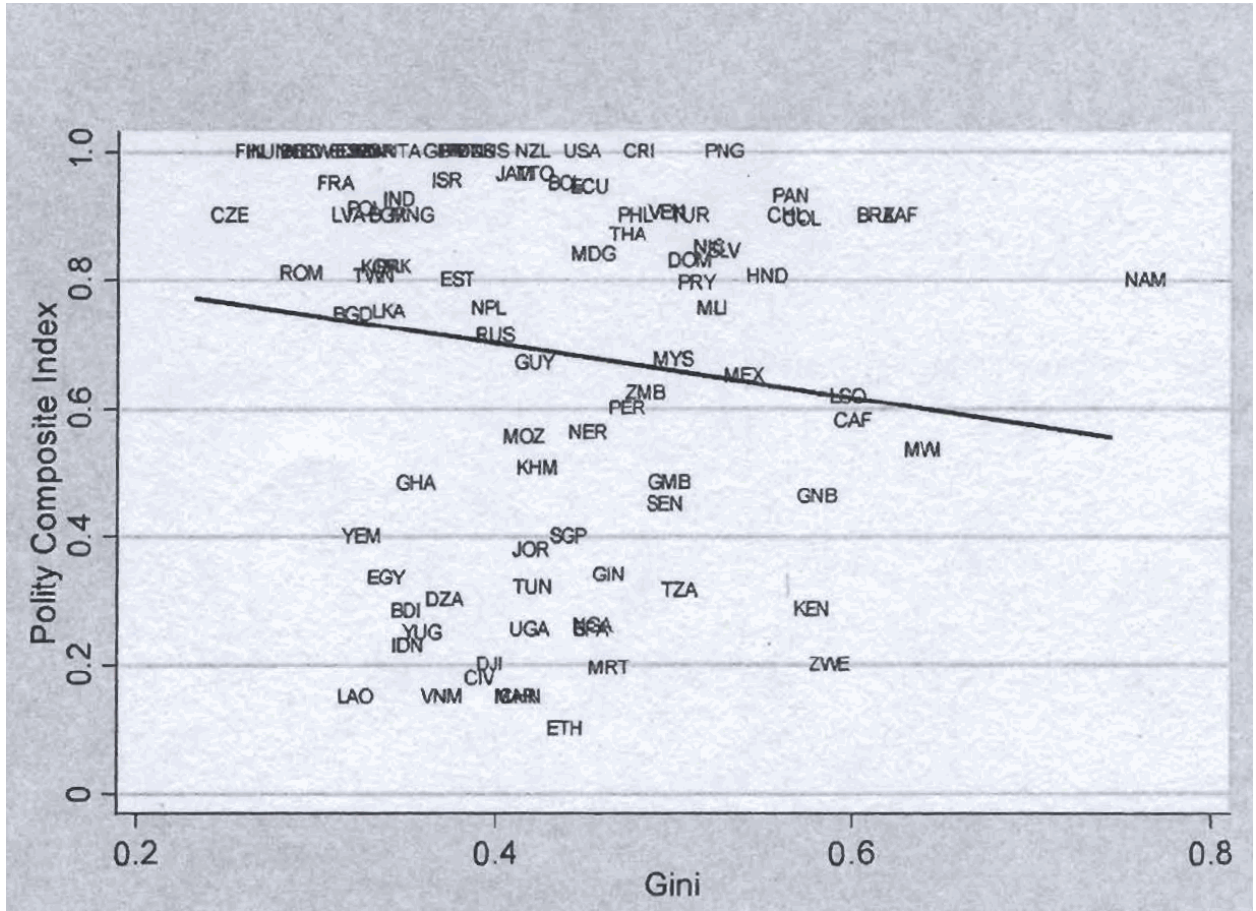


Figure 1 Acemoglu and Robinson’s (2006) Figure 3.16

The results obtained from the simple correlational (graphical) approach used by AR are not reassuring. For example, scatterplots for our most current data on income inequality and changes in polity scores show no clear relationship (Figure 2). The coefficients on contemporaneous and lagged Gini variables raised the second and third

powers in regressions explaining changes in Polity scores are statistically insignificant at conventional levels.<sup>16</sup>

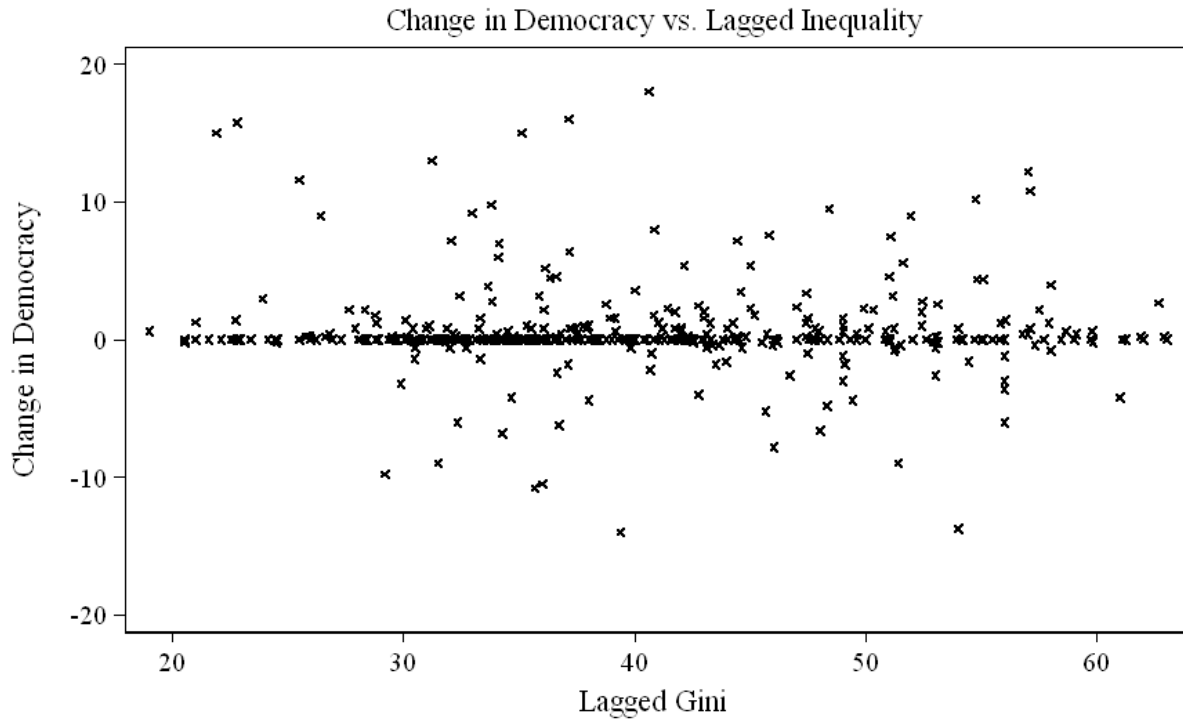
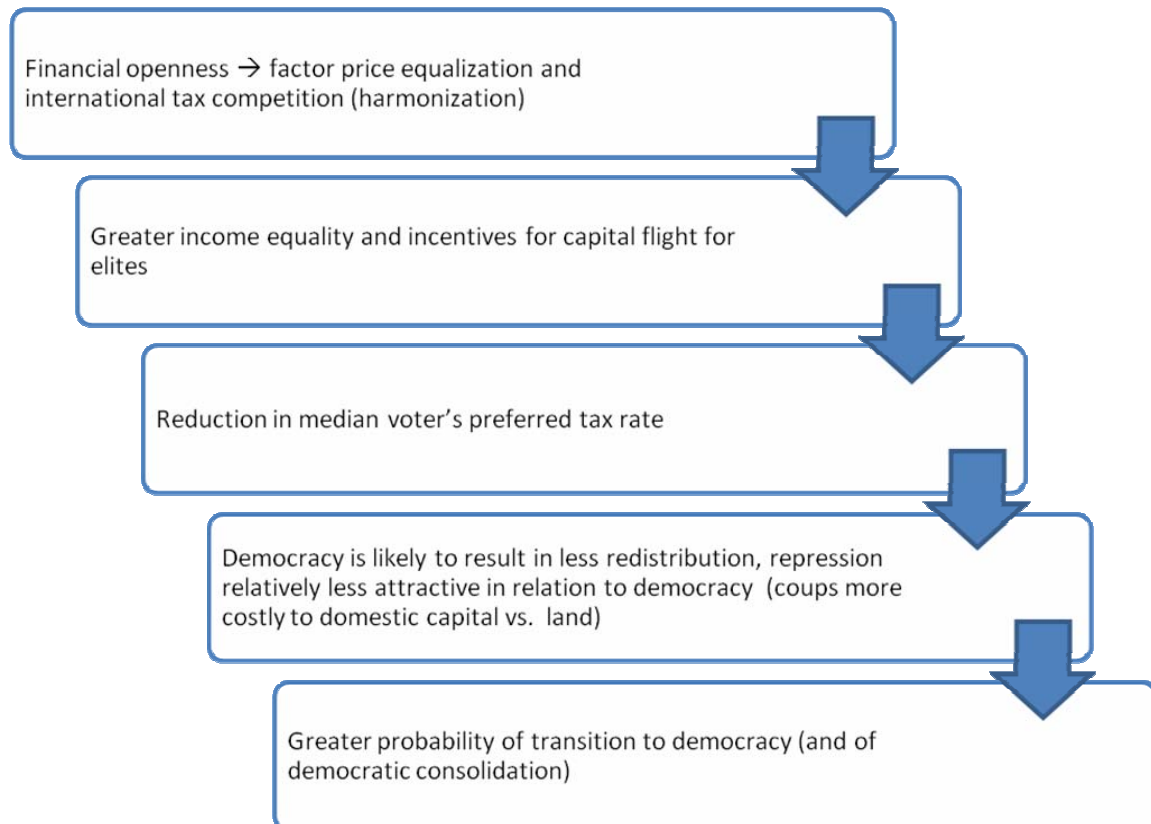


Figure 2 Lagged Gini Scores and Change in Polity Scores for 424 Country Years

**Endogeneity.** Another concern is the possibility of endogeneity. Consider the following schematic representation of the argument in AR's tenth chapter linking financial openness to democratization:

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<sup>16</sup>AR (2006, p. 59) use Dollar and Kraay's (2002) data for their Gini scores. As we explain below, our Gini data subsumes the Dollar-Kraay Gini scores as well as several more recent income inequality data sets. As regards the simple regression analyses, we estimated models with Gini scores squared and squared and cubed. We used both contemporaneous average Gini scores and lagged average Gini scores. None of the coefficients in these simple regressions were statistically significant at the .05 level. In a parallel analysis using a lagged endogenous variable for change in democracy, time dummies we also found no statistically significant curvilinear relationship. This supplemental analysis used several measures of democracy and all five our measures of inequality. See Appendix (August 12 email).



This causal chain is a recursion and therefore relatively easy to estimate. But, if the causal arrows point in both directions, the estimation obviously will be more difficult. In particular, endogeneity will be an issue. And there are many places in AR's analysis that suggest endogeneity is present. One is their analysis of the impact of concessionary taxation in autocracy; concessionary taxation may affect income inequality.<sup>17</sup> Statistical tests therefore not only must "control" for the variables left out of AR's analysis but also

<sup>17</sup> AR treat the level of income inequality in autocracy as exogenous, fixed parameter. Yet one of their main insights is that the rich, under certain conditions, can (promise to) redistribute some income to stave off revolution; this rate is expressed in equation (2) in the text. How this concessionary taxation affects the level of income inequality is not clear. In addition, AR go back and forth—sometimes even in the same passage (e.g., p. 189) between talking about the *promise* to redistribute income via concessionary taxation and the actual redistribution of concessionary taxes. They also do this in their dynamic analysis (pps. 198-199). Once more, how concessionary taxation and redistribution could leave  $\theta$  unaffected is not explained. Another likely form of endogeneity is the relationship between capital outflows and the size of the capital stock. The loss of capital in this case may have the same impact as the loss of capital due to revolution or coups.

estimation must take endogeneity into account. Unfortunately, AR give us little guidance how best to accomplish these things.

Please see the technical appendix for further evaluation of the AR model. We endeavor in this paper to evaluate empirically their argument, taking particular note of the differing theorized effects of inward and outward capital on inequality and hence democracy.

Boix 2003 offers more systematic tests of his argument. Using panel methods and simple maximum likelihood estimation, Boix (2003, 79-83) generally finds negative associations between inequality as an independent variable and subsequent democratization.

The models and tests did not allow, however, for estimation of the necessary endogeneity in relationships in both the AR and Boix arguments.<sup>18</sup> In Boix (as with AR), the core argument is that it is actor expectations about how elites and “masses” pursue or resist future democratization in light of their preferences regarding current and future distributions of income that influence the likelihood of a country’s democratization. Therefore, expectations of about future democracy potentially influence current distribution of resources; and, expectations about future democracy influences expectations about future income distribution, all of which in turn is correlated with current distribution.

Note that many papers explicitly reverse the dependent and independent variables in the AR and Boix investigations, and instead model the effect of democracy and

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<sup>18</sup> Boix acknowledges that the democracy and inequality variables are endogenous, especially in a cross-sectional research design (2003, 74). But, Boix says “even if inequality is an endogenous variable to political regime, it is determined previously to the political game we are playing.” If, as Chong 2004 and others note, independent and dependent variables exhibit persistence over time, an instrumenting procedure is advisable.



autocracy on income inequality (Reuveny and Li 2003, e.g.). Some recent papers model the relationships endogenously; see, e.g., Chong 2004 (especially 193, 203) in which a GMM\_System set-up is used to explore the effects of democracy on changes in inequality. We propose that an econometric examination of the effects of inequality on democracy should be undertaken at least in part using some form of instrument variable regression analysis.

**Financial Globalization and Inequality.** Capital account mobility's effect on redistributive taxation is crucial for Boix as well as for AR. Boix operationalizes asset specificity, and hence capital account mobility, with indicators of a country's agriculture share of GDP, the value of its fuel exports over other its exports, the average years of schooling of its population, and economic concentration of its markets, as well as national income.

Capital account mobility, however, is the result of capital account liberalization (a treatment variable), which produces financial integration (an outcome variable). Both variables can be measured directly, though neither is evidently measured by the above indicators.

Capital account liberalization changes the meaning and economic value of "asset specificity." With capital account liberalization, capital assets – including land – are no longer "specific" in an economic sense (cf. Ansell and Samuels 2008). Owners of land are able to sell property rights to foreigners (who are presumably seeking diversified portfolios). Those land-owners are able to, in turn, purchase assets in foreign markets. Argentine landowners, e.g., with capital account liberalization, can sell assets to overseas investors, and invest the proceeds internationally. Even labor is not quite so "specific" as

laborers can sell “labor” to foreign investors, and these workers can invest the returns of their labor in overseas markets. Capital account liberalization has been a core, if not the core, contributing factor to asset market integration (Quinn and Voth 2008).

Indeed, insuring that that an investor’s assets are not too “specific” (or, more correctly, not too idiosyncratic in risk) is the key recommendation of modern portfolio theory - international diversification, in particular, is good for investors. A long lineage of work, starting with Henry Lowenfeld, in his *The Geographical Distribution of Capital* (1909) demonstrates that international equity market correlations are lower than industry correlations within one country. Consequently, investors should be able to improve the risk/return profile of their portfolio significantly if they move assets out of “specific” classes of investments, and partly into foreign equities and assets (Grubel (1968), Levy and Sarnat (1970)). Paradoxically, with capital account openness, specific assets (or those that have idiosyncratic risk that are uncorrelated with returns in global capital markets) become highly valuable to foreign investors as components of a diversified portfolio.

Hence, we expect that, following capital account liberalization, local investors will see high returns through asset sales to foreigners, which will increase – not decrease – income inequality. And, assuming that capital account liberalization limits, a la both AR and Boix, “excessive” taxation of investor gains, this increase in inequality will be extensive.

Empirical studies offer some evidence that financial globalization will lead to increasing income inequality. Financial globalization was found to be a robust correlate of rising income inequality in a cross-section of countries examined in Quinn 1997. A

recent paper by Jaumotte, Lall, and Pappa (2008) uses panel OLS methods to disentangle the effects on income inequality of technological innovation, trade, and financial globalization. They find that, while trade does have the effect of reducing income inequality, inward FDI flows have increased income inequality. A study in 2008 by the International Labor Organization (ILO) also uses OLS panel methods to document the correlation between rising income inequality and stock of FDI as a percentage of GDP (ILO 2008). See also Figini and Görg (2006), which show initial rises in wage inequality from inward FDI.

Financial globalization, we propose in this light, will have complex effects on democratic prospects – rising inequality will hurt democratic prospects, but limits to the taxing of the rising inequality should lessen elite opposition to democratization. Hence, the relationship among financial globalization, rising inequality, and democratic prospects is likely to be non-linear.

**Financial Globalization and Capital Taxation.** A key assumption in both AR and Boix is that capital is either not taxed (i.e., inward investment by non-residents) or taxed at low rates (~a low global rate of taxation). These assumptions are consistent with standard predictions from small, open economy macro models, which have long suggested that capital and corporate taxation in smaller economies with open capital accounts are difficult to sustain, and are vulnerable to a “race to the bottom.” (See Devereux, Lockwood, and Redoano 2007 and Tanzi 1995 for models. See Haufler 2001 for a review.) The prediction of the open capital accounts models is generally that a government’s revenue from capital taxation disappears, even if governments persist in maintaining tax rates.

Paradoxically, in the models advanced in AR and Boix, the unsustainability of high levels of taxation on mobile capital with open capital accounts is good news normatively for democracy; without revenue to redistribute, democracy becomes less costly to the elite, and opposition to democracy becomes more limited. This “good news” is a reversal of sorts of earlier arguments made in political science that open capital accounts limit democratic choice.

It is difficult, however, to think of an area of international political economy research that has produced predictions more at odds with the observed behavior of governments and economic actors. Consider Figures 4, 5, and 6.<sup>19</sup> Figures 4 and 5 report OECD corporate tax collections and rates for 1970 and 2005, both years of world business cycle expansion.<sup>20</sup> For the average OECD country, corporate tax revenues as a percentage of GDP *have risen* in the past 35 years from 2.5% of GDP to 3.6%; the 35 years between 1970 and 2005 are a period of financial globalization among OECD countries, with no significant capital controls remaining in 2005. (Similar results are found for more open emerging market countries from 1960-1989. See Quinn 1997.) Top corporate tax rates have fallen on average during the same period (see Figure 5), but the tax base has been broadened through reductions in incentives and other deductions, and base-broadening has contributed to the steep rise in corporate tax collections. (See Devereux, Griffith, and Klemm 2002 for a review of the policy debate around cutting top tax rates while “tax-base broadening.” See also Swank and Steinmo 2002.) Emerging

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<sup>19</sup> We use corporate capital taxation (revenue and rates) as our proxy for capital taxation. Data on corporate taxation is reliable, in contrast to data for the more general category, “capital” taxation. What constitutes “capital” income varies extensively cross-nationally, in contrast to corporate income.

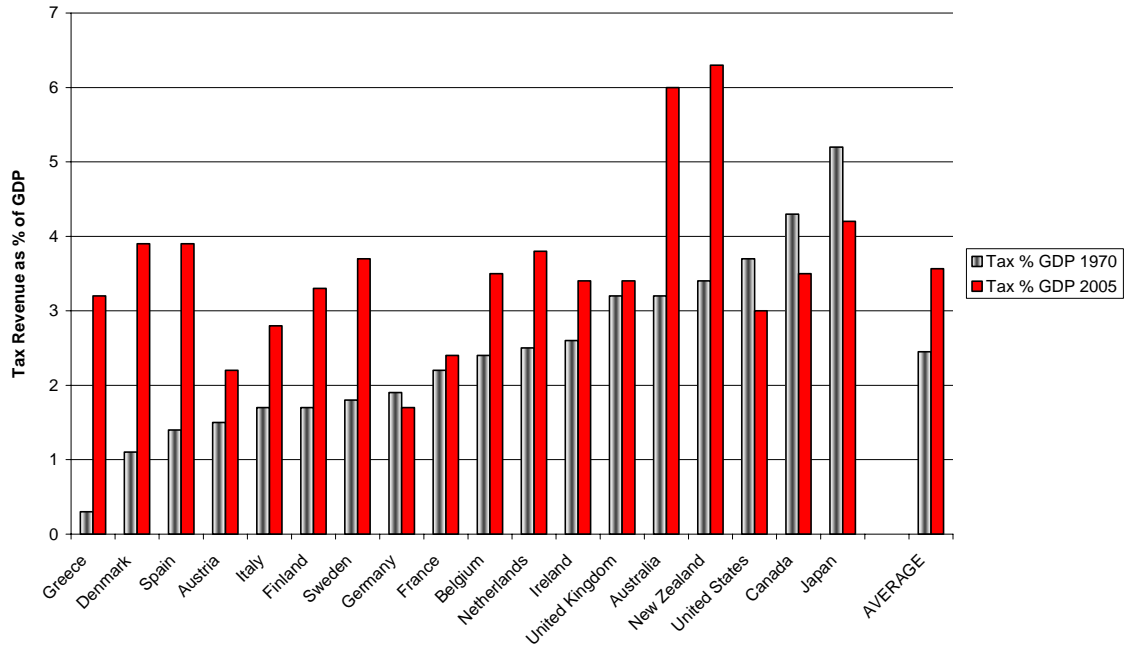
<sup>20</sup> Because taxation is frequently counter-cyclical, controlling for stages of the business cycle is important in analysis over time. Both 1970 and 2005 were part of peak world business cycles, with world growth averaging 5% both year. See IMF, World Economic Outlook, April 2007, p. 1.

market corporate tax collections (Figure 6) in recent year have not grown, in contrast to collections for OECD member countries, but they have remained relatively stable.

Addressing the discrepancy between theory and evidence in a paper entitled “Why is there no race to the bottom in capital taxation?,” Plümper, Troeger, and Winner (forthcoming) argue that fiscal rules and equity norms (measured by Gini coefficients) put upward pressure on capital taxation, both rates and revenue. While “tax competition” does cause some shifting of tax burdens to less mobile factors, fiscal rules and social fairness norms trump. Their model and results confirm that countries with open capital account do not converge on capital tax policies in general, and do not “race to the bottom” in particular. Their findings are consistent with the “system of constraints” argument and evidence in Swank and Steinmo (2002) and the “tournament” model in Basinger and Hallerberg (2004). See also Countries, while not free in these analyses to tax capital at confiscatory rates, are able to capture substantial income from capital taxation under conditions of capital account openness.

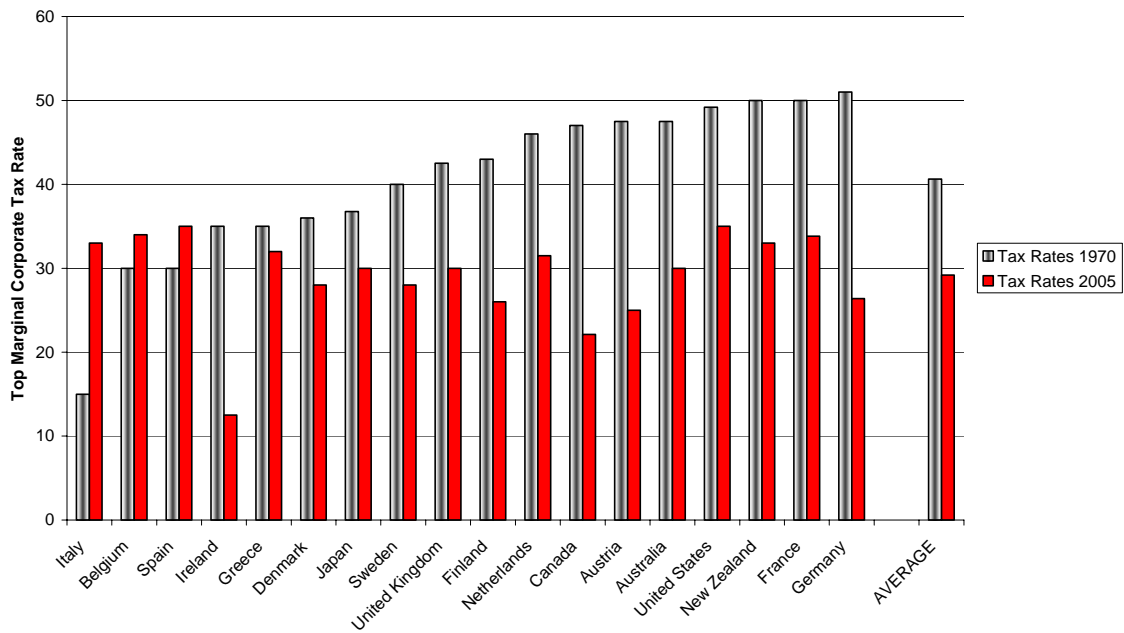
The implication we draw is that governments are able to extract substantial revenue from owners of capital assets under conditions of financial openness. Financial globalization does not necessarily eliminate the tax burden on capital, and does not necessarily reduce the incentives of elites to resist democracy. Indeed, if financial globalization increases inequality *and* allows for redistribution, financial globalization under some conditions might increase an elite’s resistance to democratic reform.

Figure 4 - OECD Corporate Tax Revenue Collections as % of GDP - 1970 vs. 2005



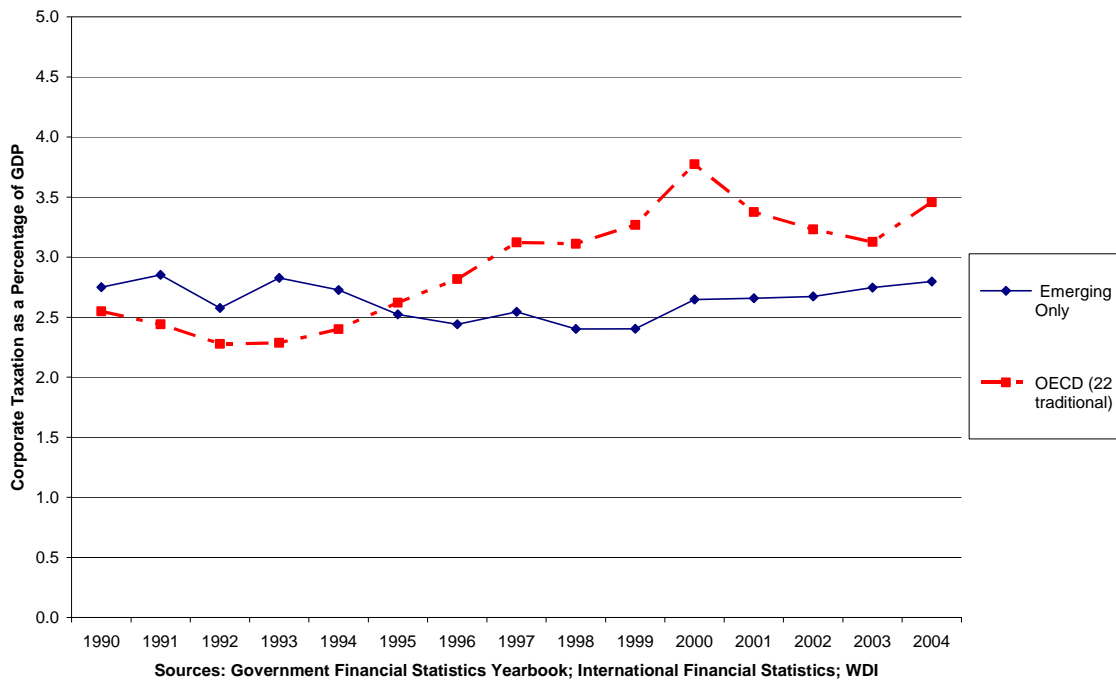
sources: OECD Revenue Statistics, 1965-2007 (2008 ed.)

Figure 5 - Central Government Top Corporate Tax Rates - 1970 vs. 2005



Sources: OECD, Revenue Statistics, Part II, Table II.1 (2008); KPMG Corporate Tax Rate Survey 2006 (note: "combined" corporate tax rates, which include subnational government tax rates, are not shown)

Central Government Corporate Tax Revenue as % of GDP



**Summary and Hypothesis.** AR posit that financial globalization should lead to democratization, both because of the decreasing inequality from factor price equilibration in emerging markets, and from the diminished ability of the state to tax and redistribute capital income. Boix sees decreasing inequality directly, decreasing inequality from financial globalization indirectly, and financial globalization per se all reinforcing democratic processes and consolidations. The relationship between financial globalization and democratization is linear and positive for both Boix and AR.

We propose, in contrast, that financial globalization, especially inward liberalization, leads to rising – not decreasing – inequality. We further propose that outward liberalization, while constraining of some government policies, still allows for significant redistribution of wealth through the tax system – financial globalization has

been associated, at least in part, with increasing corporate tax collections. If rising inequality harms the prospects for democratic consolidation and democratic reform, and if the “ceiling” on taxation under financial globalization is high, then the financial globalization→inequality→democracy relationship is likely to be non-linear. We propose that, as inequality from globalization rises, democratic prospects should diminish. At some point, however, rising inequality is high enough so that, with financial globalization and a given ceiling on capital taxation, elites will be less resisting of democracy. Therefore, we posit a U-shape relationship among financial globalization, inequality, and democracy.

The next sections describe the data used and put forth such a design. We then conduct a test of these propositions.

### *Data and Measures*

Data choices significantly influence many scholarly studies. We outline here some of the choices investigators face in estimating models using measures of democracy, inequality, and financial globalization. We then assess the consequences of these choices. Where feasible, we use multiple indicators of key variables.

*Democracy.* Our core dependent variable in this investigation is democracy, which we measure by using Polity II and Regime.<sup>21</sup> These democracy measures are standards in political economy. We estimate models using the two variables to demonstrate robustness of our results. In using the 21 point Polity measure, we allow for minor as well as major changes in democratic institutions to be modeled. In using the 0,1 Regime

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<sup>21</sup> Polity II is from Marshall, Jaggers and Gurr 2000 (updated at [www.bsos.umd.edu/cidcm/polity](http://www.bsos.umd.edu/cidcm/polity)). Regime is from Przeworski et al. 2000 (updates available from Cheibub and Ghandi 2004, as cited by <http://www.nsd.uib.no/macrodatabguide/set.html?id=1&sub=1>).



variable, we focus on larger changes. (Note that in a five year panel, the dichotomous Regime variable is transformed into an interval level variable taking values between 0 and 1, and which is continuous and normally distributed). Regime is rescaled so that large values indicate greater levels of democracy or of civil liberties.

We show below that the choice of the democracy indicator is not per se a crucial choice in the investigation. Regime, however, has fewer observations than Polity II, and the end of the respective series coincides with important changes in history. But, regime ends in 2000, and misses recent events. Polity II covers the period between 1945 and 2004, and therefore contains more identifying variance.

*Inequality.* In contrast to the democracy indicators, which are broadly comparable across space and time, the cross-national inequality indicators are plagued with measurement difficulties. We use as our measure of inequality Gini coefficients<sup>22</sup> from three standards sources: Deininger and Squires 1996 (D&S); Milanovic 2005, and United Nations University-World Institute for Development Economics Research's World Income Inequality Database (WIID) 2008. The D&S and WIID data, however, contain information from diverse sources using diverse methods on diverse populations. These data need to be adjusted before using in cross-national, time-series analyses.<sup>23</sup> The Milanovic/World Bank survey data are comparable across time and space, but are limited in time to at most three observations per country.

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<sup>22</sup> Gini coefficients are a way of measure a nation's income inequality. They are scaled between 0-100. Gini coefficients measure the dispersion of income, with high values indicating higher inequality.

<sup>23</sup> The main differences are whether surveys measure income or expenditure, households or individuals, and are net of taxes and transfers or are gross income. We use GINI indicators that are a) national in origin, b) are rated as having a WIID quality of at least "3," and c) where possible, consistent by methodology within country.

Dollar and Kraay 2002 (DK) and Babones and Alvarez-Rivadulla 2007 (SIDD) each offer transforming metrics that allow for the GINI indicators to be turned into measures useful for comparative research.<sup>24</sup> We use DK's transformation algorithm to adjust the 2008 WIID data. As noted below, we find that a third variable (household vs. person) is influential in the new 2008 WIID; we estimate a transformation with the third dimension added (FQ3). We also estimate a two variable GINI adjustment model, and find that the consumption coefficient is larger than the DK adjustment: we refer to this series as FQ2. While the transforming metrics differ, the intercorrelations between and among the measures are reassuringly quite high: great than 0.9. (See Appendix Table A1.) We offer an assessment of whether differences in methodology (as well as differences in sample size) influence the investigation below.

The Galbraith and Kum 2005 inequality indicator, EHII, uses United Nations Industrial Organization (UNIDO) wage data with a Theil T's statistic to generate over 3,000 country year observations of GINI. An advantage of their approach is that a fuller data set using wage data is estimated. A disadvantage is that their data end in 1999, whereas the new WIID data extend to 2006. The correlation between EHII and the other GINI indicators is not high:  $\sim .6$ . We show below that the results of the investigation

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<sup>24</sup> Dollar and Kraay 2002 (Table 2) use a regression on GINI using dummy variables for gross income and expenditure (consumption), plus regional dummies. They then subtracted the coefficient estimates of the gross income and expenditure dummies from the GINI coefficient. Identical results are given by extracting the residuals of the regression, and adding them to the intercept. Dollar and Kraay did not use a dummy for household vs. person as they do not find a statistically significant effect (Email correspondence, A. Kraay and D. Quinn, 21 July 2008; phone conversation, 17 July 2008.) We replicate nearly exactly Dollar and Kraay's results for Table 2 on their sample. In the WIID 2008 updated sample, however, we find that the coefficient estimate for household is now statistically significant, and that the regional dummy effects in Dollar and Kraay are now very different from prior findings. A simple model regressing GINI with dummies for all three types of surveys is what we use. We also estimate a model without the household dummy. The coefficient estimate for expenditure surveys remains consistent with the early Dollar Kraay result, but the coefficient on the gross income dummy is now twice the size as before. We use both results.

will sometimes differ, depending on which of these GINI indicators are used. (See the Appendix Tables A1 and A2, which illustrate the correlations across measures.)

*Financial Globalization.* We operationalize international financial regulation as two indicators of change in international financial openness or closure, which are described in Quinn (1997) and Quinn and Toyoda (2007). *CAPITAL* and *FINANCIAL\_CURRENT* (*FIN\_CURRENT* hereafter) are the main components of openness created from the text published in the annual *AREAER* volume that reports on the laws used to govern international financial transactions. These indicators take a different approach in creating an index for a government's policy stance toward capital account liberalization and financial current account liberalization by offering a measure not only of the existence (absence) of restrictions, but also of the severity or magnitude of those restrictions.

We chose nations for coding based primarily upon how early their information appeared in *AREAER*. For example, descriptions of the financial arrangements as of 1949 for 47 nations appeared in the first volume (1950), and all these nations (save three whose data were subsequently interrupted) appear in the data set. Up through the 1960s, as other nations entered *AREAER*, we added them to the data set, which currently contains information for 111 nations. Our aim has been the "longest t," rather than the "broadest N." *CAPITAL* is scored 0-4, in half integer units, with 4 representing an economy fully open to capital flows. This measure is transformed into a 0 to 100 scale by calculating  $100*(CAPITAL/4)$

*CAPITAL* distinguishes between restrictions on residents and non-residents, which correspond to restrictions on capital outflows and inflows, respectively. (See IMF (1993), pp. 80-1, for a discussion).

To measure a country's integration into global financial markets, scholars often turn to non-index, de facto or "blended" measurements. These indices exploit observable phenomena resulting from increased capital mobility, such as the magnitude of gross capital flows (IMF 2001), share of domestic equities that are available for foreign purchase (Bekaert (1995); Edison and Warnock (2003)), decreasing correlations between savings and investment (Feldstein and Horioka (1980)), or convergence between external and domestic interest rates (Dooley, et al. (1997); Quinn and Jacobson (1989)). Reuveny and Li 2003 used FDI inflows and Portfolio inflows as indicators of financial globalization in their study.

In this investigation, however, we cannot use FDI and portfolio indicators as measures of financial globalization. Our analysis spans 1955 to 2004, a time period in which four different "investment regimes" prevailed, rendering the FDI and Portfolio measures not comparable across investment regime. To be specific, the 1993 IMF Balance of Payments Manual (BoPM), 5<sup>th</sup> edition, revised the definition of FDI as constituting the purchase by non-residents of 10% or more of the ordinary shares (or voting equity stake) of a company. The 4<sup>th</sup> edition (IMF (1977), 137) gave a range of 10 to 25% to distinguish FDI from portfolio investment. The 3<sup>rd</sup> edition (IMF (1961), 120) gave a range of 25 to 75%, depending on the circumstances.

The data reported for FDI and portfolio flows are not adjusted back in time, with the result that some of the increases in FDI flows in the 1990s in particular derive from changes in threshold definition for FDI: 10-25% of an investment stake vs. 10% after 1993. Moreover, countries used and continue to use inconsistent definitions, albeit with

IMF permission. See IMF (1996) and IMF (1993, 87).<sup>25</sup> Because of the inconsistencies in FDI and portfolio data across time, we use the de jure measures of financial globalization.

### *Models and Methods*

In this investigation, we are interested in exploring the separate and joint effects of financial globalization and income inequality on democratization. Pooled, cross-section, time-series (PCSTS) models are useful in evaluating the question of why, over time, some nations become more democratic while others do not. That is, the variation in the dependent variables comes from both the time series and the cross-sections. Some pooling of data is necessary to address the questions.

Because AR (2006) offer little guidance regarding the appropriate design for their propositions, we start with five year explanatory models of democratization proposed and estimated in their related work, Acemoglu, Johnson, Robinson, and Yared 2008, hereafter AJRY. The AJRY model is a country and time fixed effect model with an indicator of Democracy in levels as a dependent variable, estimated with a lagged endogenous variable on the right-hand side. In their specification, AJRY add one key variable, log of income, lagged once.

The AJRY model, while the starting point for our investigation, is underspecified regarding other determinants of democracy. AJRY (2008, 809) acknowledge that “fixed effects are not a panacea for omitted variable bias.” We add to the base model for democracy regressors representing domestic political and economic variables, most of

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<sup>25</sup> The discussion group for the 6<sup>th</sup> edition of the BoPM, scheduled for release in 2008, has proposed 20% as the new threshold for distinguishing FDI flows from Portfolio flows.

which are standard in the literature: growth in PPP adjusted per capita income, log of levels of investment (as a share of GDP), annual population growth, and log of levels of trade openness (imports + exports as a percentage of gross domestic product). (See Gassebner, Lamla, and Vreeland 2007 for a review of some of the standard regressors in the literature. See also Milner and Mukerjee 2009.) We add to this model an indicator of change in global oil prices. The oil price indicator is correlated with the period fixed effects used in AJRY, and we prefer to use a variable with a substantive interpretation to variables representing time.

Recent scholarship stresses the importance of investigating and controlling for unobserved cross-sectional or spatial correlation in time-series panel studies. (See Franzese and Hays 2007.) Of particular concern in this investigation is whether the changes in democratic processes for a given country are fully independent of the processes at work regionally and(or) globally. Gleditsch and Ward (2006) find that a country's democratic processes are influenced by both regional and global forces, as measured by regional and global averages for democracy. (See also Simmons and Elkins 2004.) To capture the spatial correlations and unobserved global influences, we follow Gleditsch and Ward 2006 and estimate models with the contemporaneous change in the global average of democracy as an independent variable.<sup>26</sup> To assess the influence of the behavior of regional neighbors, we compute the regional average democracy for a given country (removing the value for that country).<sup>27</sup> We also represent the effects of some regional forces in using a dummy variable to signify a country membership in either the European Union (a club of democracies) or in the Soviet Bloc (a club of autocracies).

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<sup>26</sup> We remove the contribution of the value of each dependent variable pair from the global average.

<sup>27</sup> We use the World Bank's regional definitions.

To this base model, we add the variables needed to test the main Propositions in the AR's argument. Capital account openness, inward capital account openness, outward capital account openness, various GINI indicators (described below), and the squared GINI indicator terms are entered sequentially or jointly in to the base model.

Like AJRY and others, we use five year averages of our variables. This is because the timing of the effects of the independent variables is not obvious, and because some of our key independent variables have gaps in the annual series. While AJRY use five year models, but they use the initial value of the variables in their five year models: e.g., the data for 1960-64 are represented with data for 1960 only. They find averaging data induces serial correlation (AJRY 2008, 814, 819). We instead average the data for all available years in each five year span. We also use models that eliminate serial correlation (described below).

AJRY used fixed effects models to control for "country-specific, historical factors influencing both political and economic development" which are "time-invariant" (AJRY 2008, p. 810). We also adopt this procedure. We estimate fixed-effects models because tests invariably reject the use of random effects models.<sup>28</sup> Fixed effects models are particularly appropriate in cases such as this, where unobservable, country-specific characteristics might affect the dependent variable, and might be correlated with the independent variables.

OLS estimations are potentially plagued by several methodological problems including serial correlation and possible endogeneity. We test for serial correlation, and

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<sup>28</sup> We estimate a Wald test version of the Hausman test. The classic Hausman test is whether the coefficient estimates from a random effects model are unaffected by the omission of unit effects; the null hypothesis is that the beta of fixed effects model equal the betas of random effects models. This will be true only if the fixed effects are jointly zero. We directly test whether the unit effects are zero with a Wald test.

find that, as did AJRY, models with one lag of the dependent variable are plagued with extensive serial correlation.<sup>29</sup> We find, however, in the democracy models, two or three lags of the lagged endogenous variable invariably eliminate evidence of serial correlation.

The endogeneity problem for the relationships between democracy and economic inequality is potentially serious. Some scholars have focused on the contemporaneous effects of democracy on inequality (e.g., Reuveny and Li 2003), while others focus on the effects of inequality on democracy (e.g., Acemoglu and Robinson 2006). The relationship between financial globalization and democracy is also potentially endogenous. For example, Quinn and Toyoda 2007 look at democracy's influence on financial globalization whereas Guiliano, Mishra, Scalise, and Spilimbergo 2008 examine the reverse relationship. Eichengreen and Leblang find a mutually reinforcing relationship between democratization and financial globalization in an instrument variable (IV) setup. (See also Giavazzi and Tabellini 2006; Milner and Murkerjee 2009.) Five year lags in variables attenuate the possible endogeneity bias, but they do not eliminate it.

To further address the endogeneity issues, we use GMM-system estimations, which are a form of IV regression. The standard GMM approach, sometimes called GMM\_Dif, is due to Arellano and Bond 1991. The investigator estimates the equation in differences using lagged values of the endogenous and RHS variables as instruments. As has been noted in the literature, however, GMM Dif suffers in small samples from weak

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<sup>29</sup> We assess serial correlation in the OLS models by computing the residuals of a model, and running a model with the lagged residuals on the residuals: or  $u(s-1)$  on  $u(s)$ . And test  $T^*adjR$ -square using a Chi-square distribution. This procedure is appropriate when a lagged endogenous variable is present, and provides a more accurate representation of possible serial correlation in the presence of a lagged endogenous variable than Durbin's  $h$ . See Kennedy 2003, 149 for a discussion.



instruments and sometimes produces inconsistent results. (See Kennedy 2003, 151-2 for a critique of earlier generations of GMM\_Dif models.)

Instead we use the GMM\_System method (Blundell and Bond 1998). This is the same estimator used by Eichengreen and Leblang 2003 and Quinn and Toyoda 2007, 2008, among others. GMM\_Sys estimators combine the GMM\_Dif equation in first differences, which again used lagged levels as instrument, with a second equation in levels using lagged first differences as instruments. Other information can be added to the levels equation. Here we add country dummies and, as pure instruments, four plausibly exogenous variables: Latitude, Ethnic Fractionalization, Islamic populations, and a Country's legal origins (common law=1, 0 otherwise). GMM\_Sys estimators offer more reliable estimates than GMM\_Dif estimators.

The validity of the instruments is assessed through the Sargan test of over-identifying restrictions.<sup>30</sup> The null hypothesis is that the instruments are uncorrelated with the error term, and a rejection of the null hypothesis at conventional levels of statistical significance means that instruments are not valid: the number in brackets is the p-value of the test. For example, [1.000] equals a p-value of one, and indicates that the instruments are valid. The estimating procedure includes a differences transformation. All our GMM system models use country fixed effects. No serial correlation is indicated by negative, statistically significant first order serial correlation, and no statistically significant correlation on second order term: this is sometimes referred to as the AB m1 and AB m2 test.

These are five-year non-overlapping models, with  $i=1,2,\dots,x$  and the index  $s$  represents five-year intervals, starting at 1955-59 and continuing to 2000-04. This

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<sup>30</sup> To be more specific, we use the two-step Sargan test, as recommended in Doornik and Hendry 2001, 69.

means, e.g., that  $Democracy_{i,s}$  for the  $s=1985-1989$  period is examined using data from the  $s-1=1980-84$  period. Brackets ,“[],” in the model below refer to terms that are included if needed to eliminate serial correlation in the residuals, or terms that substitute for other terms in the model.

We find, as AJRY do, persistent serial correlation in the simple model using five year averages. We overcome the serial correlation by amending their model with an additional lag of the dependent variable. (See also Barro 1999). The amended base AJRY 2008 OLS model is:

$$Democracy_{i,s} = \beta_0 + \beta_1(Income_{i,s-1}) + \beta_2(Democracy_{i,s-1}) + \beta_3(Democracy_{i,s-2}) + (Country\ Dummy\ Variables) + (Period\ Dummies) + \varepsilon_{i,s}$$

$$i=1,2,\dots,99 \quad s=1955\dots 2004 \quad (1.1)$$

This model is identical in terms of the coefficients of interest to:

$$\Delta Democracy_{i,s} = \beta_0 + \beta_1(Income_{i,s-1}) + \beta_2(\Delta Democracy_{i,s-1}) + \beta_3(Democracy_{i,s-2}) + (Country\ Dummy\ Variables) + (Period\ Dummies) + \varepsilon_{i,s}$$

$$i=1,2,\dots,99 \quad s=1955\dots 2004 \quad (1.2)$$

We use this simple OLS AJRY model to explore the potentially nonlinear relationship derived in AR between inequality and subsequent democratization by using a version of 1.2, employing various indicators of inequality.

$$\Delta Democracy_{i,s} = \beta_0 + \beta_1(\Delta Democracy_{i,s-1}) + [\beta_2(Democracy_{i,s-2})] + \beta_3(GINI_{i,s-1}) + \beta_4(GINI_{square}_{i,s-1}) + (Country\ Dummy\ Variables) + (Period\ Dummies) + \varepsilon_{i,s}$$

$$i=1,2,\dots,81-91 \quad s=1955\dots 2004 \quad (2)$$

This model is also clearly underspecified. For instance, it does not address the endogeneity problem. The GMM-SYS model employed here explicitly treats the independent variables as endogenous, uses internal instruments and fixed effects to account for these endogenous relationships, and is differenced-transformed.. The main base GMM-system model is:

$$\begin{aligned}
\Delta Democracy_{i,s} = & \beta_0 + \beta_1(Democracy_{i,s-1}) + \beta_2(Democracy_{i,s-2}) + [\beta_3(Democracy_{i,s-3})] + \beta_4(\Delta Economic Growth_{i,s-1}) + \beta_5(\Delta Income_{i,s-1}) + \beta_6(\Delta Investment_{i,s-1}) + \\
& \beta_7(\Delta Population Growth_{i,s-1}) + \beta_8(\Delta Trade Openness_{i,s-1}) + \beta_9(\Delta Oil Price_{i,s-1}) + \\
& \beta_{10}(\Delta CAPITAL_{i,s-1}) + [\beta_{10.i}(\Delta CAPITAL\_in_{i,s-1}) + \beta_{10.ii}(\Delta CAPITAL\_out_{i,s-1})] + \\
& \beta_{11}(\Delta EU Membership_{i,s-1}) + \beta_{12}(\Delta Soviet Bloc Membership_{i,s-1}) + \beta_{13}(\Delta Global \\
& Democracy_{j,s}) + \beta_{14}(\Delta Regional Democracy)_{j,s-1} + (Country Dummy Variables) + \\
& \varepsilon_{i,s}
\end{aligned}$$

$i=1,2,\dots,86-91. \quad (3)$

The instruments for the transformed equation are lags 3 through 6 of the right-hand side variables plus some instruments/regressors standard to the growth literature: a nation's latitude, the presence of an English common law tradition, ethnic fractionalization, and the percentage of a nation's citizens adhering to Islam. The instruments for the levels equations are the second lags of the right-hand side variables and the country fixed effects.

We add to the model various Gini indicators, including, in the main model, the level of GINI and the squared term. A hump shaped relationship, as derived by AR in their Corollary 6.1, would imply that intermediate levels of inequality facilitate

democratization. It would appear as a statistically significant positive coefficient on the level of Gini and a statistically significant negative coefficient on Gini squared. A “U”-shaped relationship between the two variables would have the opposite signs on the respective coefficients. This U shape would imply, contrary to Corollary 6.1, that low and high levels of income inequality facilitate democratization.

To test properly the second parts of AR’s and Boix’s arguments - the claims about the impact of financial integration - we need to estimate models of income inequality. As explained above, AR’s argument is that financial integration’s positive influence on democracy works, at least in part, through changes in income inequality. AR further argue that Capital\_In and Capital\_Out have subtly different effects on inequality, the rich, and therefore on the transition to democracy. (See especially pp. 338-340 on “Capital-in and Democracy,” and pp. 340-342 on “Capital-out and Democracy.”) As we noted earlier, the schematic relationships are:

- 1) Inward Financial openness → factor price equalization → greater income equality → democracy is likely to result in less redistribution and repression is relatively less attractive in relation to democracy → greater probability of transition to democracy (and of democratic consolidation).; and
- 2) Outward financial openness → greater incentives for capital flight for elites in the presence of high tax policies imposed by democracy → reduction in median voter’s preferred tax rate to somewhere between “safe haven” and global average tax rate → democracy is likely to result in less redistribution, and repression is relatively less attractive in relation to democracy → greater probability of transition to democracy (and of democratic consolidation).

Modeling inequality, however, requires adding additional information to the inequality base model. As Tanzi (1998, 4) noted, “inequality is generally determined by the interplay of various factors ...[of which] the main systemic factors are social norms or institutions, broad economic changes, and the role of Government.” We operationalize social norms in terms of global anticapitalist sentiment, as in Quinn and Toyoda 2007.<sup>31</sup> To represent economic changes, we enter indicators of per capita income, investment, changes in global oil prices, and population growth. To represent changes in government’s role, we add an indicator of Government expenditures. We follow Reuveny and Li 2003 and add trade openness to the model. We test for the “Kuznets effect” by adding income squared as a regressor (Kuznets 1955). Because we find that the coefficient estimates of the income squared indicator are always smaller than the corresponding standard errors, we omit the term from the reported results. The capital account variables are central to the analysis as AR suggest that easing both inward and outward capital restrictions will influence inequality’s dynamics. Capital inflows should raise incomes of lower wage workers in capital scare economies, and the threat of capital outflows should limit the demands for redistributive taxation. We also test for the direct effects of capital account openness as distinguishing clearly between capital inflow restrictions and capital outflow restrictions is difficult because of the extensive collinearity between the variables (~.7).

$$GINI_{i,s} = \beta_0 + \beta_1(GINI_{i,s-1}) + \beta_2(Government\ Expenditure_{i,s-2}) + \beta_3(Global\ Communist\ Party\ Voting_{i,s-1}) + \beta_4(\Delta Economic\ Growth_{i,s-1}) + \beta_5(\Delta Income_{i,s-1})$$

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<sup>31</sup> Various measures of anticapitalist sentiment are used in that paper. We adopt one measure, which is the share of votes earned by Communist Parties in those countries in which the Communist Party was free to compete throughout the period.

$$\begin{aligned}
& +\beta_6(\Delta Investment_{i,s-1}) + \beta_7(\Delta Population Growth_{i,s-1}) + \beta_8(\Delta Trade Openness_{i,s-1}) \\
& + \beta_9(\Delta Oil Price_{i,s-1}) + \beta_{10}(\Delta CAPITAL_{i,s-1}) \dots [\beta_{10.i}(\Delta CAPITAL\_in_{i,s-1}) + \\
& \beta_{10.ii}(\Delta CAPITAL\_out_{i,s-1})] + \beta_{11}(\Delta EU Membership_{i,s-1}) + \beta_{12}(\Delta Soviet Bloc \\
& Membership_{i,s-1}) + (Country Dummy Variables) + \varepsilon_{i,s}
\end{aligned}$$

$i=1,2,\dots,88. \quad (4)$

As AR note, financial globalization's effect, if any, on democracy should work in part through an inequality channel. To capture these "channel" effects, we estimate a further, first stage, OLS model, which estimates the influence of financial globalization on inequality, and which extracts the predicted values of inequality from financial globalization.<sup>32</sup> These predicted values are, therefore, the forecast of inequality resulting from financial globalization. We then substituted the predicted values of inequality for the observed values of inequality, and re-estimate we model 3 with the inequality terms.

### Results

In Table 1, we report the estimates of an AJRY-style OLS model, using six measures of income inequality and two measures of change in democracy,  $\Delta Polity$  and  $\Delta Regime$ . For both measures of change in democracy, using five of the six indicators of inequality, we find a "U" shape in the relationship between inequality and subsequent changes in democracy. Bulgaria in 1980 and Brazil in 1990, for example, are near the lower and upper boundaries, respectively, of the inequality spectrum. Both countries were more likely to democratize, by this evidence, than countries near the nadir of the U:

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<sup>32</sup> The model includes country fixed effects as the independent variable is correlated with the unit effects.

China in 1995, Russia 1995, e.g. For the  $\Delta$ Polity model using the Galbraith and Kum 2005 EHII measure, we find a simpler result. In this model, rising inequality is associated with subsequent decreases in democratization, which is consistent with Boix's argument. For the  $\Delta$ Regime model using EHII, we find no statistically significant results. In none of the OLS models, do we see evidence consistent with the argument in AR (Proposition 1).<sup>33</sup>

In Table 2, we assess the direct effects of capital account liberalization, capital inward liberalization, and capital outward liberalization on democratization in the GMM\_System model (3). The models perform well from a statistical point of view: the instruments are valid and no serial correlation is indicated for the residuals from any of the models.

The results are not consistent, at least initially, with expectations from AR and Boix. Neither are they consistent with the results in Eichengreen and Leblang 2009. Change in capital account openness is negatively associated with subsequent change in Polity. Change in inward capital account openness is negatively associated with subsequent changes in both Polity and Regime.<sup>34</sup> Changes in outward capital account openness have no apparent effect on subsequent democratization.

The other variables are controls. Growth has a negative and statistically significant coefficient, which is consistent with the findings in Gassebner, Lamla, and

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<sup>33</sup> As an experiment, we estimated GMM\_System versions of the models with country and time fixed-effects. The models with GINI and GINI-squared produced no statistically significant coefficients. Entering only the GINI variable, the coefficient estimate of inequality using the DK transformation was positive and highly statistically significant.

<sup>34</sup> The conditioning information in our base models differs from that in Eichengreen and Leblang 2008 (E&L), as do the instruments. This is particularly true of the Capital variable, which was not fully available to E&L at the time of their study. Even when using the E&L instruments – income lagged two periods, the global average of capital account openness, and currency crises – and conditioning information in a fixed effects model, the negative and statistically significant coefficient on Capital on both Polity and Regime is found.

Vreeland 2007. As in AJRY (2008), income has no effect on changes in Polity, though the income coefficient estimate is positive and statistically significant in the changes in Regime model. The Polity result is reassuring insofar as it suggests we have faithfully captured the AJRY recommended research design. Finally, as Gleditsch and Ward 2006 found, past changes in democracy within a country's regional neighborhood are positively associated with a home country's subsequent changes.

Because the results are in contrast with the finding of Eichengreen and Leblang, we replicate their results using their instruments and conditioning information. Please see Appendix Tables A3 (Regime as dependent variable) and A4 (Polity as the dependent variable). We confirm that, using a random effects model with Regime as the dependent variable and their instruments, capital account liberalization is positively associated at a high level of statistical significance with subsequent democratization in model with the full sample of countries (model A3.1). The Wald tests strongly support the use of fixed effects in this model, however. The coefficient estimates with fixed effects are negative and statistically significant in models A3.2 and A3.4 (full and emerging market samples). The negative results for capital account openness on change in Polity hold in all four models, with or without fixed effects (models A4.1-A4.4). Exploring the divergent effects of capital account liberalization on REGIME in fixed vs. random effects with various instruments will be an avenue of further investigation.

In Table 3, we add lagged levels of inequality and inequality squared. To conserve space we focus our attention of the GINI\_DK and the GINI\_EHII measures. The other GINI indicators show results quite similar to the GINI\_DK measure. Given its salience in the literature, we focus on GINI\_DK here. The signs and levels of statistical



significance of the respective coefficients are inconsistent with a hump in the relationship between income inequality and democracy. Indeed, in several models that use the GINI\_EHII measure, we see further evidence of a “U:” countries at either extreme of inequality were most likely to liberalize politically. The estimates of the capital account variables are influenced by the inclusion of the inequality terms: the Capital and Capital\_In terms are no longer statistically significant.

The models in Table 3 are not fully consistent with the other key implications of either AR’s or Boix’s theories.. Recall that Propositions 2 and 3 argue that financial globalization influences inequality (by raising wages in developing contexts) or by altering the feasible tax rate on wealthy individuals, thereby reducing the costs of democracy to the rich. To test more completely this part of AR’s theory, we estimate inequality models (4) in Table 4, focusing on the effects of inward and outward capital account on income inequality. Because the GINI\_FQ3 transformation shows modestly different results from the GINI\_DK transformations, we report them also.

For the GINI\_DK and GINI\_FQ3 models, the Capital\_In coefficients are positive and highly statistically significant. This suggests that inward capital openness increases income inequality. These results are in line with the empirical findings in Figini and Görg (2006); ILO (2008); Jaumotte, Lall, and Papegeorgiou (2008); and Quinn 1997. They are inconsistent with theoretical expectations of AR and Boix. The coefficients on change in Capital is positive and statistically significant. This indicates that increases in financial openness also are associated with increasing inequality; cf. the GINI\_FQ3 and GINI\_EHII models. Thus the results from this set of models also contradicts the main

propositions from AR . These results suggest that capital account openness is associated with increasing inequality, confirming some findings in the prior literature.

The other variables in the models in Table 4 are control variables. Several results are worth noting, even so. Trade openness has no evident role in increasing inequality, whereas changes in global anticapitalist sentiment is negatively associated with rising inequality – prior increases in Communist party voting worldwide is associated with subsequent decreases in inequality.

In Appendix Table A5, we address the related question of whether capital account openness is associated with changes in corporate tax rates. We do find, in both GMM\_System estimations and OLS models, a positive association between capital account openness and corporate tax rates. One important question is whether a constraint on a country’s tax rate is the difference between its top tax rate and the top tax rate for the U.S. The highly statistically significant and negative coefficient for this variable suggests that the higher the tax rate of a country relative to the U.S. rate, the larger the subsequent decrease in that country’s corporate tax rate. This offers support for the proposition that there is something like a “global tax rate” along the lines of AR and Boix. If the U.S. rate is the benchmark rate, however, the rate is set at a relatively high rate.

In Table 5, we estimate the pathway effects of financial globalization on democratization through inequality. As noted earlier, we estimate models of the contribution of financial globalization to inequality, and extract the predicted values of these models. In light of the results in Table 4, we focus on the effect of Capital\_In on GINI\_DK and on the effect of Capital on GINI\_EHII. We substitute the lagged predicted

values of change in inequality into model 3. The estimates of inequality now reflect the influence of financial globalization, as called for the in AR model.

The striking results are that the GINI\_DK and the GINI\_EHII for both the  $\Delta$ Regime and the  $\Delta$ Polity models shows strong evidence of a U. Both indicators have negative and statistically significant coefficients in the base term and positive and statistically significant coefficients on the squared inequality terms. It is countries that are highly equitable and highly inequitable that appear to democratize as a consequence of financial globalization's influence on inequality.

Figures 8, 9, 10 and 11 show the relationship between changes in inequality as predicted by financial globalization and changes in democracy – the coefficients from models 1, 2, 3 and 4 from table 5 are used in figures 8, 10, 9 and 11, respectively. We add illustrative country labels to the figures to give the reader some benchmarks. China in 1995, Russia in 1995, and Indonesia in 1980 are at or near the nadir of the democratization U. South Africa in 1990, Brazil in 1990, and many Eastern European countries in the 1980s are at the ends of the democratization U.

South Africa (ZAF in the figures) offers a particular puzzle in light of the AR model since South Africa is one of the illustrative cases they use of a country that is least likely to democratize. Singapore is illustrative for AR of a relatively egalitarian country with no incentives to democratize, but we find Singapore to characterized by levels of inequality similar to China's, and find neither like to democratize (give the assumptions of our analysis).

In the GINI\_EHII model, the Capital account openness coefficient is negative and highly statistically significant. Changes in inequality are not the only pathway through

which financial globalization appears to influence democracy. (The results of reestimating the model in Table 5, omitting the financial globalization variables, are reported in Table A3 in the Appendix. The results are broadly consistent, though with the results in Table 5.)

### *In Lieu of a Conclusion*

The origin of democracy and dictatorship is undoubtedly one of the most important topics we study in political science. The theoretical contributions of AR and Boix to this literature are unquestionable. We propose amending their theories by 1) relaxing the assumption financial globalization decreases capital income taxation, and 2) reversing the assumption that financial globalization decreases income inequality. Changing these two pillars of the AR and Boix theories alters the expectations regarding the relationship between inequality and democracy. We propose that, once these assumptions are relaxed or reversed, more equal and highly unequal societies will either reform politically or consolidate reforms, whereas societies with intermediate levels of inequality are less likely to democratize or consolidate democracy.

Until now, to our knowledge, the AR argument had not been rigorously tested, and important elements of both the AR and Boix arguments regarding financial globalization had not been tested. . Using a design suggested by the AR (AJRPY, 2008), we find little support for the key propositions of either AR or Boix. Other causal claims about the impact of financial integration (Eichengreen and Leblang, 2008) also failed to obtain support. Instead, we find strong evidence that financial globalization leads to higher levels of income inequality, which in turn have non-linear effects on democratization.

Future work will be devoted to still additional measurement and specification checks. This will include more complex provisions for conjunctural causal relationships (e.g., interactions) and possibly more complex dynamic formulations (pooled vector autoregressions). This is a first step toward the more comprehensive exploration.

## References

- Acemoglu, D., S. Johnson, and J. A. Robinson. 2001. The colonial origins of comparative economic development: an empirical investigation. *American Economic Review* 91, 1369-1401.
- Acemoglu, Daron, Simon Johnson, James A. Robinson, and Pierre Yared. 2008. "Income and Democracy" *American Economic Review* 98(3): 808-842.
- Acemoglu, Daron, and James A. Robinson 2006 *Economic Origins of Dictatorship and Democracy* NY Cambridge University Press.
- Ansell, Ben and David Samuels. 2008. "Inequality and Democratization." Paper Presented at the 2008 Annual Meeting of the American Political Science Association, Boston.
- Arellano, M., and O. Bover. 1995. Another look at the instrumental variables estimation of error-components. *Review of Economic Studies* 68: 277-97.
- Babones, Salvatore J., and Maria Jose Alvarez-Rivadulla. 2007. "Standardized Income Inequality Data for Use in Cross-National Research." *Sociological Inquiry* 77(1): 3-22.
- Barrow, Robert J. 1999 "Determinants of Democracy" *Journal of Political Economy* 107(6): S158-S183.
- Basinger, Scott J., and Mark Hallerberg. 2004. „Remodeling the Competition for Capital: How Domestic Erases the Race to the Bottom." *American Political Science Review* 98(1):261-276.
- Beck, N., and J. N. Katz. 1995. What to do (and not to do) with time-series-cross-section data in comparative politics. *American Political Science Review* 89: 634-47.
- Blundell, R. W., and S. R. Bond. 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87: 115-43.
- Boix, Carles. 2003. *Democracy and Redistribution*. New York: Cambridge University Press.
- Boix, Carles, and Susan Stokes. 2003. "Endogenous Democratization" *World Politics* 55(4):517-549..
- Chong, Alberto. 2004. "Inequality, Democracy, and Persistence: Is There a Political Kuznets Curve?" *Economics and Politics* 16(2):189-212.

- Deiningner, Klaus, and Lyn Squire. 1996. "A New Data Set Measuring Income Inequality." *World Bank Economic Review* 10(3):565-592.
- Devereux, Michael P., Rachel Griffith, and Alexander Klemm. 2002. "Corporate Income Tax Reforms and International Competition." *Economic Policy* 35(October):451-495.
- Devereux, Michael P., Ben Lockwood, and Michela Redoano. 2007. "Do Countries Compete Over Corporate Tax Rates?" *Journal of Public Economics* 92(5-6):1210-1235.
- Dollar, David, and Aart Kraay. 2002. "Growth is Good for the Poor," *Journal of Economic Growth*
- Eichengreen, B. J., and D. Leblang. 2003. Capital account liberalization and growth: was Mr. Mahathir right? *International Journal of Finance and Economics* 8: 205-224.
- Eichengreen, Barry J., and David Leblang. 2008. "Democracy and Globalization," *Economics and Politics*.
- Epstein, David L, Robert Bates, Jack Goldstone, Ida Kristensen, Sharyn O'Halloran 2006. "Democratic Transitions" *American Journal of Political Science* 50(3): 551-569.
- Figini, Paolo, and Holger Görg. 2006. "Does Foreign Direct Investment Affect Wage Inequality: An Empirical Investigation." IZA (Forschungsinstitut zur Zukunft der Arbeit) Working Paper No. 2336.
- Freedom House. 2007. Freedom in the World: Political Rights and Civil Liberties 2006-2007. Freedom House, NY.
- Franzese, Jr., R. J., and J. C. Hays. 2007. Spatial econometric models for the analysis of TSCS data in political science. *Political Analysis* 15(2):140-64.
- Gassebner, Martin, Michael J. Lamla, and James R. Vreeland. 2007. "Extreme Bounds of Democracy." Paper Presented at the Conference on Globalization and Democracy, Princeton University. Accessed at <http://www.princeton.edu/~pcglobal/conferences/globdem/papers/Gassebner-Lamla-Vreeland.pdf>.
- Galbraith, James K., and Hyunsub Kum. 2005. "Estimating the Inequality of Household Incomes: A Statistical Approach to the Creation of a Dense and Consistent Global Data Set." *Review of Income and Wealth* 51(1):115:143.
- Giavazzi, Francesco and Guido Tabellini. 2005. "Economic and Political Liberalizations," *Journal of Monetary Economics* 52:1297-1330.

- Gleditsch, Kristian S., and Michael D. Ward. 2006. "Diffusion and the International Context of Democratization." *International Organization* 60(October):911-933.
- Grubel, Herbert, 1968, Internationally diversified portfolios: Welfare gains and flows, *American Economic Review* 58, 1299-1314.
- Guiliano, Paulo, Prachi Mishra, Diego Scalise, and Antonio Spilimbergo. 2008. "What Determines Structural Reforms in Developing Countries." Paper Presented at the American Economic Association Annual Meeting, New Orleans.
- Haufler, Andreas. 2001. *Taxation in a Global Economy: Theory and Evidence*. New York: Cambridge University Press.
- Heston, A., R. Summers, and B. Aten. 2006. The Penn World Table, Version 6.2. Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September.
- International Labor Organization. 2008. *Income Inequalities in an Age of Financial Globalization: World of Work Report 2008*. Geneva: ILO.
- Jaumotte, Florence, Subir Lall, and Chris Papegeorgiou. 2008. "Rising Income Inequality: Technology, or Trade and Financial Globalization?" IMF Working Paper WP/08/185.
- Jensen, Nathan and Guillermo Rosas 2007. "Foreign Direct Investment and Income Inequality in Mexico 1990-2000" *International Organization* 61: 467-487.
- Kennedy, Peter. 2003. *A Guide to Econometrics*: Fifth Edition. Oxford: Blackwell Publishing.
- International Monetary Fund. Annual Report on Exchange Restrictions. Various years, 1950 on International Monetary Fund. Continued by Annual Report on Exchange Arrangements and Exchange Restrictions after 1979 and Exchange Arrangements and Exchange Restrictions after 1989.
- International Monetary Fund. 1961. Balance of Payments Manual, 3rd ed. Washington, D.C.: IMF.
- International Monetary Fund. 1977. Balance of Payments Manual, 4<sup>th</sup> ed. Washington, D.C.: IMF.
- International Monetary Fund. 1993. Balance of Payments Manual, 5<sup>th</sup> ed. Washington, D.C.: IMF.
- International Monetary Fund. 1996. "IMF/OECD Survey Shows Statistics on Direct Investment Improving." *Balance of Payments Statistics Newsletter* VI(2):12-15



- Kraay, Aart. 2006. "When Is Growth Pro-Poor? Evidence from a Panel of Countries." *Journal of Development Economics* 80(June):198-227.
- Kristensen, Ida P., and Gregory Wawro. 2005. "Lagging the Dog? The robustness of panel corrected standard errors in the presence of serial correlation and observation specific effects." *The Robustness of Panel Corrected Standard Errors in the Presence of Serial Correlation and Observation Specific Effects.* Working paper: Columbia University. Available at <http://polmeth.wustl.edu/retrieve.php?id=54>
- Kuznets, Simon. 1955. "Economic Growth and Income Inequality." *American Economic Review* 45(1):1-28.
- Levy, Haim, and Marshall Sarnat, 1970, International diversification of investment portfolios, *American Economic Review* 60, 668-75.
- Lowenfeld, Henry, 1909, Investment an exact science (The Financial review of reviews, London, Eng.).
- Marshall, M., K. Jaggers, and R. T. Gurr. 2000. Polity IV Project. Accessed at <http://www.bsos.umd.edu/cidcm/polity/>
- Milanovic, Branko L. 2005. "Can We Discern the Effect of Globalization on Income Distribution? Evidence from Household Budget Surveys." *World Bank Economic Review* 19(1):21-44.
- Midlarsky, Manus 1999. *The Evolution of Inequality: War, State Survival and Democracy In Comparative Perspective* Stanford, CA. Stanford University Press.
- Milner, Helen V., and Bumba Mukerjee. 2009. "Democratization and Economic Globalization." *Annual Review of Political Science* 12(May): In Press.
- Plümpert, Thomas, Vera Troeger, and Hannes Winner. Forthcoming. "Why Is There No Race to the Bottom in Capital Taxation? Tax Competition Among Countries of Unequal Size, Different Levels of Budget Rigidities, and Heterogenous Fairness Norms." *International Studies Quarterly* In Press.
- Przeworski, Adam, Michael Alvarez, Joseph A. Cheibub and Fernando Limongi. 1996. "What Makes Democracies Endure?" *Journal of Democracy* 7():39-55
- Przeworski, Adam, Michael Alvarez, Joseph A. Cheibub and Fernando Limongi. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990.* New York: Cambridge University Press.

- Przeworski, Adam, and Fernando Lemongi. 2000. "Modernization Theory: Facts and Fictions." *World Politics*
- Quinn, D. 1997. The correlates of change in international financial regulation. *American Political Science Review* 91: 531-51.
- Quinn, D. P., and R. Jacobson. 1989. Industrial policy through the restriction of capital. *American Journal of Political Science* 33(August): 700-36.
- Quinn, D. P., and A. M. Toyoda. 2007. Ideology and voter sentiment as determinants of financial globalization. *American Journal of Political Science* 51(April): 344-363.
- Quinn, Dennis P. and H. Joachim Voth. 2008. "A Century of Stock Market Correlations and International Financial Openness." *American Economic Review* 98(May, Papers and Proceedings):529-534.
- Reuveny, Rafael and Quan Li 2003. "Economic Openness, Democracy and Income Inequality" *Comparative Political Studies* 36(5): 575-601.
- Rigobon, R., and D. Rodrik. 2004. Rule of law, democracy, openness, and income: estimating the interrelationships. Manuscript. MIT, Cambridge, MA and Harvard University, Cambridge, MA.
- Rudra, Nita. 2005. "Globalization and the Strengthening of Democracy in the Developing World," *American Journal of Political Science* 49(3):704-730.
- Simmons, Beth A. and Zachary Elkins. 2004. The Globalization of Liberalization: Policy Diffusion in the International Political Economy. *American Political Science Review* 98 (1):171-89.
- Svolik, Milan 2008. "Authoritarian Reversals and Democratic Consolidation" *American Political Science Review* 102(2): 153-168.
- Swank, Duane, and Sven Steinmo. 2002. "The New Political Economy of Taxation in Advanced Capitalist Democracies." *American Journal of Political Science*.46(3):642-655.
- Tanzi, Vito. 1998. "Fundamental Determinants of Inequality and the Role of Government." Washington, D.C.: IMF Working Paper, 98/178.
- Tanzi, Vito. 1995. *Taxation in an Integrated World*. Washington: Brookings.

United Nations University-World Institute for Development Economics Research. 2008.  
World Income Inequality Database, V2.0c (May). Accessed at  
[http://www.wider.unu.edu/research/Database/en\\_GB/database/](http://www.wider.unu.edu/research/Database/en_GB/database/) 26 June 2008.

Table 1 – The influence of Inequality of changes in Democracy  
Y=Change in Democracy Indicators

<b>Variable</b>	<b>Model 1 <u>ΔDem</u></b>	<b>Model 2 <u>ΔDem</u></b>	<b>Model 3 <u>ΔDem</u></b>	<b>Model 4 <u>ΔDem</u></b>	<b>Model 5 <u>ΔDem</u></b>	<b>Model 6 <u>ΔDem</u></b>
ΔDemocracy (s-1)	0.033 (0.057)	0.031 (0.057)	0.030 (0.057)	0.030 (0.057)	0.017 (0.065)	-0.062* (0.039)
<i>Gini (s-1) (no adj)</i>	-0.175* (0.122)					
<i>Gini Sq (s-1)(no adj)</i>	0.002* (0.001)					
<i>Gini (s-1) (DK adj)</i>		-0.213* (0.129)				
<i>Gini Sq (s-1)(DK adj)</i>		0.003* (0.002)				
<i>Gini (s-1) (FQ2 adj)</i>			-0.215* (0.118)			
<i>Gini Sq (s-1)(FQ2 adj)</i>			0.003* (0.002)			
<i>Gini (s-1) (FQ3 adj)</i>				-0.216** (0.108)		
<i>Gini Sq (s-1)(FQ3 adj)</i>				0.003** (0.001)		
<i>Gini (s-1) (SIDD adj)</i>					-0.229** (0.129)	
<i>Gini Sq (s-1)(SIDD2 adj)</i>					0.003* (0.002)	
<i>Gini (s-1) (EHII adj)</i>						-0.068*** (0.019)
Adj. R2	.05	.06	.06	.06	.06	.02
Number of Countries	86	86	86	86	87	96
Number of Observations	419	419	419	419	351	574
Intercept	3.581* (2.541)	4.200* (2.609)	4.000** (2.280)	3.951** (2.067)	4.386** (2.623)	2.838*** (0.896)
Rho (Durbin's m)	0.752 (1.197)	0.431 (1.084)	0.331 (1.042)	0.337 (0.932)	-0.686 (1.965)	0.718 (0.523)
<b>Variable</b>	<b>Model 7 <u>ΔRegime</u></b>	<b>Model 8 <u>ΔRegime</u></b>	<b>Model 9 <u>ΔRegime</u></b>	<b>Model 10 <u>ΔRegime</u></b>	<b>Model 11 <u>ΔRegime</u></b>	<b>Model 12 <u>ΔRegime</u></b>
ΔRegime (s-1)	0.030 (0.050)	0.028 (0.050)	0.029 (0.050)	0.032 (0.049)	0.037* (0.053)	-0.052 (0.058)
<i>Gini (s-1) (no adj)</i>	-0.032*** (0.009)					
<i>Gini Sq (s-1)(no adj)</i>	0.0004*** (0.0001)					
<i>Gini (s-1) (DK adj)</i>		-0.034***				

		(0.009)				
<i>Gini Sq (s-1)(DK adj)</i>		0.0004*** (0.0001)				
<i>Gini (s-1) (FQ2 adj)</i>			-0.030*** (0.008)			
<i>Gini Sq (s-1)(FQ2 adj)</i>			0.0004*** (0.0001)			
<i>Gini (s-1) (FQ3 adj)</i>				-0.027*** (0.008)		
<i>Gini Sq (s-1)(FQ3 adj)</i>				0.0004*** (0.0001)		
<i>Gini (s-1) (SIDD adj)</i>					-0.023*** (0.010)	
<i>Gini Sq (s-1)(SIDD2 adj)</i>					0.0003*** (0.0001)	
<i>Gini (s-1) (EHII adj)</i>						-0.002 (0.002)
Adj. R2	.05	.06	.05	.05	.05	.01
Number of Countries	82	82	82	82	81	92
Number of Observations	348	348	348	348	317	464
Intercept	0.668*** (0.177)	0.674*** (0.169)	0.571*** (0.147)	0.512*** (0.131)	0.535*** (0.188)	0.134** (0.066)
Rho (Durbin's m)	0.621 (0.742)	0.641 (0.642)	0.711 (0.619)	0.635 (0.616)	0.987 (1.142)	-1.046 (0.821)

Notes: These are OLS models with period dummies and a lagged endogenous variable. Six different indicators of inequality are described in the text. Serial correlation is assessed by re-estimating the models, adding a lagged value of the residuals. The coefficient estimate and the standard error are reported as durbin's m. This procedure is appropriate in setting with a lagged endogenous variable. See Kennedy 2003 and fn #. \*Statistically significant at 0.1 significance level; \*\* Statistically significant at 0.05 significance level; \*\*\* Statistically significant at 0.01 significance level.

**Table 2 - Y=Change in Democracy, 1955-2004 (Polity) or 1955-1999 (Regime)  
Financial globalization variables added; GMM-System estimators**

Variable	Model 1 $\Delta$ Polity	Model 2 $\Delta$ Regime	Model 3 $\Delta$ Polity	Model 4 $\Delta$ Regime
Polity or Regime (s-1)	-0.353*** (0.081)	-0.383*** (0.093)	-0.447** (0.073)	-0.381*** (0.091)
Polity or Regime (s-2)	-0.109** (0.051)	-0.060 (0.075)		-0.071 (0.073)
$\Delta$ World Democracy	0.081** (0.046)	0.003 (0.003)	0.091** (0.049)	0.003 (0.003)
$\Delta$ <i>CAPITAL</i> (s-1)	<b>-0.020*</b> <b>(0.011)</b>	-0.001 (0.001)		
$\Delta$ <i>CAPITAL_in</i> (s-1)			<b>-0.041*</b> <b>(0.026)</b>	<b>-0.0034*</b> <b>(0.0018)</b>
$\Delta$ <i>CAPITAL_out</i> (s-1)			-0.003 (0.024)	0.001 (0.002)
Regional Democracy (s-1)	0.419*** (0.114)	0.022*** (0.008)	0.450*** (0.123)	0.021*** (0.008)
Member of EU (0,1) (s-1)	0.020 (0.760)	0.010 (0.058)	0.250 (0.798)	0.028 (0.059)
Member Soviet Bloc (0,1) (s-1)	2.865** (1.724)	0.270** (0.121)	3.629** (2.161)	0.394*** (0.168)
$\Delta$ Income (s-1)	0.558 (0.544)	0.079** (0.043)	0.515 (0.518)	0.080** (0.044)
$\Delta$ Growth (s-1)	-0.182*** (0.049)	-0.009** (0.005)	-0.187*** (0.055)	-0.009** (0.005)
$\Delta$ Investment (Share of GDP) (s-1)	1.631*** (0.511)	0.060 (0.054)	1.777*** (0.551)	0.053 (0.055)
Population Growth (s-1)	-0.186 (0.260)	-0.0004 (0.017)	-0.217 (0.272)	0.001 (0.017)
$\Delta$ Oil Prices (s-1)	-0.032*** (0.012)	-0.001 (0.001)	-0.029** (0.011)	-0.001 (0.001)
$\Delta$ Trade Openness (s-1)	-0.184 (0.636)	-0.067* (0.051)	-0.324 (0.638)	-0.066 (0.053)
Adjusted R2	.21	.17	.19	.18
Wald (fixed effects)	3816. [0.000]***	1864. [0.000]***	1071. [0.000]***	488.4 [0.000]***
AR1	-4.578 [0.000]**	-4.321 [0.000]**	-4.027 [0.000]**	-4.300 [0.000]**
AR2	-0.72133 [0.471]	-1.689 [0.091]	-1.802 [0.072]	-1.696 [0.090]
Sargan test	[0.319]	[1.000]	[1.000]	[1.000]
Number of Observations	742	655	765	654
Number of Countries	89	86	91	86
Intercept	-5.569* (4.235)	-0.276 (0.316)	-4.401 (4.293)	-0.258 (0.332)

Notes: The R2 is defined as  $1 - \text{RSS}/\text{TSS}$ , and is adjusted in the usual way. No serial correlation is indicated in GMM-SYS models when the Arellano-Bond test for second-order serial correlation is not significant at the .05 level and beyond, and the AR1 test shows evidence of significant negative serial correlation in the differenced residuals. The Sargan test examines whether the instruments are uncorrelated with the error; the null hypothesis is that the instruments are valid. For example, [1.000] equals a p-value of 1 and indicates that the instruments are valid. The Wald test examines whether  $u_i = 0$ ; the null hypothesis is that the fixed effects are jointly zero. For a discussions of the test statistics, see Doornik and Hendry (2001, 67-69). Fixed effects dummies are used. Period dummies are omitted as they are collinear with the oil price change variable. The instruments for the transformed equations include Islam, Ethnic Fractionalization, regional dummies, Latitude, English common law, and GMM lags 3 through 6 of the endogenous variables. The Instruments for the level equations include country dummies, and GMM level (lag 2) for the endogenous variables. Changes in oil prices and global changes in democracy are treated as exogenous variables. Standard errors are listed below the coefficients. \* p-value < .10; \*\* p-value < .05; \*\*\* p-value < .01

**Table 3 - Y=Change in Democracy, 1955-2004, GMM-System  
Inequality measures added**

<u>Variable</u>	<u>Model 1</u> $\Delta$ Polity	<u>Model 2</u> $\Delta$ Regime	<u>Model 3</u> $\Delta$ Polity	<u>Model 1</u> $\Delta$ Polity	<u>Model 2</u> $\Delta$ Regime	<u>Model 3</u> $\Delta$ Polity
Polity or Regime (s-1)	-0.482*** (0.085)	-0.412*** (0.058)	-0.311*** (0.083)	-0.425*** (0.073)	-0.436*** (0.101)	-0.433*** (0.071)
Polity or Regime (s-2)			-0.253*** (0.073)			
$\Delta$ World Democracy	0.070 (0.059)	0.006* (0.004)	0.017 (0.05)	0.074 (0.109)	0.003 (0.007)	0.066 (0.113)
$\Delta$ CAPITAL (s-1)	-0.010 (0.012)	-0.001 (0.001)		-0.014 (0.015)	-0.001 (0.001)	
$\Delta$ CAPITAL_in (s-1)			-0.025 (0.024)			-0.001 (0.035)
$\Delta$ CAPITAL_out (s-1)			0.000 (0.025)			-0.029 (0.023)
$\Delta$ GINI_DK (s-1)	0.186 (0.259)	-0.022 (0.021)	0.296 (0.244)			
$\Delta$ GINI_DK sq (s-1)	-0.002 (0.003)	<b>0.0004*</b> <b>(0.0003)</b>	-0.003 (0.003)			
$\Delta$ GINI_EHII (s-1)				<b>-1.378**</b> <b>(0.657)</b>	-0.072 (0.067)	<b>-1.559**</b> <b>(0.698)</b>
$\Delta$ GINI_EHII sq (s-1)				<b>0.017**</b> <b>(0.008)</b>	0.001 (0.001)	<b>0.018**</b> <b>(0.008)</b>
Regional Democracy (s-1)	0.343** (0.159)	0.007 (0.011)	0.348** (0.14)	0.203* (0.138)	0.015 (0.013)	0.188* (0.133)
Member of EU (0,1) (s-1)	-2.421** (1.083)		-1.73 (1.120)	-0.366 (0.997)		-0.171 (1.154)
Member Soviet Bloc (0,1) (s-1)	4.890*** (1.791)	0.251** (0.150)	6.869*** (1.907)	0.092 (2.298)	0.110 (0.196)	1.601 (2.351)
$\Delta$ Income (s-1)	0.771 (0.996)	0.085 (0.076)	0.700 (1.009)	1.780** (0.901)	0.172** (0.085)	1.742** (0.926)
$\Delta$ Growth (s-1)	-0.001 (0.080)	0.009* (0.006)	0.007 (0.077)	-0.143** (0.080)	-0.002 (0.007)	-0.173** (0.076)
$\Delta$ Investment (Share of GDP) (s-1)	0.629 (0.864)	-0.048 (0.052)	-0.043 (0.784)	-0.036 (0.739)	-0.022 (0.069)	-0.394 (0.753)
Population Growth (s-1)	-0.667** (0.369)	-0.015 (0.020)	-0.769 (0.417)	-0.132 (0.210)	-0.0001 (0.020)	-0.148 (0.210)
$\Delta$ Oil Prices (s-1)	-0.029** (0.013)	-0.002* (0.001)	-0.024* (0.013)	-0.026 (0.036)	-0.001 (0.003)	-0.024 (0.034)
$\Delta$ Trade Openness (s-1)	0.326 (1.099)	0.046 (0.077)	0.403 (1.059)	0.385 (0.688)	-0.004 (0.056)	0.492 (0.686)
Adjusted R2	.26	.26	.39	.26	.25	.26
Wald (fixed effects)	167.0 [0.000]**	139.7 [0.000]**	222.6 [0.000]**	2747.0 [0.000]**	8513. [0.000]**	3848. [0.000]**
AR1	-2.526 [0.012]*	-2.392 [0.017]*	-2.746 [0.006]**	-2.977 [0.003]**	-3.468 [0.001]**	-2.869 [0.004]**
AR2	-0.9278	-1.606	0.2220	-1.067	-1.888	-1.162



	[0.354]	[0.108]	[0.824]	[0.286]	[0.059]	[0.245]
Sargan test	289.6 [1.000]	462.0 [1.000]	142.6 [1.000]	455.7 [0.998]	353.4 [1.000]	468.0 [1.000]
Number of Observations	399	315	390	532	459	531
Number of Countries	81	69*	79	86	80	86
Intercept	-12.099* (8.364)	-0.332 (0.764)	-12.94* (7.729)	13.342 (13.27)	0.363 (1.321)	17.919* (13.92)

Notes: A first stage regression using Capital and unit effects as explanatory variables for GINI\_EHII and Capital\_In and unit effects as explanatory variables for GINI\_DK are estimated. The R2 is defined as 1-RSS/TSS, and is adjusted in the usual way. No serial correlation is indicated in GMM-SYS models when the Arellano-Bond test for second-order serial correlation is not significant at the .05 level and beyond, and the AR1 test shows evidence of significant negative serial correlation in the differenced residuals. The Sargan test examines whether the instruments are uncorrelated with the error; the null hypothesis is that the instruments are valid. For example, [1.000] equals a p-value of 1 and indicates that the instruments are valid. The Wald test examines whether  $u_i=0$ ; the null hypothesis is that the fixed effects are jointly zero. For a discussions of the test statistics, see Doornik and Hendry (2001, 67-69). Fixed effects dummies are used. Period dummies are omitted as they are collinear with the oil price change variable. The instruments for the transformed equations include Islam, Ethnic Fractionalization, regional dummies, Latitude, English common law, and GMM lags 3 through 6 of the endogenous variables. The Instruments for the level equations include country dummies, and GMM level (lag 2) for the endogenous variables. Changes in oil prices and global changes in democracy are treated as exogenous variables. Standard errors are listed below the coefficients. \* p-value < .10; \*\* p-value < .05; \*\*\* p-value < .01

**Table 4a – The Determinants of Inequality**  
**Y=Change in Inequality, GMM-System**

Variable	Model 1 GINI_DK	Model 2 GINI_DK	Model 3 GINI_DK	Model 4 GINI_FQ3
$\Delta$ GINI_DK (s-1)	0.313*** (0.110)	0.305*** (0.106)	0.198** (0.108)	
$\Delta$ GINI_FQ3 (s-1)				0.316*** (0.102)
$\Delta$ CAPITAL (s-1)	0.022 (0.021)			<b>0.034*</b> <b>(0.025)</b>
$\Delta$ CAPITAL_in (s-1)		<b>0.105**</b> <b>(0.046)</b>		
$\Delta$ CAPITAL_out (s-1)		-0.051 (0.048)		
$\Delta$ CAPITAL_in (s-1) <i>emerging only</i>			<b>0.122**</b> <b>(0.054)</b>	
$\Delta$ CAPITAL_out (s-1) <i>emerging only</i>			-0.044 (0.055)	
$\Delta$ Democracy	0.072 (0.113)	0.090 (0.118)	0.087 (0.129)	0.098 (0.135)
$\Delta$ Government Expenditures (s-1)	0.108* (0.070)	0.097* (0.068)	0.044 (0.083)	0.125* (0.081)
$\Delta$ Global Communist Party vote share (s-1)	<b>-0.872**</b> <b>(0.444)</b>	<b>-0.837**</b> <b>(0.463)</b>	-0.745 (0.630)	<b>-1.041**</b> <b>(0.555)</b>
Member of EU (0,1) (s-1)	-0.677 (1.459)	-0.942 (1.257)	8.300*** (2.728)	-2.013 (1.924)
Member Soviet Bloc (0,1) (s-1)	-1.947 (2.033)	-1.433 (2.124)	-0.394 (1.973)	-1.991 (2.622)
$\Delta$ Income (s-1)	-3.216** (1.627)	-2.733** (1.546)	-1.798 (1.930)	-4.002** (1.782)
$\Delta$ Growth (s-1)	0.222*** (0.090)	0.186** (0.094)	0.199** (0.087)	0.316*** (0.104)
$\Delta$ Investment (Share of GDP) (s-1)	0.262 (1.541)	0.515 (1.549)	-1.558 (1.748)	-0.174 (1.655)
Population Growth (s-1)	-0.424 (0.455)	-0.561 (0.473)	-1.069* (0.660)	-0.561 (0.614)
$\Delta$ Oil Prices (s-1)	0.015 (0.015)	0.018 (0.016)	0.050*** (0.020)	0.030** (0.018)
$\Delta$ Trade Openness (s-1)	1.135 (1.607)	0.697 (1.514)	1.396 (1.605)	2.191 (1.951)
Adjusted R2	.81	.81	.80	.72
Wald (fixed effects)	157.8 [0.000]**	177.6	213.5	94.61

		[0.000]**	[0.000]**	[0.032]*
AR1	-3.270 [0.001]**	-3.317 [0.001]**	-2.586 [0.010]**	-3.723 [0.000]**
AR2	-1.530 [0.126]	-1.796 [0.072]	-1.936 [0.053]	-1.673 [0.094]
Sargan test	43.02 [1.000]	41.99 [1.000]	30.24 [1.000]	38.56 [1.000]
Number of Observations	329	328	219	329
Number of Countries	71	71	52	71
Intercept	47.468*** (17.06)	44.660*** (16.61)	41.417** (20.86)	49.518*** (18.51)

**Table 4b – The Determinants of Inequality**  
**Y=Change in Inequality, GMM-System**

<u>Variable</u>	<u>Model 5</u> <u>GINI_FQ3</u>	<u>Model 6</u> <u>GINI_FQ3</u>	<u>Model 7</u> <u>GINI_EHII</u>	<u>Model 8</u> <u>GINI_EHII</u>
$\Delta$ GINI_DK (s-1)				
$\Delta$ GINI_FQ3 (s-1)	0.307*** (0.100)	0.210** (0.106)		
$\Delta$ GINI_EHII (s-1)			0.540*** (0.073)	0.523*** (0.073)
$\Delta$ CAPITAL (s-1)			<b>0.019**</b> <b>(0.010)</b>	
$\Delta$ CAPITAL_in (s-1)	<b>0.139***</b> <b>(0.057)</b>			0.007 (0.019)
$\Delta$ CAPITAL_out (s-1)	-0.050 (0.062)			0.022 (0.021)
$\Delta$ CAPITAL_in (s-1) <i>emerging only</i>		<b>0.145**</b> <b>(0.066)</b>		
$\Delta$ CAPITAL_out (s-1) <i>emerging only</i>		-0.045 (0.070)		
$\Delta$ Democracy	0.123 (0.142)	0.125 (0.152)	-0.009 (0.039)	-0.008 (0.039)
$\Delta$ Government Expenditures (s-1)	0.105* (0.082)	0.026 (0.106)	0.0004 (0.033)	0.002 (0.036)
$\Delta$ Global Communist Party vote share (s-1)	<b>-0.954**</b> <b>(0.563)</b>	-0.887 (0.784)	<b>-0.784***</b> <b>(0.217)</b>	<b>-0.801***</b> <b>(0.226)</b>
Member of EU (0,1) (s-1)	-2.443* (1.605)	6.730*** (1.551)	1.740** (1.004)	1.730** (1.038)
Member Soviet Bloc (0,1) (s-1)	-0.784 (2.628)	-0.357 (2.495)	-3.373*** (0.889)	-2.511*** (0.750)
$\Delta$ Income (s-1)	-3.404**	-2.313	-0.487	-0.694

	(1.649)	(2.113)	(0.589)	(0.621)
$\Delta$ Growth (s-1)	0.272*** (0.111)	0.284*** (0.107)	0.010 (0.068)	-0.006 (0.069)
$\Delta$ Investment (Share of GDP) (s-1)	0.120 (1.676)	-2.182 (1.837)	-0.799 (0.885)	-1.001 (0.860)
Population Growth (s-1)	-0.716 (0.638)	-1.272** (0.762)	-0.858** (0.449)	-0.832** (0.483)
$\Delta$ Oil Prices (s-1)	0.034** (0.019)	0.070*** (0.022)	0.007 (0.009)	0.007 (0.009)
$\Delta$ Trade Openness (s-1)	1.636 (1.845)	2.383 (1.931)	-0.654 (0.737)	-0.392 (0.739)
Adjusted R2	.79	.72	.92	.92
Wald (fixed effects)	111.5 [0.002]**	124.8 [0.000]**	252.5 [0.000]**	3518. [0.000]**
AR1	-3.763 [0.000]**	-2.995 [0.003]**	-3.932 [0.000]**	-3.878 [0.000]**
AR2	-1.859 [0.063]	-1.626 [0.104]	0.4444 [0.657]	0.4356 [0.663]
Sargan test	34.70 [1.000]	23.87 [1.000]	20.39 [1.000]	18.33 [1.000]
Number of Observations	328	219	435	434
Number of Countries	71	52	78	78
Intercept	45.697*** (17.71)	41.573** (22.98)	32.742*** (7.740)	34.605*** (7.915)

Notes: The R2 is defined as 1-RSS/TSS, and is adjusted in the usual way. No serial correlation is indicated in GMM-SYS models when the Arellano-Bond test for second-order serial correlation is not significant at the .05 level and beyond, and the AR1 test shows evidence of significant negative serial correlation in the differenced residuals. The Sargan test examines whether the instruments are uncorrelated with the error; the null hypothesis is that the instruments are valid. For example, [1.000] equals a p-value of 1 and indicates that the instruments are valid. The Wald test examines whether  $u_i=0$ ; the null hypothesis is that the fixed effects are jointly zero. For a discussions of the test statistics, see Doornik and Hendry (2001, 67-69). Fixed effects dummies are used. Period dummies are omitted as they are collinear with the oil price change variable. The instruments for the transformed equations include Islam, Ethnic Fractionalization, regional dummies, Latitude, English common law, and GMM lags 3 through 6 of the endogenous variables. The Instruments for the level equations include country dummies, and GMM level (lag 2) for the endogenous variables. Changes in oil prices and global changes in communist party vote shares are treated as exogenous variables. Standard errors are listed below the coefficients. \* p-value < .10; \*\* p-value < .05; \*\*\* p-value < .01

**Table 5 - Y=Change in Democracy, 1955-2004, GMM-System  
The Pathway from Financial Globalization through Inequality to Democracy**

Variable	Model 1 ΔPolity	Model 2 ΔRegime	Model 3 ΔPolity	Model 4 ΔRegime
Polity or Regime (s-1)	-0.315*** (0.085)	-0.234*** (0.048)	-0.300*** (0.078)	-0.333*** (0.110)
Polity or Regime (s-2)	-0.243*** (0.071)	-0.321*** (0.081)	-0.226*** (0.078)	-0.352*** (0.099)
ΔWorld Democracy	0.019 (0.048)	0.002 (0.004)	0.060 (0.098)	0.002 (0.006)
<b>ΔCAPITAL (s-1)</b>			<b>-0.048*** (0.017)</b>	<b>-0.004*** (0.001)</b>
<i>ΔCAPITAL_in (s-1)</i>	-0.029 (0.025)	-0.001 (0.002)		
<i>ΔCAPITAL_out (s-1)</i>	-0.001 (0.023)	0.002 (0.002)		
Predicted value of ΔGINI_DK (s-1) from Capital_In	<b>-0.499* (0.264)</b>	<b>-0.045** (0.022)</b>		
Predicted Value of ΔGINI_DK sq (s-1) from Capital_In	<b>0.008** (0.003)</b>	<b>0.001** (0.000)</b>		
Predicted value of ΔGINI_EHII (s-1) from Capital			<b>-5.093*** (1.589)</b>	<b>-0.295* (0.167)</b>
Predicted Value of ΔGINI_EHII sq (s-1) from Capital			<b>0.072*** (0.023)</b>	<b>0.004* (0.002)</b>
Regional Democracy (s-1)	0.334** (0.145)	0.007 (0.009)	0.244* (0.138)	0.023** (0.011)
Member of EU (0,1) (s-1)	-1.802 (1.137)	-0.185** (0.091)	0.679 (0.867)	0.082 (0.109)
Member Soviet Bloc (0,1) (s-1)	6.443*** (1.892)	0.620*** (0.184)	2.054 (1.768)	0.386*** (0.133)
ΔIncome (s-1)	0.463 (1.002)	0.056 (0.072)	1.397 (0.880)	0.160** (0.069)
ΔGrowth (s-1)	0.016 (0.080)	0.005 (0.006)	-0.195** (0.089)	-0.006 (0.007)
ΔInvestment (Share of GDP) (s-1)	-0.012 (0.775)	-0.035 (0.054)	-0.261 (0.720)	0.018 (0.104)
Population Growth (s-1)	-0.745* (0.387)	-0.010 (0.018)	-0.023 (0.2113)	-0.013 (0.023)
ΔOil Prices (s-1)	-0.024* (0.013)	-0.002* (0.001)	-0.029 (0.040)	-0.001 (0.003)
ΔTrade Openness (s-1)	0.650	0.068	0.810	-0.017

	(1.112)	(0.084)	(0.639)	(0.052)
Adjusted R2	0.327	0.368	0.268	0.307
Wald (fixed effects) $\chi$ -square distribution	8820 [0.000]	1827 [0.000]	203.7 [0.000]	22580 [0.000]
AR1	-2.703** [0.007]	-2.681** [0.007]	-3.602** [0.000]	-4.070** [0.000]
AR2	0.1207 [0.904]	-1.546 [0.122]	1.057 [0.290]	0.3801 [0.704]
Sargan test	518.8 [1.000]	449.5 [1.000]	187.9 [1.000]	410.6 [0.990]
Number of Observations	390	311	521	425
Number of Countries	77	69	85	80
Intercept	1.931 (2.52)	0.181 (0.180)	73.381*** (25.43)	3.871 (2.602)

Notes: A first stage regression using Capital and unit effects as explanatory variables for GINI\_EHII and Capital\_In and unit effects as explanatory variables for GINI\_DK are estimated. The predicted values of GINI are substituted for the observed values, and the models from Table 3 are reestimated in Table 5. The R2 is defined as 1-RSS/TSS, and is adjusted in the usual way. No serial correlation is indicated in GMM-SYS models when the Arellano-Bond test for second-order serial correlation is not significant at the .05 level and beyond, and the AR1 test shows evidence of significant negative serial correlation in the differenced residuals. The Sargan test examines whether the instruments are uncorrelated with the error; the null hypothesis is that the instruments are valid. For example, [1.000] equals a p-value of 1 and indicates that the instruments are valid. The Wald test examines whether  $u_i=0$ ; the null hypothesis is that the fixed effects are jointly zero. For a discussions of the test statistics, see Doornik and Hendry (2001, 67-69). Fixed effects dummies are used. Period dummies are omitted as they are collinear with the oil price change variable. The instruments for the transformed equations include Islam, Ethnic Fractionalization, regional dummies, Latitude, English common law, and GMM lags 3 through 6 of the endogenous variables. The Instruments for the level equations include country dummies, and GMM level (lag 2) for the endogenous variables. Changes in oil prices and global changes in democracy are treated as exogenous variables. Standard errors are listed below the coefficients. \* p-value < .10; \*\* p-value < .05; \*\*\* p-value < .01

**Appendix Table A1**

	<i>Gini<sub>all</sub></i>	<i>giniadjustDK</i>	<i>giniadjustFQ3</i>	<i>EHI</i>
Gini <sub>all</sub>	1			
giniadjustDK	0.97886252	1		
giniadjustFQ3	0.93311012	0.98650937	1	
EHI	0.6294634	0.6087542	0.59235781	1

**Notes:** Gini<sub>all</sub> is the unadjusted WIID 2008 data; Gini<sub>adjust\_DK</sub> is the WIID data adjusted using the algorithm in Dollar and Kraay 2002; Gini<sub>adjust\_FQ3</sub> is the WIID data adjusted using the results of a regression estimated with dummy variables for dummy variables for consumption vs income, gross vs. net income, and household vs. individual surveys. EHI is the indicator from Galbraith and Kum 2005.

**Appendix Table A2**

	<i>EHI</i>	<i>gini<sub>all5</sub></i>	<i>gini<sub>allDK5</sub></i>	<i>gini<sub>allFQ52</sub></i>	<i>gini<sub>allFQ53</sub></i>	<i>SIDD</i>
EU	-0.30309	-0.29018	-0.21651	-0.15921	-0.1249	-0.18558
islam2	0.320977	-0.00828	-0.03831	-0.04	-0.05315	
ETHFRAC	0.519283	0.405105	0.364185	0.335578	0.30023	
SSA	0.350795	0.217032	0.203596	0.201444	0.18263	0.318472
EAP	0.000657	-0.01054	-0.06085	-0.09998	-0.09727	-0.03451
EUROPE	-0.47712	-0.35585	-0.27314	-0.20925	-0.15819	-0.29338
SASIA	0.151731	-0.13774	-0.15768	-0.16001	-0.15782	-0.11105
MENA	0.142483	0.024686	0.032712	0.051285	0.045956	0.114516
LAC	0.300085	0.595267	0.572399	0.533584	0.493043	0.518573
ENGLISH	0.140851	0.001929	-0.03217	-0.05338	-0.04079	0.014456
LATITUDE	-0.49232	-0.58817	-0.53244	-0.48216	-0.44229	-0.55859
FRENCH	0.334958	0.418734	0.424959	0.424013	0.400958	0.469111
SOCIAL	-0.41	-0.3986	-0.39545	-0.38952	-0.40257	-0.51104
GERMAN	-0.19226	-0.18793	-0.17664	-0.16963	-0.15423	-0.18126
OECD	-0.56166	-0.413	-0.35103	-0.30494	-0.24784	-0.36156
soviet	-0.37937	-0.33258	-0.33912	-0.34113	-0.3545	-0.42563

**Notes:** See notes for Appendix Table A1. The correlates are regional dummies from the World Bank or indicators of a country's legal origin, or measures of its ethnic fractionalization, Islamic population percentages, or its latitude.

**Table A3 – Dependent Variable = REGIME, 1960-2004, GMM-System Estimations  
0=Autocracy, 1=Democracy; Instruments= Income (s-2); Currency Crises (s-1);  
Global Average of Capital Account Openness (s-1)**

<b>Variable</b>	<b>1 Full Sample RE</b>	<b>2 Full Sample FE</b>	<b>3 Emerging Markets RE</b>	<b>4 Emerging Markets FE</b>
<b><i>CAPITAL (s-1)</i></b>	<b>0.029*** (0.008)</b>	<b>-0.005* (0.003)</b>	0.012 (0.008)	<b>-0.008** (0.003)</b>
Prior Transitions to Dictatorship(s-1)	0.003** (0.001)	0.113 (0.126)	0.005** (0.002)	0.078 (0.091)
Log(Constitutional Age(s-1))	0.014 (0.010)	0.062*** (0.018)	0.007 (0.011)	0.004 (0.015)
World Democracy (s-1)	-0.014 (0.011)	0.015*** (0.004)	0.002 (0.015)	0.025*** (0.006)
Natural Resource Export	-0.017** (0.007)	-0.070*** (0.009)	-0.018* (0.010)	-0.084*** (0.021)
Socialist Legal Origin	-0.002* (0.001)	-0.302*** (0.077)	-0.002 (0.002)	-0.014 (0.047)
Latin America	-0.009** (0.003)	0.044** (0.022)	0.040* (0.021)	0.413*** (0.032)
Middle East and North Africa	-0.005** (0.002)	-0.702*** (0.089)	0.007** (0.003)	-0.208*** (0.036)
Sub-Saharan Africa	-0.019** (0.008)	-0.340*** (0.005)	-0.048* (0.026)	0.009 (0.049)
Asia	-0.018** (0.007)	-0.011 (0.019)	-0.030* (0.016)	0.146*** (0.019)
British Colonial Heritage	-0.011** (0.005)	0.058*** 0.007	-0.030* (0.017)	0.166*** (0.010)
French Colonial Heritage	-0.006* (0.003)	-0.058*** (0.022)	-0.0002 (0.002)	-0.005 (0.016)
Spanish Colonial Heritage	-0.009** (0.004)	-0.009 (0.004)	0.028* (0.015)	0.167** (0.074)
Log(GDP Per Capita PPP(s-1))	-0.077* (0.040)	0.060 (0.062)	0.003 (0.031)	0.018 (0.071)
Growth (s-1)	-0.088 (0.054)	-0.023 (0.019)	-0.163** (0.073)	-0.012 (0.032)
Urban Population	-0.033* (0.017)	0.217 (0.150)	0.042 (0.015)	0.172 (0.136)
Population Density (s-1)	0.003 (0.002)	-0.118*** (0.015)	0.027 (0.013)	-0.014** (0.019)
Fixed Effects?	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>
Wald Test (Fixed Effects) $\chi^2$ -square distribution		<b>163.00*** (0.00)</b>		<b>44.55</b>
Countries/Observations	82/582	82/582	60/409	60/409
Number of Observations	582	582	409	409
Intercept	-0.023** (0.010)	-0.507*** (0.064)	-0.032* (0.019)	-0.226* (0.119)



**Table A4 - Dependent Variable = Change in POLITY, 1960-2004,  
GMM-System Estimations; Instruments= Income (s-2); Currency Crises (s-1); Global  
Average of Capital Account Openness (s-1)**

<b>Variable</b>	1 Full Sample RE	2 Full Sample FE	3 Emerging Markets RE	4 Emerging Markets FE
<b><i>CAPITAL (s-1)</i></b>	<b>-0.033*** (0.011)</b>	<b>-0.048* (0.029)</b>	<b>-0.117*** (0.035)</b>	<b>-0.090** (0.037)</b>
Democracy (s-1)	-0.013 (0.032)	-0.018 (0.035)	0.185 (0.134)	0.002 (0.024)
Prior Transitions to Dictatorship(s-1)	0.007*** (0.002)	3.389** (1.383)	0.007*** (0.002)	3.442*** (1.006)
Log(Constitutional Age(s-1))	0.142*** (0.036)	-0.151 (0.148)	0.259*** (0.067)	0.265 (0.172)
World Democracy (s-1)	-0.043 (0.039)	-0.040 (0.039)	-0.019 (0.072)	0.005 (0.051)
Natural Resource Export	0.022*** (0.006)	-0.378*** (0.054)	0.025*** (0.007)	0.275 (0.261)
Socialist Legal Origin	0.008*** (0.002)	0.387 (0.683)	0.008*** (0.002)	-0.123 (0.483)
Latin America	-0.005*** (0.002)	-0.005 (0.002)	0.004 (0.008)	-0.255 (0.219)
Middle East and North Africa	0.006*** (0.002)	-1.226** (0.588)	0.008*** (0.003)	-1.663*** (0.323)
Sub-Saharan Africa	0.045*** (0.011)	-0.409** (0.191)	0.035*** (0.012)	-0.215 (0.471)
Asia	0.009*** (0.002)	0.077 (0.167)	0.005 (0.005)	0.240 (0.209)
British Colonial Heritage	0.024*** (0.006)	0.024*** (0.006)	0.031*** (0.009)	-0.527*** (0.115)
French Colonial Heritage	0.035*** (0.009)	0.035* (0.009)	0.036*** (0.009)	-0.496*** (0.175)
Spanish Colonial Heritage	-0.018*** (0.005)	-0.018 (0.005)	-0.012** (0.006)	1.245* (0.713)
Log(GDP Per Capita PPP(s-1))	0.341*** (0.085)	-0.221 (0.665)	0.646*** (0.168)	-0.726 (0.717)
Growth (s-1)	-0.681*** (0.175)	-0.622*** (0.135)	-0.299*** (0.084)	-0.421* (0.254)
Urban Population	0.149*** (0.037)	1.859 (1.558)	0.315*** (0.083)	2.994** (1.448)
Population Density (s-1)	0.031*** (0.008)	0.545*** (0.181)	0.039*** (0.012)	0.725*** (0.196)
<b>Fixed Effects?</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>
<b>Wald Test (Fixed Effects) <math>\chi</math>-square distribution</b>		<b>1310.0*** (0.000)</b>		<b>967.4*** (0.000)</b>
<b>Emerging Only?</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
Number of Countries	82/582	82/582	60/409	60/409
Intercept	0.028*** (0.007)	0.149 (0.876)	0.062*** (0.016)	0.210 (1.166)

**Table A5 – Determinants of Corporate Tax Rates**  
**Dependent Variable = Top Corporate Tax Rate.**

<u>Variable</u>	<u>Model 1</u> GMM System Estimation Full Sample	<u>Model 2</u> GMM System Estimation Emerging Only	<u>Model 3</u> OLS with PCSE Full Sample	<u>Model 4</u> OLS with PCSE Emerging Only
Capital Tax Rates (s-1)	1.074*** (0.096)	0.979*** (0.120)	0.902*** (0.01)	0.741*** (0.157)
Home Capital Tax Rates minus U.S. Capital Tax Rates (s-1)	-0.493*** (0.077)	-0.443*** (0.093)	-0.412*** (0.078)	-0.334*** (0.106)
<b><math>\Delta</math>CAPITAL (s-1)</b>	<b>0.040*</b> <b>(0.021)</b>	<b>0.054*</b> <b>(0.030)</b>	<b>0.048**</b> <b>(0.019)</b>	<b>0.078***</b> <b>(0.023)</b>
Global Capital Account Openness (s-1)	0.036 (0.048)	0.0286 (0.010)	-0.042 (0.054)	-0.186* (0.105)
$\Delta$ Economic Growth (s-1)	-0.134 (0.094)	-0.035 (0.168)	0.111 (0.103)	0.024 (0.111)
$\Delta$ Member of EU (0,1)	2.224 (1.424)		2.715 (1.693)	
$\Delta$ Income (s-1)	1.791 (1.407)	1.078 (2.117)	0.912 (1.136)	1.310 (1.414)
$\Delta$ Investment (s-1) (Share of GDP)	-0.876 (1.288)	-0.119 (1.372)	-0.879 (1.316)	-1.161 (1.439)
$\Delta$ Government Share of GDP (s-1)	0.091 (0.075)	0.058 (0.090)	0.138** (0.066)	-0.048 (0.09)
$\Delta$ Population Growth (s-1)	-0.744 (0.720)	0.680 (1.473)	1.012* (0.550)	0.565 (0.672)
$\Delta$ Democracy (s-1)	1.791 (1.407)	-0.077 (0.112)	0.138 (0.088)	-0.037 (0.105)
$\Delta$ Trade Openness(s-1)	-0.087 (1.812)	-1.328 (1.655)	0.694 (1.298)	2.330 (1.587)
$\Delta$ Revolutions & Coups (s-1)	-0.093 (0.289)	-0.004 (0.362)	-0.093 (0.222)	-0.110 (0.264)
Wald	430.1 [0.000]**	330.9 [0.000]**		
Sargan	0.999	1.000		
AR1	-4.076 [0.000]**	-3.133 [0.002]**		
AR2	-1.218 [0.223]	-1.696 [0.090]		
Durbin's M			-0.031 (0.051)	-0.046 (0.066)
Number of Obs	444	276	417	249
Countries	82	60	78	56
Constant	-18.205 (12.230)	-9.442 (16.770)	-12.194 (14.010)	-7.938 (16.360)

**Appendix Table 6 - Y=Change in Democracy, 1955-2004, GMM-System  
Channels from Financial Globalization to Inequality to Democracy  
Capital or Capital\_In Omitted**

Variable	Model 5 ΔPolity	Model 6 ΔRegime	Model 7 ΔPolity	Model 8 ΔRegime
Polity or Regime (s-1)	-0.360*** (0.092)	-0.319*** (0.076)	-0.235*** (0.051)	-0.359*** (0.115)
Polity or Regime (s-2)	-0.167** (0.071)	-0.189*** (0.063)	-0.326*** (0.079)	-0.324*** (0.095)
ΔWorld Democracy	0.005 (0.050)	0.053 (0.097)	0.002 (0.004)	0.001 (0.006)
<i>ΔCAPITAL (s-1)</i>				
<i>ΔCAPITAL_in (s-1)</i>				
<i>ΔCAPITAL_out (s-1)</i>	-0.009 (0.026)		0.002 (0.002)	
Predicted value of ΔGINI_DK (s-1) from Capital_In	<b>-38.199*</b> <b>(20.20)</b>		-2.027 (1.263)	
Predicted Value of ΔGINI_DK sq (s-1) from Capital_In	<b>0.370</b> <b>(0.235)</b>		0.022 (0.015)	
Predicted value of ΔGINI_EHII (s-1) from Capital		<b>-6.403***</b> <b>(1.905)</b>		<b>-0.414**</b> <b>(0.181)</b>
Predicted Value of ΔGINI_EHII sq (s-1) from Capital		<b>0.072***</b> <b>(0.023)</b>		<b>0.005**</b> <b>(0.002)</b>
Regional Democracy (s-1)	0.336** (0.148)	0.245* (0.138)	0.008 (0.010)	0.021* (0.011)
Member of EU (0,1) (s-1)	-0.851 (1.322)	0.786 (0.844)	-0.167* (0.100)	0.093 (0.109)
Member Soviet Bloc (0,1) (s-1)	5.750*** (1.959)	1.866 (1.845)	0.605*** (0.184)	0.330** (0.141)
ΔIncome (s-1)	0.767 (1.079)	1.774** (0.889)	0.070 (0.075)	0.195** (0.075)
ΔGrowth (s-1)	0.034 (0.085)	-0.203** (0.092)	0.004 (0.006)	-0.006 (0.008)
ΔInvestment (Share of GDP) (s-1)	-0.165 (0.935)	-0.244 (0.673)	-0.037 (0.057)	0.024 (0.093)
Population Growth (s-1)	-0.720* (0.407)	0.005 (0.217)	-0.009 (0.018)	-0.010 (0.024)
ΔOil Prices (s-1)	-0.026* (0.013)	-0.029 (0.039)	-0.002* (0.001)	-0.001 (0.003)
ΔTrade Openness (s-1)	0.977 (1.238)	0.437 (0.599)	0.074 (0.085)	-0.032 (0.054)
Adjusted R2	0.340	0.268	0.375	0.308
Wald (fixed effects)	192.8 [0.000]	4.126e+9 [0.000]	137.7 [0.000]	4.468e+10 [0.000]
AR1	-2.657	-3.590	-2.673	-3.865

	[0.008]	[0.000]	[0.008]	[0.000]
AR2	-0.347 [0.729]	0.670 [0.503]	-1.576 [0.115]	0.294 [0.769]
Sargan test	147.8 [1.000]	289.9 [1.000]	238.9 [1.000]	397.0 [0.926]
Number of Observations	382	521	311	452
Number of Countries	77	85	69	80
Intercept				

Notes: A first stage regression using Capital and unit effects as explanatory variables for GINI\_EHII and Capital\_In and unit effects as explanatory variables for GINI\_DK are estimated. The predicted values of GINI are substituted for the observed values, and the models from Table 3 are reestimated in Table 5. The R2 is defined as 1-RSS/TSS, and is adjusted in the usual way. No serial correlation is indicated in GMM-SYS models when the Arellano-Bond test for second-order serial correlation is not significant at the .05 level and beyond, and the AR1 test shows evidence of significant negative serial correlation in the differenced residuals. The Sargan test examines whether the instruments are uncorrelated with the error; the null hypothesis is that the instruments are valid. For example, [1.000] equals a p-value of 1 and indicates that the instruments are valid. The Wald test examines whether  $u_i=0$ ; the null hypothesis is that the fixed effects are jointly zero. For a discussions of the test statistics, see Doornik and Hendry (2001, 67-69). Fixed effects dummies are used. Period dummies are omitted as they are collinear with the oil price change variable. The instruments for the transformed equations include Islam, Ethnic Fractionalization, regional dummies, Latitude, English common law, and GMM lags 3 through 6 of the endogenous variables. The Instruments for the level equations include country dummies, and GMM level (lag 2) for the endogenous variables. Changes in oil prices and global changes in democracy are treated as exogenous variables. Standard errors are listed below the coefficients. \* p-value < .10; \*\* p-value < .05; \*\*\* p-value < .01

Fig. 8 - The Effects of Capital\_In on dPolity as Mediated through GINI\_DK and GINI\_DK\_sq

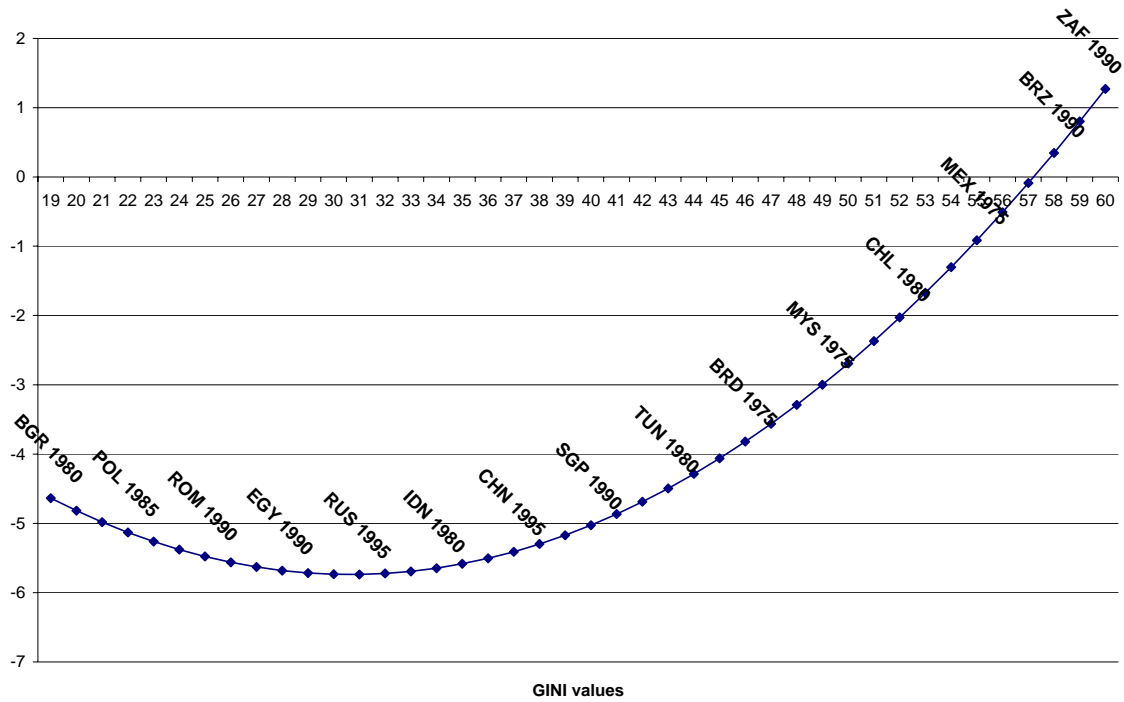


Fig. 9 - The Effects of Capital on dPolity as Mediated through GINI\_EHII and GINI\_EHII\_sq

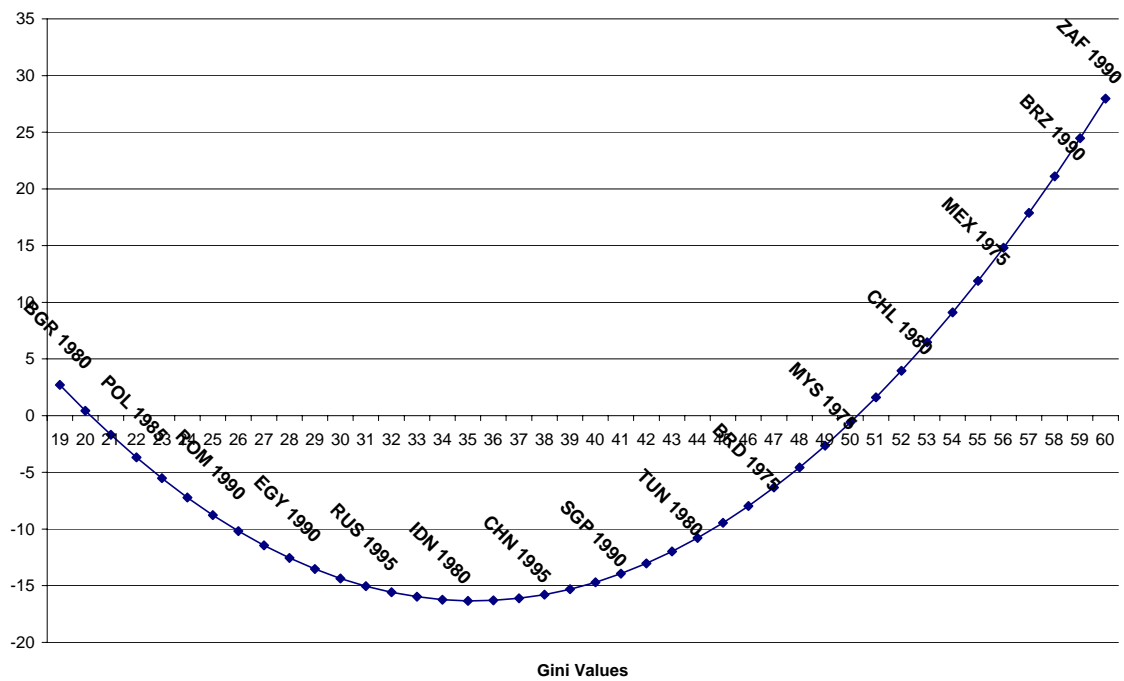


Fig. 10 - The Effect of Capital\_In on dRegime as Mediated by GINI\_DK & GINI\_DK\_sq

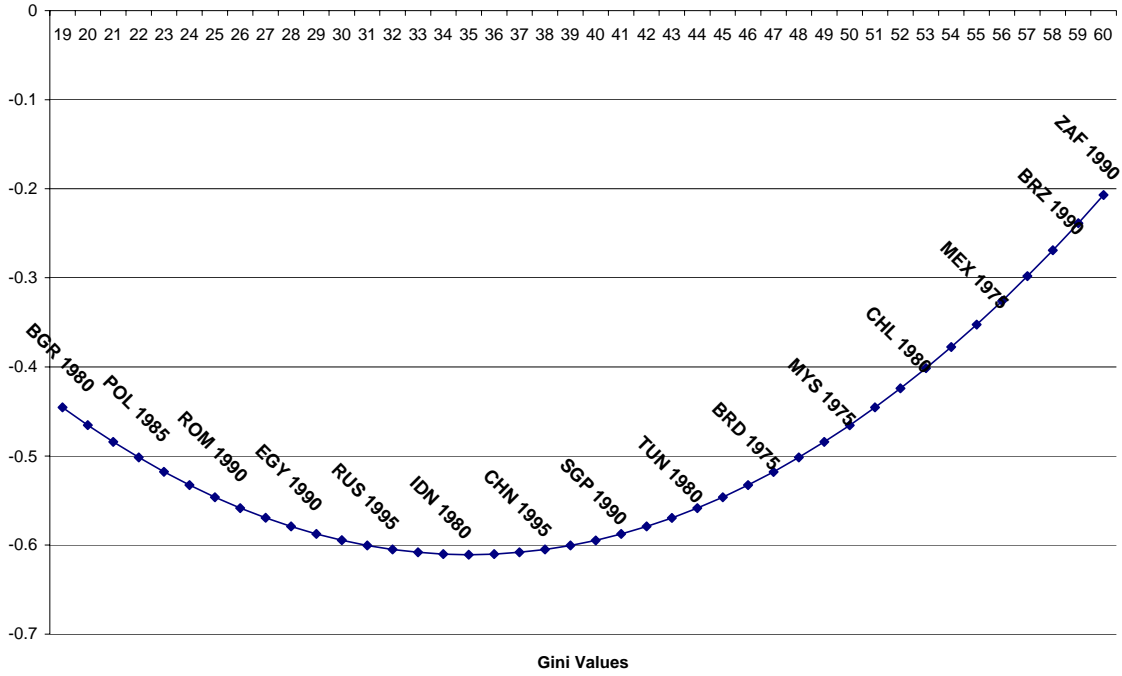


Fig. 11 - The Effect of Capital on dRegime as Mediated by GINI\_EHII & GINI\_EHII\_sq

