

Dependencia Revisited: **Financial Liberalization and Inequality in Latin America¹**

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Abstract

This study addresses a gap in the current financial liberalization literature, which has heretofore focused on post-reform growth experiences. I shift focus to consider the effects of liberalization on income inequality, a prime determinant of standard of living in the developing world. Specifically, I look at Latin America due to its common historical experiences with respect to economic interactions with the developed world. I use pooled OLS, panel OLS with fixed effects, panel GLS with random effects, and finally a GMM technique derived from Arellano-Bond (1991), adding more and stronger assumptions at each step to analyze correlations between liberalization and changes in income inequality. Though the battery of tests, when viewed together, yields ambiguous results, the most compelling findings come with the inclusion of an interaction term between liberalization and institutional quality. In these specifications, liberalization, proxied by a measure called Financial Openness, enters positively and highly significantly. The negative and highly significant coefficients on the interaction terms indicate that liberalization can ameliorate or exacerbate inequality, depending upon the integrity of the institutions in place at the time of internationalization. This finding implies that weak institutions, rather than mere economic interaction with more developed economies, may be responsible for the inability of all groups in Latin America to reap the full benefits of integration into the global economy.

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I. Introduction

This study explores the connections between the recent trend of financial liberalization in Latin America and income inequality. Existing literature already documents the effects of liberalization on economic growth, both worldwide and in Latin America. The bulk of the literature finds in favor of liberalization and increased internationalization, as empirics reflect positive links between liberalization measures and per capita income growth (Easterly, Loayza, and Montiel, 1996; Bekaert, Harvey, and Lundblad, 2004; Hermes and Lensink, 2005; Quinn and Toyoda, 2008).

However, an area of less focus has been the effects of liberalization on standard of living in the developing world, namely the distributional dynamics of a growing economic pie. Specifically, despite the recent growth trend in the developing world, inequality persists in Latin America. Lopez and Perry (2008) report that the average Gini coefficient² in Latin America was 0.52 near the beginning of 2008, on par only with sub-Saharan Africa for the distinction of most unequal region in the world. Interestingly, Lopez and Perry also note that the most equal nation in Latin America still had a higher Gini coefficient than the most unequal developed nation. In light of Latin America's improved post-reform growth, does the continued inequality within the region's nations indicate that those gains accrued primarily to the rich in the absence of an adequate distributional framework?

This question is particularly intriguing when viewed against the backdrop of Latin America's complex history of economic interaction with the rest of the world. Since settlement and into independence, the warm climate countries that constitute Latin

² The Gini coefficient measures the extent to which a country's Lorenz curve, which expresses its income distribution, deviates from the perfectly equitable distribution.

America served principally as providers of raw materials for the industrialized world (mainly North America and Western Europe). In the mid-20th century, a new school of thought emerged that attempted to explain Latin America's persistent underdevelopment through its economic relationships. Notably, Raúl Prebisch's "Thesis of Unequal Exchange" (1950) outlined his contention that Latin America faced continually declining terms of trade as primary-product exporters. That is, commodity prices historically trend downward as technological innovation boosts efficiency and supply, while the producers of new technologies (i.e. the industrial centers) benefit from rising export prices and decreasing import prices for their inputs (Lehmann, 1990). These notions became the pillars of *dependencia*, or Dependency Theory, according to which the metropolises (industrial centers) of the international division of labor perpetually subordinate their satellites (providers of inputs) to a state of economic dependency by draining surplus and natural resources. In this sense, the satellites in this international capitalist arrangement are subject to the "development of underdevelopment" (Frank, 1969).

Accordingly, *dependencia* was the primary justification behind the period of import-substitution industrialization ("ISI") in Latin America, during which time nations sought to immunize themselves against economic subjugation by using their wealth of resources to fuel their own industrial development. Yet this period did not experience the results that the authors of *dependencia* would have foreseen – inflation remained high throughout the region and domestic markets grew saturated, causing economic stagnation that allowed brutal technocratic governments to take power. Between the '70s and the '90s, these governments and others throughout the region phased out ISI using harsh austerity courses and working to reopen borders and markets. Though *dependencia* was

disproven in practice and reshaped in theory as a way to account for the sustained underdevelopment of Latin America (see, for example, Cardoso and Faletto (1979)), one purpose of this paper is to explore the possibility that its modern-day extensions can explain the region's prevalent inequality.

In the aftermath of ISI, the wave of neoliberal economic policies that swept across much of Latin America once again began to unblock its means of economic interaction with the world. As Hermes and Lensink (2005) enumerate, these policies consisted primarily of measures that decreased barriers to entry for foreign financial institutions, deregulated capital markets to allow simultaneous foreign investor participation and international cross-listing by firms, and eased credit and interest rate controls. Arestis and Caner (2004) decompose full economic aperture into liberalization of the capital account (record of transactions of foreign and domestic assets), current account (balance of trade combined with net income and transfers from abroad), and equity or capital markets.

One possible explanation for the confluence of liberalization events in the region is the frequency of substantial financial crises in Latin America during the last two decades of the 20th century³. Various studies note a higher extent of liberalization in the aftermath of a significant financial crisis; Cull and Martínez Peria (2007) find higher levels of foreign bank penetration in countries that had recently undergone a crisis, and Bekaert, Harvey, and Lundblad (2004) postulate that liberalization may be adopted to stabilize macroeconomic conditions (e.g. in the case of hyperinflation).

³ The 1980s were known as Latin America's "lost decade," as many nations suffered severe and protracted financial crises because of a chain reaction set into motion by Mexico's 1982 international debt default. Another crisis occurred in Mexico from 1994 to 1995 after a sudden peso devaluation, initiating a "tequila effect" over the region that most adversely affected Brazil and Argentina, culminating with the Argentine economic crisis from 1999 to 2002.

The virtue of this paradigm shift toward increased financial liberalization has been widely debated in economic and political circles. Hermes and Lensink (2005) outline both sides of this argument. Proponents of liberalization posit that it promotes economic growth: 1) increased competition in the banking sector will drive up interest rates, leading to greater saving and therefore more funds available for investment, and consequently growth, 2) increased banking competition will shrink profit margins due to free entry and will therefore drive down the cost of loaned capital, which will also engender growth-promoting investment, and 3) increased competition will allow foreign firms to penetrate local markets, which will produce a positive externality as the remaining local banks adopt effective governance and efficiency practices from abroad.

On the other hand, opponents of liberalization argue that increased competition will arouse problems of asymmetric information and thus increase vulnerability to systemic crisis by 1) causing small, relationship-based banks to fail, thereby deteriorating information capital, and 2) leading banks to relax screening and monitoring of borrowers due to reduced margins. Furthermore, opponents point out that if liberalization is to occur, it *must* occur in a sound regulatory atmosphere, else hinder growth.

This paper examines which outcomes of liberalization have been dominant in Latin American nations, and finds that the answer is rooted deeply in the strength of a given nation's institutions at the time of liberalization. I organize the remainder of the paper as follows: in section II, I discuss the body of literature that relates financial liberalization and economic growth, which has bearings on income inequality. In section III, I establish the rationale for studying inequality, so that in section IV I can postulate the possible conduits, including growth, through which liberalization affects income

distribution. In section V, I construct a methodology and describe the data it utilizes (both of which emulate studies in the growth literature), and I relate the results in section VI. I conclude by exploring implications and possible extensions in section VII.

II. Liberalization and Economic Growth

Among the most prevalent topics of interest in international economics in the recent past has been the global links between financial liberalization and economic growth. Arestis and Caner (2004) encapsulate the attitudes of this body of work: “[This] literature has been, to a great extent, based on the neoclassical view that financial liberalization mobilizes savings and allocates capital to more productive uses, both of which help increase the amount of physical capital and its productivity” (1). Also, Bekaert, Harvey, and Lundblad (2004) (henceforth, “B-H-L”) base their hypothesized results on the notion that “improved risk sharing post-liberalization should decrease the cost of equity capital and increase investment” (1).

Indeed, empirical studies reinforce these expectations. Hermes and Lensink (2005) reflect a positive and highly significant effect of liberalization on growth, though they propose that the substitution of public investment in favor of private investment, rather than an increase in savings, is the primary driver. More recently, Quinn and Toyoda (2008) attempt to reconcile conflicting findings in past literature by showing that both developed and developing economies grow more quickly in the presence of a more open capital account (using a measure that they construct) and more open equity markets.

In addition, B-H-L find a strong growth effect in the aftermath of equity market liberalization. B-H-L first utilize a cross-sectional specification to determine the baseline

effect of equity market liberalization on economic growth. B-H-L run tests using three different metrics for this liberalization measure. The first and preferred specification uses Official Equity Market Liberalization (“OEML”), constructed in Bekaert and Harvey (2002), which assumes a value of zero in years before a country’s stock markets underwent official opening and a value of one thereafter. Alternately used are the First Sign of Liberalization indicator and a Liberalization Intensity measure constructed using Bekaert (1995) and Edison and Warnock (2003). The results obtained in these three different specifications were largely similar.

To control for the effects that simultaneous liberalization in other areas may exert on growth, B-H-L include a measure of capital account liberalization from Quinn (1997) and Quinn and Toyoda (2008). This measure builds on the IMF’s *Annual Report on Exchange Arrangements and Exchange Restrictions* report and assigns to each nation a score between zero (completely repressed economy) and four (fully open economy), in half-integer increments. In B-H-L’s tests, the Quinn measure was found to have a notable correlation with growth, though the OEML measure retained its significance when the Quinn measure was included.

In their cross-sectional tests, B-H-L find a surprisingly pronounced growth effect attributed to liberalization, but they qualify this finding by postulating that liberalizations are often multifaceted: “Countries could liberalize equity markets at the same time as they remove restrictions on foreign exchange, deregulate the banking system, and undertake steps to develop the equity market” (15). To account for this large liberalization effect, the authors further decompose it by introducing additional vectors that proxy for simultaneous reforms in each of the macroeconomic, financial, and legal

environments. They include these vectors individually in panel data regressions, which capture both time-series and cross-sectional variations. B-H-L also append a measure of banking crises to test the hypothesis that extensive reform is more likely to occur following periods of crisis, during which growth prospects deteriorate.

B-H-L employ ordinary least squares (OLS) regression to estimate the above specifications with non-overlapping five-year intervals, controlling for country-specific fixed effects, time effects, and both when applicable. However, B-H-L also estimate the parameters for overlapping moving averages on the data using a generalized method of moments (GMM) estimator to accommodate the possibility of serial correlation. In all specifications, the equity liberalization measures retain positive and significant correlations with economic growth.

Still, these trends encapsulate the post-liberalization growth experiences on a global scale. Have Latin American nations had similar experiences following their reforms? In their 1996 paper, Easterly, Loayza, and Montiel (“E-L-M”) assess the validity of the view shared by many, including Sebastian Edwards, World Bank Chief Economist for Latin America, that “the results in terms of growth and social progress have not yet met expectations” (Edwards, 1995) upon adopting sweeping structural reforms. On the contrary, E-L-M find that, on average, Latin American growth during the 1990s *exceeded* growth rates in previous decades, responding to reform as experiences in different times and regions would have predicted. The authors provide a multi-toned explanation for the negative perception of Latin American growth. On one hand, they acknowledge that when using the East Asian “Miracle” countries as the benchmark expectation for post-reform growth, Latin American growth did indeed fall short of

anticipated levels. On the other hand, they point to the Mexican meltdown in the 1980s as a “particularly vivid” and enduring case that may have skewed popular perception of Latin American growth toward “general disappointment” (2). Moreover, and importantly, Latin America’s impressive growth experience in the ‘90s, which returned the region’s average per capita growth rate to 2%, still may not have been sufficient to reduce poverty and may have been harshly judged as a result.

In reaching their conclusion, E-L-M regress average growth rate of per capita GDP (again within non-overlapping five-year periods) on a series of vectors meant to be “sufficiently varied and extensive as to capture the diverse aspects of reform in Latin America” (7), among other considerations such as prevalence in the literature and availability for Latin American nations. However, though this data construction is broad and includes many variables of interest with respect to reform, its measure of the extent of reform seems weak; E-L-M only use indicator variables to proxy for the extent of liberalization, but lack any concrete measure of the extent of reform, which is ultimately the implied variable of interest. To this effect, the B-H-L methodology is preferred as a baseline for this present liberalization study.

The prevailing literature appears to demonstrate that Latin America shared in the global growth that accompanied liberalizing reforms in recent decades. The next section helps to qualify this finding; positive economic growth outcomes may not be cause for celebration if they exacerbate economic welfare problems.

III. Inequality: Why Does it Matter?

While prevailing literature documents the links between financial liberalization and growth, an area of markedly less focus has been the welfare effects of such liberalizations. Das and Mohapatra (2003) summarize this paucity: “To date, an important but unaddressed question in this literature is the issue of whether and how these reforms have shifted the *distribution* of incomes in the reforming countries. [...] One would presumably evaluate the success of liberalizing reforms differently when average growth uniformly raised incomes for all quantiles of the distribution, from a finding that the average growth post liberalization was only influenced by gains to the upper tails of the income distribution” (2).

It is generally assumed that inequality is socially undesirable, for reasons largely political in nature (see, for example, the political power argument asserted in Do and Levchenko (2006), outlined in section IV). However, inequality need not always be pernicious or even worrisome. For example, Galor and Zeira (1993) find that inequality is actually beneficial at low levels of economic development. Their finding stems from the fact that at low levels of development, returns to physical capital exceed returns to human capital. Therefore, diverting economic resources to those most able and prone to save will promote more growth as long as the masses do not need money to invest in education. Additionally, though increasing inequality is usually associated with increasing poverty, the poor can still benefit as the income gap widens, with the proviso that growth be accompanied by pro-poor redistribution of income (Ravallion, 2005). Finally, as Lopez and Perry (2008) highlight, apparent inflation rates faced by the poor are often substantially lower than those of the rich, largely due to the different composition of their

respective consumption patterns. Inherently, therefore, it should make more sense for the incomes of the rich to grow faster than those of the poor, to keep pace with the differential inflation that confronts each group. Lopez and Perry also argue that in an environment with a high equality of opportunities (i.e. a high degree of intergenerational economic mobility), high levels of inequality should provide incentive to be more productive and take risks, both of which theoretically promote growth.

So then, should it matter if a nation's economic distributional dynamics skew toward the rich, as long as the economic "pie" is growing? First of all, the Galor-Zeira argument does not apply to Latin America, a region that has become widely industrialized and thus relies a great deal on accumulation of human, rather than physical, capital. Simply put, Latin America has moved well beyond the early phases of development, and should be in the phases for which theory predicts that equality is more beneficial for accruing human capital and thus for promoting growth. Moreover, while there are legitimate rationales for why inequality need not necessarily be worrisome, persistently high levels of inequality bring with them several possible negative consequences. First, as Ravallion (2005) points out, high inequality presents an obstacle for the poverty-reduction capabilities of economic growth. That is, increasing inequality decreases the marginal ability for additional income to trickle down to the poor as their distance from the wealthy increases. In addition, high inequality can limit the poor's ability to emerge from poverty by institutionalizing social immobility and reinforcing differential returns to education, and it can limit growth by engendering higher crime rates and more output volatility (Lopez and Perry, 2008). Finally, high inequality can

perpetuate underdevelopment as a barrier to growth, good institutions, and education (Easterly, 2005).

And indeed it seems that in addition to remaining high, inequality in Latin America has been trending upward. Figure 1 (see next page) maps the Gini coefficient in each of 17 Latin American nations in nine non-overlapping five-year periods, spanning 1961-2005. Though there are many periods for which data were unavailable, one can still infer that Latin American nations grew more unequal in most cases during those 45 years. While Peru challenged this trend, more compelling cases tend upward, some almost monotonically like Argentina, Chile, and Panama.

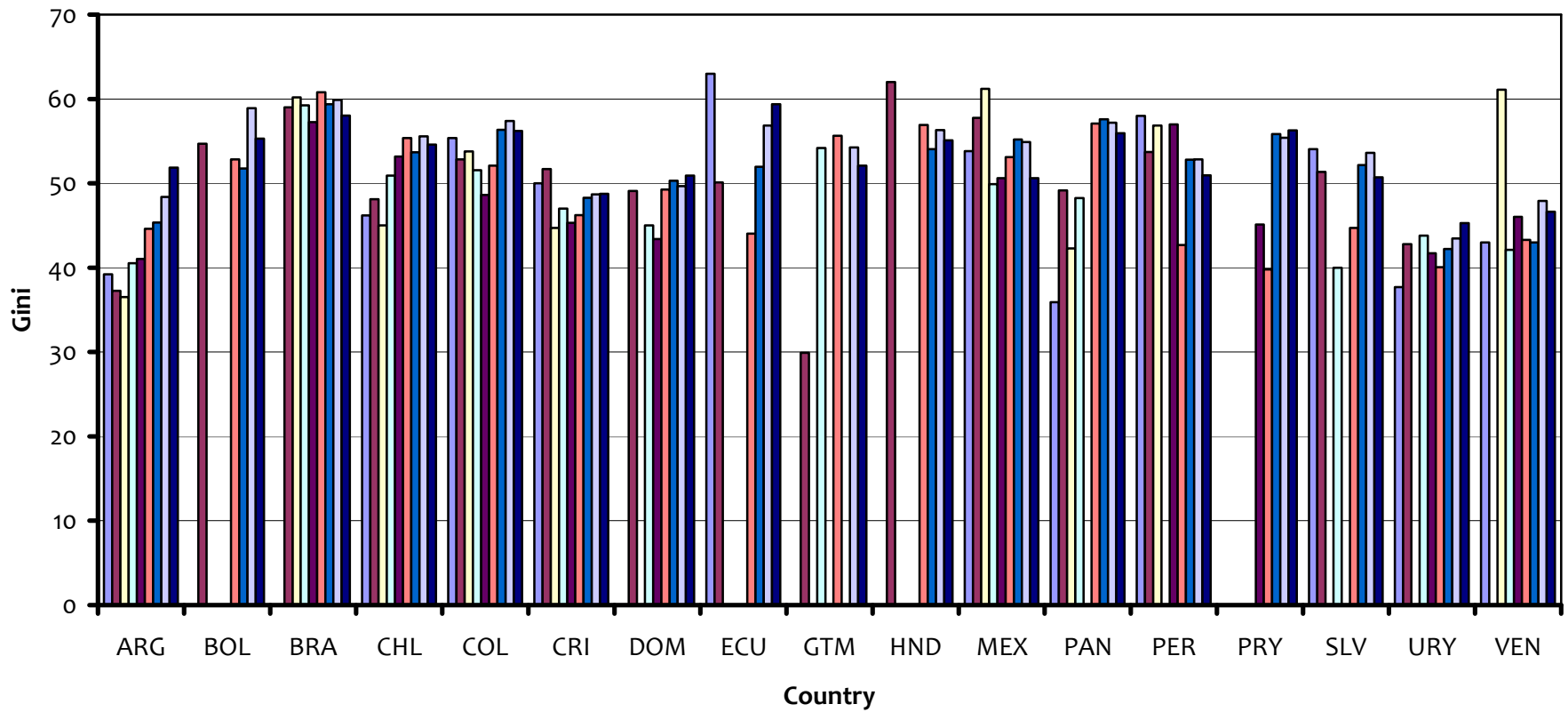
Therefore, if financial liberalization helps to explain this upward trend in Latin American inequality, it may be fair to question the economic reforms recently undertaken in the region. One possibility is that Latin American nations simply lack the institutional integrity to withstand such a free-market shock, which would prevent adequate distribution of the added income. On the other hand, if liberalization has not instigated the region's worsening inequality, it could serve as evidence that liberalizations can flourish even amid relatively poor institutions, and could thereby reinforce the wisdom of the paradigm shift toward liberalization across much of Latin America.

IV. Linking Liberalization and Inequality

I begin the discussion of possible effects of financial liberalization on inequality by exploring the relationship between inequality and economic growth, since growth has improved with increased liberalization as detailed above. J. Humberto Lopez (2006) identifies a link between growth and inequality across the world in the 1990s, whereas

Figure 1

Inequality, 1961-2005



*This figure follows the average Gini coefficient in Latin American nations from 1961 to 2005, in each of nine non-overlapping five-year periods.

none had been evident before then. In the 1990s, Lopez finds that a 1% growth rate implied a 0.3-0.5% increase in Gini coefficient, such that it would have taken 3.7 times the pre-1990 growth rate to achieve the same level of poverty reduction. Lopez cites liberalization, along with technological change and crisis, as a likely explanatory factor for growth accruing less equally in the 1990s.

Arestis and Caner (2004) provide a potential theoretical grounding for this observation, focusing on the effects of growth on poverty. The authors use the Dollar and Kraay (2002a) finding of a one-to-one growth rate between poor incomes and that of overall GDP to assert that growth benefits the poor at least as much as any other group in society. This effect operates both through a direct “trickle-down” growth channel and through an indirect redistributive policy channel. That said, if growth were not accompanied by adequate redistributive policies, then growth in lower income groups would be hindered. Therefore, one might anticipate that since growth does not hurt the poor, and indeed may disproportionately benefit them depending on redistributive strength, growth should act to reduce inequality of incomes within an economy.

Still, Arestis and Caner quite correctly point out that “one would expect the economic and institutional changes brought about by a financial liberalization package to have a more complex effect on the living conditions of the poor than merely through the presumed growth channel” (1). As discussed above, liberalization can be characterized by several types of openness – openness to trade, to foreign markets, and with respect to the current/capital account. As Do and Levchenko (2006) explain, trade openness can produce two conflicting effects on institutions and inequality: the foreign competition effect and the political power effect. The foreign competition effect is generated by

increased competition either from abroad or domestically following trade aperture. This new competition lowers profit margins for all firms, causing them to demand lower fixed costs, which the authors associate with better institutions. The political power effect comes about if only the largest firms can become exporters and grow upon trade opening, causing those firms that do not export to shrink within domestic markets. This divide allows the larger firms to demand higher fixed costs, associated with worse institutions, to decrease competition from domestic firms and accordingly increase their own profits. Which effect is dominant depends on both the relative size of a given economy to its trading partners and the share of world production in a particular rent-bearing good that the exporting economy controls. If the economy is either sufficiently large or captures a small share of world trade in a particular good, then exporting firms are able to grow amid ample foreign competition and demand lower fixed costs and better institutions, causing the foreign competition effect to dominate and fortify institutions. Conversely, if a country is small relative to its trading partners yet captures a sufficiently large share of world trade in a given industry, then there is little foreign competition and large firms are able to grow out of check and accrue political power, causing the political power effect to dominate and deteriorate institutions.

Therefore, it seems that if opening an economy to trade results in an equal distribution of its subsequent growth, then it fosters sound institutions and perpetuates some degree of equality. Otherwise, inequality of firm size can skew institutions to benefit only the largest firms and perpetuate poor a redistributive framework. Melitz (2003) views the unequal outcome as more likely, pointing out that when a country opens to trade, the improved access to foreign markets allows the most productive firms to

export and grow beyond what would have been possible before liberalization, while those that do not export shrink and receive less profit. Consequently, an economy may actually distribute profits *less* equally under free trade than with closed borders. What is more, when trade shifts the distribution in this manner, the institutional ramifications of the political power effect serve consistently to reinforce such inequality over time.

The Melitz finding that only a select few firms can take advantage of exportation leaving domestic firms to wither has potential extensions to capital market liberalization. Between 1991 and 2005, the amount of capital raised in foreign markets grew almost fourfold, a figure comprising about 30% of all capital raised in capital markets. Consistent with the Melitz conclusion, this activity consists of only a small fraction of firms, which tend to be larger, slower-growing, more leveraged, and more profitable than firms that exclusively raise capital domestically. Therefore, those firms that do not access foreign markets likely do not do so because they are not large or profitable enough. That is, most of the differences between firms that internationalize and those that do not exist prior to liberalization. Gozzi, Levine, and Schumkler (2008) find that firms that internationalize tend to expand but at a slower rate and with diminishing profit margins. This would seem to indicate that the firms that are able to access foreign markets do not disproportionately accrue the gains from liberalization, but perhaps the results are different and more consistent with the Melitz finding in Latin America, where equity markets are far more internationalized than debt markets.

Still, equity market liberalizations are associated with large growth increases on an economy-wide level despite slowed growth by firms that opt to internationalize their equity issues (B-H-L). Looking beyond a firm level, how these gains are distributed

among income groups in society goes a long way toward identifying connections between liberalization and inequality. Das and Mohapatra (2003) tackle this question by studying the effects of stock market liberalizations on income inequality in emerging markets. They find that income inequality did indeed increase in the aftermath of equity liberalizations, but not in the manner that one might suspect. Consistent with the finding in Dollar and Kraay (2002a) of a one-for-one relationship between income growth of the poor and of the entire population, Das and Mohapatra find that the income share of the bottom quintile did not experience a discernable change. Instead, the income share of the three middle quintiles decreased by an average of 1.45% and fell in nine of the eleven countries surveyed, while the income share controlled by the top quintile rose by an average of 1.3%, increasing in nine of eleven countries.

This finding, in tandem with the B-H-L finding that liberalizations lead to growth, “indicates that the ‘pie grew’ upon liberalization, but that the generated wealth was disproportionately allocated to the upper tail, suggesting a mean-increasing distributional shift” (Das and Mohapatra, 2003, 5). One reason the authors give for this shift is that equity liberalization reduces the cost of equity capital, leading a nation’s equity price indices to rise and bring about capital gains. Because the wealthy are the most likely to own stock, these capital gains are likely to benefit disproportionately the rich. Additionally, in the presence of credit market imperfections as exist throughout the developing world, the poor, who lack collateral, fall victim to credit rationing and thus increases in entrepreneurial wealth are likely to be explained chiefly by the activities of the rich, who can exploit credit opportunities. Das and Mohapatra further note, “To the extent that members of the upper income quintiles are tightly linked with the domestic

governments, these factors should most strongly impact their income shares post liberalization” (9). In sum, then, Das and Mohapatra illustrate how characteristics common to emerging-market economies, namely differential access to credit markets, limited stock market participation, and political influence of the wealthy, contribute to increasing inequality after stock market liberalization.

Despite the above conclusions that increased inequality is not exclusively or necessarily driven by increases in poverty, it is still reasonable to explore consequences of liberalizations on the poor for possible implications on inequality. Arestis and Caner (2004) explore three channels of influence between financial liberalization and poverty. The first is through economic growth, though the effect depends on the fortitude of distributional mechanisms present during and after liberalization, as discussed above. The second is through crisis, due to the boom-bust patterns that make developing economies more vulnerable to crises, which in turn disproportionately reduce the standard of living for the poor and adversely affect their ability to emerge from poverty. In fact, Lustig (2000) shows that out of 20 Latin American crises, all were followed by increases in poverty, and 15 were followed by increases in Gini. The third channel is access to credit, as liberalization does not serve to eliminate or even reduce credit market imperfections since interest-rate liberalization often places upward pressure on lending rates. Furthermore, liberalizations expand the formal sector at the expense of the informal sector, in which the poorer populations work, which could potentially increase black market premiums paid by market participants over market exchange rates. Arestis and Caner stress the importance of solid institutions in minimizing the negative effects that liberalizations may have on the poor through each of the above channels.

Finally, a prominent consequence of liberalizations is foreign bank penetration. Naturally, the number of foreign banks operating in Latin America as well as their share of banking assets has greatly risen over the past few decades due to relaxed entry barriers. By year-end 2000, foreign financial institutions controlled 38% of loans in major Latin American countries, up from 15% in 1996 (Clarke, Cull, Martinez Peria, and Sánchez, 2003). However, this trend in financial development may exert multiple complex and even competing effects on income inequality. On one hand, one might expect foreign bank presence to improve equality if it acts along the extensive axis by increasing competition, improving stability, and enhancing banking efficiency, which would likely extend credit to previously excluded small borrowers. Beck, Demirgüç-Kunt, and Levine (2007) determine that financial development actually disproportionately benefits the poor, and may thereby reduce inequality by increasing aggregate growth and encouraging distributional shifts in income.

Conversely, financial development may exacerbate inequality if it operates solely along the intensive axis by improving credit only to those who already had access. Since the increased competition brought upon by foreign bank presence reduces profit margins, monitoring capabilities may be adversely affected. In such a case, banks will reign in lending to opaque small borrowers in favor of large borrowers who can be more easily screened and monitored. The increased lending to large borrowers may still produce net-positive results on an economy-wide scale, but small- and medium-sized enterprises (SMEs), which account for the bulk of employment in developing countries, would suffer and the income gap would widen accordingly (Clarke, Cull, and Martinez, 2001).

In sum, financial liberalizations bring about trade openness, capital market openness, economic growth, increased vulnerability to crisis, and foreign bank penetration. Each of these consequences of liberalization has implications for inequality that are potentially numerous and conflicting. In the next section, I describe the methodology and data used to determine which effects have dominated in Latin America’s experience with financial liberalization.

V. Methodology and Data

A. Methods

This study follows Beck, Demirgüç-Kunt, and Levine (2007) (“B-D-L”) in adopting the methodologies used in the growth literature as a template in transitioning from effects on economic growth to effects on inequality. In the case of B-D-L, however, the variable of interest is financial development (i.e. private credit as a share of GDP), as opposed to financial liberalization. In turn, B-D-L base their methodology in studies that relate financial development to growth, such as Beck and Levine (2005), Beck et al. (2003), Easterly and Levine (2003), and Levine (2006). Similarly, I base my methodology on past work relating financial liberalization to post-reform growth.

The regressions in this study build on the following equation:

$$GrowthInGini_{i,t-1,t} = \beta_o + \gamma'X_{i,t} + \alpha Lib_{i,t} + u_{i,t} \quad (1)$$

where $GrowthInGini_{i,t-1,t}$ is the change in income inequality observed in country i between periods $t-1$ and t , β_o is the regression constant, $X_{i,t}$ is a vector of control variables measured in country i in period t , $Lib_{i,t}$ is one of four possible liberalization scores assigned to a country i in period t , and $u_{i,t}$ is the error term. Here, the coefficient of

interest is α , which measures the correlation between a given measure of liberalization and changes in income inequality. I analyze the nature of this relationship using cross-sectional (pooled OLS), panel (OLS with fixed effects, GLS with random effects), and dynamic panel (Arellano-Bond GMM) regression based on equation (1), imposing more and stronger assumptions at each step.

My first tests mimic the B-H-L specifications that utilize cross-sectional data, substituting income inequality for economic growth as the dependent variable⁴. This first battery of tests is a bare-bones attempt to establish a baseline correlation between the liberalization measures and changes in inequality. As such, the only terms of equation (1) that I include are the dependent growth in Gini variable and the independent liberalization measure. These estimations utilize pooled ordinary least squares (OLS)⁵ regression on cross-sectional data with standard errors that are robust to heteroskedasticity.

Upon establishing expected relationships between each respective liberalization measure and inequality, I add the $X_{i,t}$ vector to control for steady-state economic environment. I also include a parameter for initial Gini (i.e. the Gini figure reported nearest to 1960 in each country). This variable is included not only as this study's parallel to B-H-L's inclusion of initial GDP per capita in growth regressions, but additionally to test the conclusion found in B-D-L that countries with higher initial Gini coefficients

⁴ Alternate specifications of all tests used the level of the Gini coefficient, rather than its growth, as the dependent variable. However, those results are not reported, as the results are largely similar but less reliable and precise (lower R^2 and higher root mean squared error) than specifications that use Gini growth.

⁵ An OLS estimator $\hat{\beta}$ minimizes the sum of squared deviations of the sample. That is, if $Y_i = \beta X_i + u_i$, then $\hat{\beta}$ is the value of β that minimizes $\sum_{i=1}^n u_i^2 = \sum_{i=1}^n (Y_i - \beta X_i)^2$. When this condition is met, $\hat{\beta}$ is an efficient estimator because it has the lowest sample variance of any possible estimator.

experience more rapid decreases in inequality. Moreover, Ravallion (2005) argues that the effectiveness of economic growth in reducing poverty depends to a large extent on initial levels of inequality. Of course, decreasing poverty does not *necessarily* imply decreasing inequality (for example, the upper income group could begin to capture large portions of what formerly belonged to the middle class), but it is a fair starting point and is therefore of economic significance.

What is more, an existing body of literature questions the merits of liberalization. Chief among them, Rodrik (1999), Das and Mohapatra (2003), Arestis and Caner (2004), Do and Levchenko (2006), and E-L-M discuss the possible importance of institutional environment in determining the efficacy of a liberalization. Whether concentrating on inequality or poverty in the aftermath of liberalizations, these studies present the possibility that the equitability with which economies grow upon liberalizing is dependent in large part on institutions. In their study, Das and Mohapatra (2003) include an interaction term between liberalization and institutions on the basis that “the efficacy of such liberalizing policies might depend on the perceived and actual stability of the government and other legal institutions” (14). Accordingly, I add an interaction term, $Lib*Institutions_{i,t}$, to the cross-sectional specification that also includes $X_{i,t}$.

However, cross-sectional regressions are only useful to a certain point. Many of the effects observed in regressions that use solely cross-sectional data (and similarly for strictly time-series data) may be influenced by unobserved characteristics inherent to a particular country and that are time invariant (or by characteristics that change globally over time but do not vary geographically). Stated differently, “Cross-section models [...] are predominantly equilibrium models that generally do not shed light on intertemporal

dependence of events” (Cameron and Trivedi, 2005, 695). An effective method to control for such fixed effects is to use panel data: “Because panel data [...] contain periodically repeated observations of the same subjects, they have a large potential for resolving issues that cross-section models cannot satisfactorily handle” (695). For example, the presence of the aforementioned unobserved effects in a model can lead to inaccurate estimation brought about by omitted variable bias. To account for this, a cross-section construction would have to find some adequate instruments to explain any potential correlation between a regressor and the error term (such instruments thus only influence the dependent variable through their effects on one of the regressors). Finding and quantifying any suitable observable instruments would be difficult at best, and there may be unobservable variables at play that make instrumentation near impossible. Examples of possible omitted variables for the Latin American sample that could bias the estimators are political attitudes, distance from the equator to each nation’s capital, or some unobserved factor that is unique to a particular country over time or in a particular time across countries. Therefore, a panel data model helps to account for these unobserved effects; in my specifications, I employ fixed- and random-effects panel regression.

The fixed-effects panel regression is estimated by OLS with robust standard errors. For these tests, I add to equation (1) two additional parameters, δ_i and τ_t , which represent the country-specific and time fixed effects, respectively, and thus signify the implicit controlling for fixed effects in the panel data model.

Still, even a fixed-effects regression leaves room for critique. Namely, because fixed-effects regression utilizes OLS estimation, it makes no assumption about whether the regression constant β_o is correlated with the error term $u_{i,t}$. However, if one instead

assumes that in fact there is no correlation between β_o and $u_{i,t}$, i.e. $E(\beta_o u_{i,t}) = 0$, then it is safe to conclude that variations in the data are unrelated to characteristics that are static within a particular country or time period, and may thus be considered random. Such random effects are estimated using generalized least squares (GLS)⁶, namely weighted least squares, which augments the error variance matrix to accommodate the possibility of heteroskedasticity. I assess whether the random-effects GLS estimation is more efficient than the fixed-effects OLS correlate by estimating the panel version of equation (1) with each type of effects and time dummies, and running a Hausman test⁷ where applicable.

The next set of panel specifications adds the interaction term between liberalization and institutional quality, similar to how I augmented the baseline cross-sectional test to add an interaction term in the pooled OLS case. Subsequently, I explore the possibility that there are external effects that I have not yet considered. B-H-L suggest that contemporaneous reforms in macroeconomic, financial, and legal environment can help to explain the large growth effect of liberalization that they observed. In the same manner, I too extend my tests to encompass contemporaneous reforms. However, in my case I only control for macroeconomic and financial reforms, excluding legal reforms for reasons outlined below. The final specification that expands on the panel regression structure also emulates B-H-L in controlling for financial crisis.

⁶ In contrast to an OLS estimator that minimizes the sum of squared deviations, a GLS estimator minimizes the sum of squared deviations multiplied by a weighting matrix to make the error variance constant (i.e. homoskedastic). The weighting matrix thus accounts for the fact that the error variance matrix may display heteroskedasticity and/or serial correlation (i.e. that u_t and u_{t+1} are correlated for every t), despite there being no correlation between the constant and the error term.

⁷ The Hausman test, as configured in this study, checks the validity of the null hypothesis that the constant β_o is uncorrelated with the error term $u_{i,t}$. That is, $H_o : E(\beta_o u_{i,t}) = 0$. If the probability that this hypothesis is correct is statistically different from zero (i.e. $p > 0.05$), then the random-effects model provides a more efficient estimator than does the fixed-effects construction.

Because using fixed or random effects helps to avoid omitted variable bias by accounting for unobserved time- or country-invariant factors, both models assume that all regressors are therefore strictly exogenous. That is, both fixed- and random-effects regression bear the assumption that a regressor $X_{i,t}$ is uncorrelated with the error term $u_{i,t}$, or that $E(u_{i,t} | X_{i,t}) = 0$. However, the data may in fact still pose problems of endogeneity, past omitted variable bias, that cause individual regressors to be correlated with variations in the data. Other possible causes of such endogeneity include measurement error, sample selection, and reverse causality. Naturally, there could be errors in measurement present in the data sample used for this study, such as in the course of aggregating data into five-year averages. Furthermore, there is ample opportunity for the selection of the data sample to be questioned; I am investigating an effect of financial liberalization in Latin America, and this brings to light several concerns. For one, the 17 nations represented in the set may not be the optimal permutation of countries in the Latin American region. One could likely make a case for the inclusion of additional countries into the set, and for the removal of others. What is more, this sample provides little in the way of comparative substance, as I do not measure Latin America's reform experience against that of other regions (East Asian economies are frequently used as a basis for comparison such as in Easterly et al. (1996) and Stallings and Studart (2006)). Addressing these concerns is left for future work.

Finally, this study's regression structures have not yet dealt with the possibility that reverse causality has caused endogeneity of regressors. It is conceivable that instead of a regressor exerting a causal effect on the dependent variable, the effect works in the opposite direction or in both directions simultaneously. For instance, until now my model

has assumed that the causality has run from control variables to Gini growth. However, is it not conceivable that changes in the distribution of a nation's income could have some bearing on institutions, government consumption, schooling, life expectancy, etc.? After all, in the case of falling inequality, it could well be the case that the political power effect outlined in Do and Levchenko (2006) would give middle and lower income groups more political clout and thereby realign institutional, fiscal and social priorities. In such a scenario, one would expect to find improved institutions, prolonged lives and academic careers, and some change in government consumption⁸.

To control for the possibility of reverse causality, then, I include a specification that utilizes dynamic panel data and estimates coefficients by generalized method of moments (GMM) regression. GMM tests attempt to remedy not only reverse causality but also other sources of endogeneity, such as Markovian dependence⁹, that often plague panel data: "Panel data provide an excess of moment conditions available for estimation, owing to an abundance of instruments, and panel model errors are usually not [independently and identically distributed]" (Cameron and Trivedi, 2005 (743)). GMM estimations can address these problems by introducing instruments already present in the data, taking advantage of the time series component of the data to generate instruments from lagged values. The availability of so many potential instruments allows for consistent instrumental variable (IV) estimation when the strict-exogeneity criterion fails.

⁸ One might expect a shift in political power to the middle and lower classes to have a different effect on government expenditure, depending upon circumstances and priorities. On one hand, the transition may exert a disciplining effect of reigning in spending as an austerity measure to reduce international debt. On the other hand, the transition could result in increased government spending, as newly represented groups demand more provision of social goods and services.

⁹ Markovian dependence is the condition whereby observations in a time series (which is one component of panel data) are dependent upon previous observations in the short term.

As long as there are more instruments than endogenous regressors (i.e. the model is over-identified), GMM gives a more efficient estimation than pooled OLS or GLS models.

In a frequently cited example, Arellano and Bond (1991) derive a consistent GMM estimator for dynamic panel data by including lagged values of the dependent variable as instruments to control for endogeneity. Their estimator is particularly useful when the number of distinct time series, or number of entities, N , is large and the number of time periods, T , is small. Though my set has a relatively small number of countries ($N=17$), there are still more countries than there are periods ($T=9$). Having this many periods avoids the moment restrictions of a cross-sectional model, and a GMM test such as Arellano-Bond permits the use of these moment conditions. I employ GMM estimation techniques with my data using the Arellano-Bond technique, and run the Sargan test of overidentifying restrictions to assess the validity of the instruments that the Arellano-Bond test generates. I run such GMM tests with a bare dynamic panel structure, with an interaction term included, and controlling for each of contemporaneous macroeconomic reform, financial reform, and financial crisis. I use two lags of the dependent variable in the Arellano-Bond regressions, since each lag represents a 5-year period and therefore two lags display the effects of the entire decade preceding any one period.

B. Data

The data used for this study span 17 nations¹⁰ over the period from 1961-2005. Rather than treat these data as yearly figures, this study mimics E-L-M, B-H-L, and

¹⁰ The included nations are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Uruguay, and Venezuela. Other nations commonly considered within the Latin America & Caribbean region, such as Cuba, Haiti, Jamaica, and Nicaragua are excluded due to data limitations.

Loayza, Olaberria, and Rigolini (2009), in aggregating data into non-overlapping five-year averages. Preparing the data in this manner minimizes the influence of observations that are statistical outliers and of short-run economic fluctuations. Additionally, grouping in this fashion makes a panel more balanced, since there are fewer five-year periods for which no data exist than there are individual years without observations.

As detailed in the introduction, the true extent of financial liberalization consists of an economy's openness with respect to its current account, capital account, and equity or capital markets (Arestis and Caner, 2004). To that effect, this study utilizes four measures of financial liberalization – one that addresses each of current account and current account, and two that address capital markets. Quinn (1997) and Quinn and Toyoda (2008) construct measures of financial current account openness and capital account openness that indicate the extent of the public sector's openness. The Quinn Current Account Openness measure was originally scaled between zero and eight, where zero represents full repression and eight symbolizes total openness, and Quinn Capital Account Openness between zero and four, but Quinn and Toyoda (2008) normalize both to 100-point scales. For purely illustrative purposes, I refine the normalization to award each measure values between zero and one to see correlations more clearly, without altering significance. With respect to capital market liberalization, I use two distinct measures: I use the OEML indicator from B-H-L, and I use Financial Openness from Loayza et al. (2009). Loayza defines this measure as the ratio of equity-based foreign liabilities to GDP, which forms a nice proxy for capital market openness.

The control vector, $\mathbf{X}_{i,t}$, represents variables that approximate long-run steady-state conditions. In this study, the control vector consists of institutional quality, log

government consumption as a share of GDP, secondary school attainment, life expectancy, population growth, and terms-of-trade growth. Descriptions of these variables as well as their sources are detailed in the appendix.

In constructing the contemporaneous reform vectors, I use the same types of variables as in B-H-L¹¹. To control for contemporaneous macroeconomic reform, I include growth of per capita GDP, log average inflation rate, log average black market-foreign exchange premium, and trade openness. For contemporaneous financial reform, I include financial development and stock market turnover. However, since I already include an International Country Risk Guide (“ICRG”) institutional quality parameter that considers changes in legal infrastructure (e.g. rule of law) in the control vector, I abstain from mimicking B-H-L’s regression that controls for legal reform. Finally, to examine the effect of financial crisis on inequality, I use a measure from Loayza et al. (2009) that reports the number of years (within each period) a country spent in crisis.

VI. Results

To begin the analysis of the results, it will first be useful to establish baseline relationships between the different liberalization scores used in this study and income inequality, as measured by Gini coefficient. As illustrated in Figure 2 (see p. 31), there is no clear relationship between the Quinn Current Account and Capital Account Openness scores and Gini coefficient, and the Bekaert-Harvey (2002) Official Equity Market Liberalization measure seems unreliable as it is nearly binary¹².

¹¹ While many variables are defined the same way, sources are usually differ from those in B-H-L either due to inaccessibility of data or to the ability to form a more balanced panel.

¹² The only reason that the OEML measure is *not* strictly binary (i.e. contains values between zero and one) is because its values are averages of binary OEML scores over five-year spans.

Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Current Account Openness	136	.6585478	.2282416	.225	1
Capital Account Openness	136	.6729779	.2531296	.2	1
Financial Openness	136	.180434	.1457262	.0262704	.763437
OEML	153	.1568627	.3538816	0	1
Growth in Gini	97	.0102953	.1038968	-.3106383	.4032663
Initial Gini	153	51.63529	6.998322	38.8	64
Institutional Quality	122	5.697869	1.010624	3.1	7.5
Govt. Consumption (L)	153	.8562149	.1302928	.378396	1.10713
Secondary Schooling	153	.9741242	.5410776	.131	2.22
Life Expectancy	153	65.40988	7.332764	43.44854	78.32851
Population Growth	153	2.181548	.7204551	.0295197	3.643971
Terms of Trade Growth	153	.2606886	5.022979	-15.75584	33.95295
Growth	153	1.544184	2.312982	-4.246473	7.719649
Inflation (L)	153	.1891827	.2309975	-.0047207	1.215658
Black Market Premium (L)	124	.1997134	.2325356	-.0563587	1.607416
Trade Openness	153	3.676337	.6637723	2.023854	4.922977
Private Credit	153	3.181634	.5640692	1.011163	4.513853
Equity Turnover	153	.0656765	.140346	0	.8512479
Years in Crisis	153	.0209729	.0476342	0	.1823216

*(L) indicates a logarithmic variable

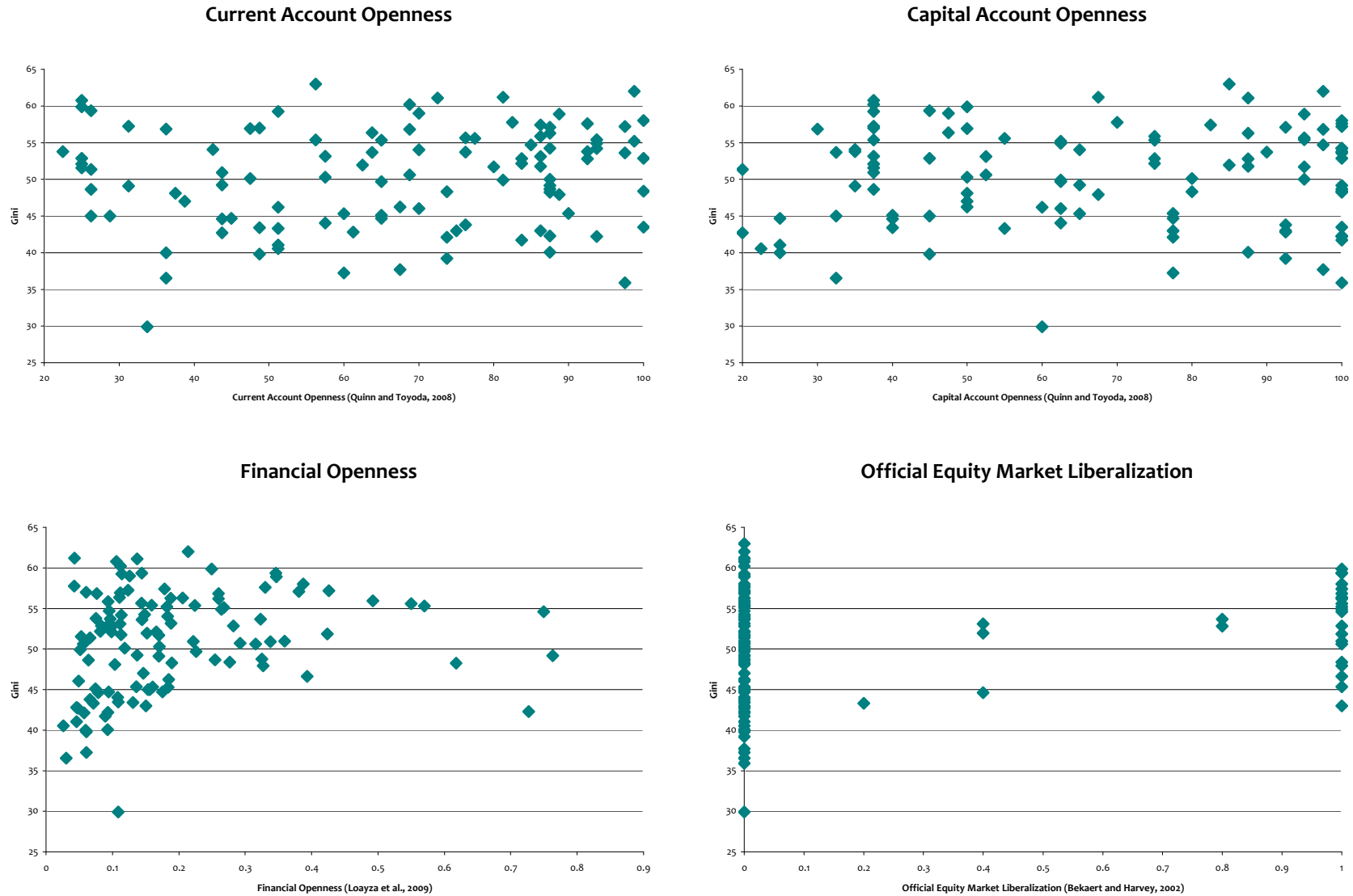
However, Gini seems to increase nonlinearly with the Loayza et al. (2009) measure of Financial Openness, which is the ratio of equity-based foreign liabilities to GDP. So while there is not much to infer about changes in Gini brought on by three of the measures, one should expect the Loayza measure to be associated with positive Gini growth (increasing inequality).

The results expressed in Table 1 confirm these trends. These pooled cross-sectional OLS tests regress Gini growth on each of the four liberalization scores, without any further controls. All four are positively related to the Gini growth rate, and the greatest effect is associated with Financial Openness. However, none of the reported values bears any statistical significance, even at the 10% level¹³.

Table 2 contains the results of the regressions in which I modify the first set by adding the control vector to explain more of the variation in Gini growth. No variables of

¹³ A coefficient is significant at 10% if $p \leq 0.10$, at 5% if $p \leq 0.05$, and at 1% if $p \leq 0.01$.

Figure 2



*This figure illustrates basic relationships between each liberalization measure and income inequality (Gini coefficient)

interest attain significance in these tests. Interestingly, including the control vector causes the Financial Openness score to assume a negative, if insignificant, correlation with Gini growth. The other scores retain positively valued coefficients but are still statistically insignificant.

Table 3 represents the set of pooled OLS tests with the addition of an interaction term between liberalization and institutional quality. The results of the test involving Financial Openness are the most significant. The Financial Openness term and the interaction term come in highly significantly, but since they differ in sign, the net effect of liberalization (as measured by Financial Openness) depends very much on the quality of institutions. That is, a one standard deviation improvement in institutions in the presence of liberalization is associated with *decrease* in Gini growth by about 17% of a standard deviation. Therefore, if there were an improvement from the weakest institutional rating in the sample (3.1, observed in Peru) to the strongest (7.5, observed in Chile), liberalization would be associated with a decrease in Gini growth by more than 76% of a standard deviation. Notably, liberalization is correlated with increasing inequality until institutions are sufficiently strong (6.32) to outweigh the opposite effect of liberalization; many countries in the sample lack that necessary level of institutional integrity. The link between initial Gini coefficient and Gini growth was negligible in Tables 2 and 3, contrary to the expectation set forth in B-D-L.

Tables 4 through 13 report the results of the regressions that use panel data rather than pooled cross-sections. These ten tables represent five pairs of tests, with each test estimated twice – once using OLS for fixed effects and once using GLS for random effects. The Hausman test for estimator efficiency consistently returned p -values near 1.0

(values ranged between 0.8234 and 1.0000), with few exceptions¹⁴. This means that there is no statistical difference between estimates obtained under fixed-effects regression and random-effects regression, indicating that the random effects GLS tests are preferable due to their increased efficiency over OLS tests. As a consequence, I will only devote attention to the GLS panel results.

Table 5 reports results of a panel regression using the same variables as in Table 2, but excluding the initial Gini term. The results are largely the same, and Financial Openness retains its positive coefficient but does not enter significantly. Table 7 adds the interaction term to the panel specification, and as in Table 3, the added term is negative and highly significant, and it enhances the significance of the Financial Openness term. In this case, an improvement in institutions by one standard deviation during liberalization is associated with a decrease in Gini growth by around 11% of a standard deviation. This test shows that improving from the worst to the best institutional ratings amid liberalization would be associated with a decrease in Gini growth by around 73% of a standard deviation. Again, institutions must be sufficiently strong (6.83) for liberalization not to exacerbate inequality, and few nations in the sample possess such sound institutions in recent observations.

In Tables 9, 11, and 13, I control for contemporaneous macroeconomic reform, contemporaneous financial sector reform, and the prevalence of financial crises, respectively. While Financial Openness comes in positive in each case, none of the liberalization measures enters significantly in any of the three tables, nor do the added reform terms. Most of these added terms (inflation, black market premium, trade openness, private credit, and equity turnover) enter negatively, indicating that

¹⁴ The only exceptional cases were two tests in which the Hausman test could not be performed.

macroeconomic and financial reform measures act as redistributive mechanisms. Interestingly, however, growth has a positive coefficient, which could signal a lacking or worsening redistributive framework in light of the Arestis-Caner (2004) argument that economic growth might negatively affect the poor. It is also noteworthy that the coefficient associated with financial crisis is negative – this would indicate that crisis disproportionately afflicts the *wealthy*, which goes the Arestis-Caner claim that liberalization makes economies more vulnerable to crises that disproportionately affect the poor. Still, the fact that none of these added terms is shown to be significant is not surprising when considering that these terms were introduced in B-H-L to further explain and in fact diminish the unrealistically large and significant effect they observed from their liberalization measures. In this instance, there are not similarly large effects from the liberalization measures (in the absence of an interaction term), so there should be less concern about matters such as omitted variable bias.

Once I allow for the possibility of endogeneity, I shift to a dynamic panel data construction using the Arellano-Bond GMM estimation technique (detailed above), the results of which are presented in Tables 14 through 18. Again, I focus on the specifications that include Financial Openness, since these tests are the most illustrative. In Table 14, where I conduct Arellano-Bond regression of Gini growth on the control vector and the liberalization term, I find a negative and highly significant correlation between Financial Openness and Gini growth. Here, the lagged values of Gini growth enter negatively and highly significantly (the first lag is significant at 1%, the second at 5%), which seems to confirm that the dependent variables in the panel are highly serially correlated.

Despite this negative coefficient observed on Financial Openness, adding the interaction term between liberalization and institutions yet again reverses the sign (see Table 15). The interaction term and both lags of Gini growth enter negatively and very significantly (at the 1% level). In this specification, a one standard deviation improvement in institutions amid liberalization (through Financial Openness) is linked with a decrease in Gini growth of around 17% of a standard deviation. Going from the worst to the best institutions would therefore dissipate Gini growth by nearly 73% of a standard deviation. Once again, institutions must be sufficiently strong (5.47) in order for liberalization not to increase inequality, though most nations in the sample have attained this level of institutions in the most recent observations.

In Table 16, it seems that the additional parameters used to control for contemporaneous macroeconomic reform may be powerful enough to help explain much of the effect of Financial Openness on Gini growth, even though they do not enter significantly themselves. The added financial reform and crisis parameters in Tables 17 and 18, respectively, do not diminish the effects of Financial Openness, however. In all Arellano-Bond tests, the instruments passed the Sargan test for overidentifying restrictions, meaning that the generated and included instruments were valid as were the regressions.

Surprisingly, the specification involving the interaction term was the only GMM test in which Financial Openness entered positively. The other tests may suffer from omitted variable bias, in the sense that no other term captures the equalizing capabilities of liberalization, which is then attributed to the liberalization score. Still, the panel regressions did not manifest a similar trend (the test that controls for macroeconomic

reform is the only panel specification in which Financial Openness has a negative relationship with Gini growth; all others have positive coefficients).

However, it is critical to note that due to the introduction of the lagged values under the GMM assumption of Markovian dependence, the Arellano-Bond specifications utilize a fundamentally different sample than did the pooled OLS and panel specifications, as the first two reported periods in each country are necessarily discarded for lack of sufficient lags. Still, running random effects panel tests on the restricted sample used in the GMM specification failed to change the sign or significance of Financial Openness when compared to the full panel sample, indicating that any differences in reported results from panel tests to Arellano-Bond tests are a consequence of the changed methodology, not of the changed sample.

In sum, my tests illustrate an ambiguous relationship between financial liberalization and income inequality. While pooled OLS and panel tests seem to indicate that financial liberalization increases inequality, the variables of interest appear to reduce inequality with the addition of more assumptions in the Arellano-Bond GMM specifications. This finding is robust to controlling for contemporaneous financial reform and the presence of financial crisis, but not necessarily to the inclusion of variables that proxy for contemporaneous macroeconomic reform. The most interesting and significant results come when I include an interaction term between financial liberalization and institutional quality, and such specifications accommodate the possibility that liberalization can either exacerbate or ameliorate income inequality, depending on the quality of institutions in place at the time of liberalization.

As a point of qualification, the only liberalization measure shown to have much of a statistically significant link with inequality is the Loayza et al. (2009) Financial Openness measure. The Quinn-Toyoda (2008) and Bekaert-Harvey (2002) scores still tended to have positive coefficients but rarely, if ever, entered significantly. This finding is notable because the measures of current account and capital account openness are more governmental and public in nature, whereas the Financial Openness measure deals with privately issued and held equity and deals more intimately with the private sector. As such, it is fitting that the measure that better accounts for private activities be the most compelling measure in its ties to a social indicator, in this case income inequality.

VII. Conclusion

My conclusions support the aforementioned body of work that is careful to point out the importance of sound institutions during liberalization, as poor institutions not only limit post-liberalization growth but are also associated with poor distribution of growing income among members of society. It thus appears that only with satisfactory redistributive institutions can a Latin American nation decrease inequality in the course of liberalization.

Of course, shrinking the income gap is unlikely to be the chief priority for a government considering the adoption of financial liberalization measures. Policymakers may indeed be more concerned with the aggregate economic effects such as growth, and existing literature shows a positive link between liberalization and growth (though much of this data comes from nations with better institutions than most of Latin America). It may also be the case that governments consider losses in standard of living brought about

during internationalization to be temporary. In such a case, gains from liberalization may take several years to trickle down to the middle and lower classes, if liberalization fortifies institutions in order to facilitate such distribution.

In looking beyond only the growth experiences associated with liberalization, one uncovers problems in the distribution of this added wealth in Latin America. Therefore, the interplay between liberalization and institutions indicates that a nation should have its house in order, so to speak, before adopting sweeping liberalization measures: “Although financial repression is not desirable, its alternative is not traditional liberalization. When financial liberalization is applied without first maintaining macroeconomic stability and establishing the supporting institutions and policies, even when it brings economic expansion, it often comes at the cost of devastating crises and increasing economic inequality” (Arestis and Caner, 2004, 23).

In the absence of the necessary institutions, much of Latin America has seen the income gap widen in recent years. One attribute of financial liberalization that may contribute to this trend is the differential ability for firms and individuals to access international markets. If the Melitz (2003) argument regarding trade openness extends further, namely into capital markets, then the past decades in Latin America may have seen its growth derived only from a small elite share of its firms and populations. It is also possible that foreign bank penetration has not acted to remedy credit market imperfections that ration credit to small borrowers, while improving credit to large borrowers. On one hand, these effects can be viewed as a reward system for talented economic actors (whether individuals or firms) who are able to reap benefits from global markets. Yet even if this were the case, the recent trend is perturbing on a theoretical

level; inequality can hinder growth by increasing poverty, which is linked with crime and less education and thereby prevents a society from realizing its maximum productivity. So while it is certainly possible for an economy to grow amid high inequality, its growth will likely lag behind what it would achieve under more equality. High inequality also perpetuates unhealthy economic cycles and encourages sustained poverty by reducing access to educational and occupational opportunities necessary to emerge from poverty. Finally, high inequality fosters poor institutions by allowing the wealthy to gain disproportionate access to political power and distort practices in their own favor to capture the highest profits. Future studies can examine more closely the relationships between recent changes in income distribution and access to domestic and international capital markets and banks. Furthermore, studies may wish to explore the role of crisis in income distribution in the broader context of liberalization; while crises have not ceased in Latin America in the past few decades, they certainly have not grown in frequency or severity, which may entail greater stability and stronger distributional infrastructures.

Despite the increased inequality in the region, it would be hasty to conclude that the emergent New Left in Latin America, led by Venezuela and Bolivia, is correct in reviving the *dependencia* tactic of economic isolation from the developed world. On the contrary, when executed under the proper institutional conditions, financial liberalization can still be both growth-promoting *and* equalizing. Brazil is a shining example of this potential, as are its recently reformed East Asian counterparts, as it has enjoyed gains from internationalization in terms of aggregate growth but has simultaneously experienced diminishing inequality. This combination is likely attributable to its adequate (though not superb) institutional ratings and high levels of financial development, and is

conducive to long-term economic health and holistic development. In contrast, the leaders of the New Left, namely Hugo Chávez in Venezuela and Evo Morales in Bolivia, head populist governments that draw upon long legacies of inequality and poverty for large bases of support that hope for more equity. However, it appears difficult to achieve economic health by aiming for equity without seeking the growth from participation in a globalized economy. Nor can prosperity be maintained by internationalizing without first securing a solid institutional and redistributive groundwork.

Though earlier incarnations of *dependencia* were disproved when ISI failed, the recent reopening of economic pathways between Latin America and the developed world has not been entirely positive. Income inequality, which is a large determinant of standard of living, has mostly fallen since Latin America increased its integration into the international economy. Even so, the cause is more likely the weak institutions that characterize the region than the international economic interactions themselves.

In addition to examining more specifically the relationships between international finance and inequality, future studies could explore further instrumentation between variables used to explain the variations in Gini growth. Particularly owing to the wealth of liberalization-growth literature, it is reasonable to expect that many factors, including those used in this study, may have influenced inequality only through their effects on growth. It may also be beneficial to explore other ancillary effects of liberalization, such as poverty, employment, remittances, etc. Finally, comparative studies of liberalization and inequality in different global regions, namely East Asia, might indicate whether Latin America's experiences with internationalization have more to do with the nature of its reforms or with factors endemic to the region.

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Table 1

Pooled OLS regression using cross-sectional data, no control vector

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	-0.031 (0.028)	-0.018 (0.031)	-0.000 (0.022)	0.005 (0.013)
Current Acct. Openness	0.070 (0.046)			
Capital Acct. Openness		0.051 (0.051)		
Financial Openness			0.071 (0.099)	
Official Equity Market Liberalization				0.022 (0.019)
Observations	80	80	95	97
R-squared	0.02	0.01	0.01	0.01

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2

Pooled OLS regression using cross-sectional data

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	-0.051 (0.235)	-0.043 (0.231)	0.013 (0.192)	0.054 (0.204)
Initial Gini	0.002 (0.003)	0.002 (0.003)	0.001 (0.002)	0.000 (0.002)
Institutional Quality	0.007 (0.016)	0.010 (0.015)	0.005 (0.013)	0.004 (0.013)
Govt. Consumption	-0.189 (0.117)	-0.192 (0.118)	-0.173 (0.095)*	-0.183 (0.099)*
Secondary Schooling	0.018 (0.046)	0.020 (0.047)	0.028 (0.036)	0.025 (0.037)
Life Expectancy	0.002 (0.003)	0.002 (0.003)	0.001 (0.002)	0.001 (0.003)
Population Growth	-0.030 (0.034)	-0.030 (0.034)	-0.015 (0.028)	-0.013 (0.028)
Terms of Trade Growth	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Current Acct. Openness	0.030 (0.051)			
Capital Acct. Openness		0.011 (0.058)		
Financial Openness			-0.029 (0.100)	
Official Equity Market Liberalization				0.007 (0.025)
Observations	74	74	91	91
R-squared	0.14	0.14	0.11	0.11

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3

Pooled OLS using cross-sectional data with interaction term

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	-0.076 (0.285)	-0.024 (0.282)	-0.084 (0.187)	0.083 (0.213)
Initial Gini	0.002 (0.003)	0.002 (0.003)	0.000 (0.002)	0.000 (0.002)
Institutional Quality	0.013 (0.030)	0.007 (0.031)	0.032 (0.019)*	0.012 (0.015)
Govt. Consumption	-0.187 (0.119)	-0.194 (0.120)	-0.192 (0.096)**	-0.198 (0.104)*
Secondary Schooling	0.019 (0.046)	0.020 (0.046)	0.036 (0.036)	0.034 (0.037)
Life Expectancy	0.002 (0.003)	0.002 (0.003)	0.000 (0.003)	-0.000 (0.003)
Population Growth	-0.030 (0.034)	-0.030 (0.034)	-0.013 (0.027)	-0.015 (0.028)
Terms of Trade Growth	-0.002 (0.003)	-0.001 (0.003)	-0.003 (0.003)	-0.003 (0.003)
Current Acct. Openness	0.080 (0.219)			
Capital Acct. Openness		-0.022 (0.306)		
Financial Openness			1.094 (0.505)**	
Official Equity Market Liberalization				0.205 (0.122)*
Liberalization*Institutions	-0.009 (0.039)	0.006 (0.047)	-0.173 (0.073)**	-0.033 (0.019)*
Observations	74	74	91	91
R-squared	0.14	0.14	0.17	0.12

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4
 OLS regression using panel data with fixed effects

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.042 (1.014)	1.041 (1.056)	1.062 (0.827)	0.978 (0.808)
Institutional Quality	0.002 (0.026)	0.003 (0.025)	0.004 (0.023)	0.005 (0.022)
Govt. Consumption	-0.280 (0.130)**	-0.299 (0.130)**	-0.231 (0.111)*	-0.226 (0.112)*
Secondary Schooling	0.010 (0.094)	0.017 (0.089)	0.016 (0.075)	0.007 (0.065)
Life Expectancy	-0.009 (0.014)	-0.009 (0.014)	-0.013 (0.012)	-0.011 (0.012)
Population Growth	-0.103 (0.078)	-0.099 (0.079)	-0.074 (0.071)	-0.078 (0.077)
Terms of Trade Growth	-0.000 (0.004)	0.000 (0.004)	-0.001 (0.004)	-0.001 (0.004)
Current Acct. Openness	0.073 (0.079)			
Capital Acct. Openness		0.066 (0.113)		
Financial Openness			0.066 (0.160)	
Official Equity Market Liberalization				-0.008 (0.052)
Observations	74	74	91	91
Countries	16	16	17	17
R-squared	0.21	0.21	0.20	0.20

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5
GLS regression using panel data with random effects

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	0.218 (0.168)	0.219 (0.168)	0.138 (0.152)	0.162 (0.136)
Institutional Quality	0.005 (0.014)	0.006 (0.012)	-0.002 (0.010)	-0.002 (0.009)
Govt. Consumption	-0.165 (0.090)*	-0.165 (0.086)*	-0.160 (0.076)**	-0.145 (0.067)**
Secondary Schooling	0.012 (0.027)	0.012 (0.027)	0.011 (0.022)	0.016 (0.022)
Life Expectancy	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)	0.000 (0.001)
Population Growth	-0.024 (0.025)	-0.024 (0.025)	-0.022 (0.020)	-0.020 (0.021)
Terms of Trade Growth	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Current Acct. Openness	0.005 (0.045)			
Capital Acct. Openness		0.000 (0.063)		
Financial Openness			0.048 (0.064)	
Official Equity Market Liberalization				-0.009 (0.024)
Observations	74	74	91	91
Countries	16	16	17	17

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6

OLS using panel data with fixed effects and interaction term

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.013 (0.961)	0.969 (1.008)	0.418 (0.805)	0.823 (0.775)
Institutional Quality	0.042 (0.047)	0.029 (0.056)	0.038 (0.030)	0.020 (0.026)
Govt. Consumption	-0.295 (0.128)**	-0.320 (0.127)**	-0.320 (0.114)**	-0.271 (0.119)**
Secondary Schooling	0.043 (0.110)	0.041 (0.099)	0.014 (0.079)	0.042 (0.068)
Life Expectancy	-0.012 (0.012)	-0.011 (0.014)	-0.006 (0.012)	-0.010 (0.011)
Population Growth	-0.093 (0.078)	-0.090 (0.085)	-0.035 (0.063)	-0.062 (0.069)
Terms of Trade Growth	-0.000 (0.004)	-0.000 (0.004)	-0.002 (0.004)	-0.000 (0.004)
Current Acct. Openness	0.413 (0.354)			
Capital Acct. Openness		0.339 (0.549)		
Financial Openness			1.531 (0.678)**	
Official Equity Market Liberalization				0.308 (0.239)
Liberalization*Institutions	-0.066 (0.071)	-0.049 (0.098)	-0.234 (0.105)**	-0.051 (0.039)
Observations	74	74	91	91
Countries	16	16	17	17
R-squared	0.22	0.21	0.28	0.22

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7

GLS using panel data with random effects and interaction term

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	0.197 (0.199)	0.220 (0.238)	-0.028 (0.167)	0.168 (0.143)
Institutional Quality	0.010 (0.034)	0.006 (0.032)	0.027 (0.021)	0.006 (0.018)
Govt. Consumption	-0.164 (0.090)*	-0.165 (0.086)*	-0.190 (0.082)**	-0.164 (0.078)**
Secondary Schooling	0.013 (0.027)	0.012 (0.026)	0.020 (0.020)	0.023 (0.021)
Life Expectancy	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)	-0.000 (0.002)
Population Growth	-0.024 (0.026)	-0.024 (0.026)	-0.024 (0.023)	-0.023 (0.024)
Terms of Trade Growth	-0.002 (0.003)	-0.002 (0.003)	-0.003 (0.003)	-0.002 (0.003)
Current Acct. Openness	0.049 (0.249)			
Capital Acct. Openness		-0.003 (0.342)		
Financial Openness			1.133 (0.519)**	
Official Equity Market Liberalization				0.130 (0.184)
Liberalization*Institutions	-0.008 (0.046)	0.001 (0.053)	-0.166 (0.079)**	-0.022 (0.029)
Observations	74	74	91	91
Countries	16	16	17	17

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8

OLS using panel data with fixed effects, controlling for macroeconomic reform

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	3.055 (1.401)**	2.904 (1.376)*	2.631 (1.209)**	2.772 (1.239)**
Institutional Quality	0.005 (0.035)	0.004 (0.039)	0.001 (0.035)	-0.001 (0.032)
Govt. Consumption	-0.235 (0.117)*	-0.228 (0.103)**	-0.278 (0.139)*	-0.204 (0.122)
Secondary Schooling	0.188 (0.126)	0.167 (0.121)	0.146 (0.116)	0.153 (0.115)
Life Expectancy	-0.035 (0.016)**	-0.033 (0.015)**	-0.028 (0.013)*	-0.030 (0.013)**
Population Growth	-0.083 (0.076)	-0.088 (0.078)	-0.095 (0.076)	-0.106 (0.080)
Terms of Trade Growth	-0.003 (0.004)	-0.003 (0.004)	-0.002 (0.005)	-0.002 (0.005)
Growth	-0.004 (0.007)	-0.005 (0.007)	-0.004 (0.007)	-0.006 (0.007)
Inflation	-0.020 (0.084)	-0.023 (0.088)	-0.028 (0.091)	-0.039 (0.090)
Black Market Premium	-0.221 (0.102)**	-0.198 (0.085)**	-0.188 (0.105)*	-0.198 (0.099)*
Trade Openness	-0.101 (0.125)	-0.101 (0.129)	-0.072 (0.124)	-0.089 (0.125)
Current Acct. Openness	-0.086 (0.103)			
Capital Acct. Openness		-0.043 (0.132)		
Financial Openness			-0.233 (0.307)	
Official Equity Market Liberalization				-0.070 (0.050)
Observations	70	70	70	70
Countries	15	15	15	15
R-squared	0.30	0.29	0.30	0.31

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9

GLS using panel data with random effects, controlling for macroeconomic reform

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	0.255 (0.157)	0.199 (0.172)	0.179 (0.161)	0.155 (0.142)
Institutional Quality	0.004 (0.023)	0.002 (0.022)	0.000 (0.021)	-0.004 (0.019)
Govt. Consumption	-0.177 (0.116)	-0.166 (0.104)	-0.173 (0.110)	-0.168 (0.109)
Secondary Schooling	0.034 (0.036)	0.031 (0.036)	0.032 (0.037)	0.042 (0.039)
Life Expectancy	-0.001 (0.002)	-0.001 (0.003)	-0.001 (0.002)	-0.000 (0.002)
Population Growth	-0.015 (0.031)	-0.017 (0.029)	-0.014 (0.031)	-0.008 (0.032)
Terms of Trade Growth	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)
Growth	0.002 (0.006)	0.001 (0.006)	0.002 (0.006)	0.002 (0.006)
Inflation	0.001 (0.080)	-0.003 (0.077)	-0.000 (0.084)	-0.007 (0.081)
Black Market Premium	-0.078 (0.068)	-0.076 (0.061)	-0.069 (0.068)	-0.075 (0.066)
Trade Openness	-0.003 (0.027)	-0.002 (0.027)	-0.005 (0.033)	-0.013 (0.028)
Current Acct. Openness	-0.030 (0.049)			
Capital Acct. Openness		-0.028 (0.068)		
Financial Openness			0.006 (0.141)	
Official Equity Market Liberalization				-0.031 (0.035)
Observations	70	70	70	70
Countries	15	15	15	15

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 10

OLS using panel data with fixed effects, controlling for financial reform

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.356 (0.964)	1.345 (1.001)	1.247 (0.798)	1.145 (0.770)
Institutional Quality	0.005 (0.026)	0.003 (0.025)	0.005 (0.023)	0.006 (0.022)
Govt. Consumption	-0.288 (0.145)*	-0.306 (0.148)*	-0.236 (0.112)*	-0.232 (0.110)*
Secondary Schooling	-0.020 (0.084)	-0.017 (0.079)	-0.011 (0.068)	-0.020 (0.060)
Life Expectancy	-0.012 (0.013)	-0.012 (0.014)	-0.015 (0.011)	-0.013 (0.011)
Population Growth	-0.136 (0.086)	-0.133 (0.086)	-0.097 (0.077)	-0.100 (0.082)
Terms of Trade Growth	-0.000 (0.004)	0.000 (0.004)	-0.001 (0.004)	-0.001 (0.004)
Private Credit	0.006 (0.036)	0.007 (0.037)	0.003 (0.024)	0.002 (0.023)
Equity Turnover	-0.126 (0.150)	-0.135 (0.147)	-0.113 (0.121)	-0.108 (0.117)
Current Acct. Openness	0.048 (0.091)			
Capital Acct. Openness		0.059 (0.118)		
Financial Openness			0.077 (0.166)	
Official Equity Market Liberalization				-0.006 (0.052)
Observations	74	74	91	91
Countries	16	16	17	17
R-squared	0.22	0.22	0.21	0.21

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 11

GLS using panel data with random effects, controlling for financial reform

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	0.236 (0.220)	0.238 (0.227)	0.182 (0.201)	0.180 (0.169)
Institutional Quality	0.006 (0.016)	0.006 (0.013)	-0.002 (0.010)	-0.001 (0.009)
Govt. Consumption	-0.160 (0.102)	-0.160 (0.105)	-0.152 (0.081)*	-0.140 (0.074)*
Secondary Schooling	0.011 (0.028)	0.011 (0.027)	0.008 (0.023)	0.015 (0.025)
Life Expectancy	-0.001 (0.002)	-0.001 (0.002)	-0.000 (0.002)	0.000 (0.002)
Population Growth	-0.025 (0.028)	-0.025 (0.027)	-0.024 (0.022)	-0.021 (0.022)
Terms of Trade Growth	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Private Credit	-0.003 (0.020)	-0.003 (0.020)	-0.007 (0.018)	-0.003 (0.015)
Equity Turnover	-0.007 (0.044)	-0.008 (0.049)	-0.023 (0.039)	-0.010 (0.051)
Current Acct. Openness	0.004 (0.051)			
Capital Acct. Openness		-0.002 (0.070)		
Financial Openness			0.061 (0.077)	
Official Equity Market Liberalization				-0.007 (0.031)
Observations	74	74	91	91
Countries	16	16	17	17

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12

OLS using panel data with fixed effects, controlling for financial crisis

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	0.971 (0.979)	0.969 (1.028)	1.067 (0.836)	0.984 (0.818)
Institutional Quality	0.003 (0.024)	0.004 (0.024)	0.004 (0.022)	0.005 (0.021)
Govt. Consumption	-0.255 (0.121)*	-0.267 (0.124)**	-0.228 (0.111)*	-0.220 (0.112)*
Secondary Schooling	-0.022 (0.100)	-0.018 (0.098)	0.010 (0.079)	-0.000 (0.071)
Life Expectancy	-0.007 (0.012)	-0.007 (0.013)	-0.013 (0.012)	-0.011 (0.011)
Population Growth	-0.139 (0.090)	-0.137 (0.092)	-0.081 (0.081)	-0.087 (0.087)
Terms of Trade Growth	0.000 (0.003)	0.001 (0.003)	-0.001 (0.004)	-0.001 (0.004)
Years in Crisis	-0.404 (0.373)	-0.408 (0.372)	-0.120 (0.311)	-0.131 (0.315)
Current Acct. Openness	0.049 (0.079)			
Capital Acct. Openness		0.044 (0.113)		
Financial Openness			0.061 (0.159)	
Official Equity Market Liberalization				-0.011 (0.050)
Observations	74	74	91	91
Countries	16	16	17	17
R-squared	0.23	0.23	0.21	0.21

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 13

GLS using panel data with random effects, controlling for financial crisis

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	0.238 (0.177)	0.239 (0.179)	0.141 (0.158)	0.164 (0.141)
Institutional Quality	0.005 (0.014)	0.006 (0.012)	-0.002 (0.010)	-0.002 (0.009)
Govt. Consumption	-0.159 (0.093)*	-0.159 (0.089)*	-0.159 (0.077)**	-0.145 (0.068)**
Secondary Schooling	0.012 (0.027)	0.013 (0.027)	0.011 (0.021)	0.017 (0.021)
Life Expectancy	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)	0.000 (0.001)
Population Growth	-0.025 (0.027)	-0.025 (0.026)	-0.022 (0.021)	-0.020 (0.022)
Terms of Trade Growth	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)
Years in Crisis	-0.080 (0.238)	-0.080 (0.241)	-0.015 (0.220)	-0.009 (0.238)
Current Acct. Openness	0.006 (0.045)			
Capital Acct. Openness		-0.002 (0.063)		
Financial Openness			0.048 (0.065)	
Official Equity Market Liberalization				-0.009 (0.026)
Observations	74	74	91	91
Countries	16	16	17	17

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14

Arellano-Bond GMM estimation using dynamic panel data

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.018 (0.580)*	1.002 (0.562)*	-0.182 (0.491)	0.340 (0.533)
Growth in Gini (1 st lag)	-0.438 (0.151)***	-0.367 (0.137)***	-0.458 (0.119)***	-0.405 (0.123)***
Growth in Gini (2 nd lag)	-0.120 (0.119)	-0.056 (0.115)	-0.215 (0.091)**	-0.160 (0.093)*
Institutional Quality	-0.019 (0.015)	-0.012 (0.016)	-0.009 (0.014)	-0.022 (0.014)
Govt. Consumption	-0.203 (0.111)*	-0.197 (0.106)*	-0.165 (0.087)*	-0.197 (0.093)**
Secondary Schooling	-0.022 (0.065)	-0.012 (0.064)	-0.038 (0.057)	-0.034 (0.062)
Life Expectancy	-0.004 (0.008)	-0.004 (0.007)	0.010 (0.007)	0.003 (0.008)
Population Growth	-0.222 (0.059)***	-0.230 (0.057)***	-0.120 (0.047)**	-0.087 (0.047)*
Terms of Trade Growth	-0.000 (0.003)	-0.001 (0.003)	0.002 (0.002)	-0.001 (0.002)
Current Acct. Openness	0.075 (0.074)			
Capital Acct. Openness		-0.026 (0.070)		
Financial Openness			-0.273 (0.107)**	
Official Equity Market Liberalization				0.027 (0.032)
Observations	29	29	40	40
Countries	10	10	12	12

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 15

Arellano-Bond GMM estimation using dynamic panel data with interaction term

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.105 (0.593)*	1.018 (0.578)*	-0.267 (0.459)	0.325 (0.547)
Growth in Gini (1 st lag)	-0.466 (0.155)***	-0.366 (0.140)***	-0.463 (0.111)***	-0.499 (0.155)***
Growth in Gini (2 nd lag)	-0.154 (0.124)	-0.066 (0.120)	-0.261 (0.087)***	-0.210 (0.108)*
Institutional Quality	0.034 (0.050)	-0.001 (0.034)	0.021 (0.017)	-0.010 (0.019)
Govt. Consumption	-0.262 (0.125)**	-0.206 (0.113)*	-0.232 (0.085)***	-0.219 (0.097)**
Secondary Schooling	0.025 (0.079)	-0.014 (0.062)	-0.048 (0.053)	0.016 (0.064)
Life Expectancy	-0.010 (0.009)	-0.005 (0.008)	0.009 (0.007)	0.001 (0.008)
Population Growth	-0.220 (0.060)***	-0.235 (0.061)***	-0.103 (0.044)**	-0.061 (0.051)
Terms of Trade Growth	-0.001 (0.003)	-0.001 (0.003)	-0.000 (0.002)	-0.000 (0.003)
Current Acct. Openness	0.543 (0.435)			
Capital Acct. Openness		0.092 (0.325)		
Financial Openness			0.902 (0.457)**	
Official Equity Market Liberalization				0.222 (0.164)
Liberalization*Institutions	-0.079 (0.073)	-0.019 (0.052)	-0.165 (0.063)***	-0.034 (0.028)
Observations	29	29	40	40
Countries	10	10	12	12

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 16

Arellano-Bond GMM estimation using dynamic panel data, controlling for macroeconomic reform

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.994 (0.721)***	1.607 (0.688)**	1.215 (0.757)	1.606 (0.756)**
Growth in Gini (1 st lag)	-0.223 (0.177)	-0.212 (0.177)	-0.343 (0.210)	-0.212 (0.178)
Growth in Gini (2 nd lag)	0.014 (0.154)	-0.004 (0.156)	-0.046 (0.153)	-0.001 (0.155)
Institutional Quality	0.016 (0.020)	0.019 (0.020)	0.024 (0.020)	0.020 (0.020)
Govt. Consumption	-0.308 (0.134)**	-0.234 (0.129)*	-0.202 (0.127)	-0.232 (0.135)*
Secondary Schooling	-0.052 (0.070)	-0.026 (0.069)	-0.024 (0.066)	-0.025 (0.068)
Life Expectancy	-0.010 (0.007)	-0.008 (0.007)	-0.007 (0.007)	-0.008 (0.008)
Population Growth	-0.357 (0.098)***	-0.303 (0.093)***	-0.266 (0.096)***	-0.302 (0.094)***
Terms of Trade Growth	0.002 (0.003)	0.002 (0.003)	0.003 (0.003)	0.002 (0.003)
Growth	-0.002 (0.005)	-0.004 (0.005)	-0.007 (0.006)	-0.004 (0.005)
Inflation	0.000 (0.054)	0.016 (0.053)	0.024 (0.052)	0.016 (0.053)
Black Market Premium	0.144 (0.105)	0.065 (0.096)	0.036 (0.096)	0.065 (0.100)
Trade Openness	-0.140 (0.096)	-0.092 (0.094)	-0.025 (0.108)	-0.090 (0.096)
Current Acct. Openness	0.139 (0.073)*			
Capital Acct. Openness		0.005 (0.067)		
Financial Openness			-0.208 (0.192)	
Official Equity Market Liberalization				-0.000 (0.033)
Observations	28	28	28	28
Countries	9	9	9	9

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 17

Arellano-Bond GMM estimation using dynamic panel data, controlling for financial reform

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.068 (0.638)*	1.059 (0.635)*	-0.209 (0.536)	0.364 (0.573)
Growth in Gini (1 st lag)	-0.449 (0.169)***	-0.355 (0.157)**	-0.460 (0.132)***	-0.388 (0.134)***
Growth in Gini (2 nd lag)	-0.114 (0.145)	-0.035 (0.143)	-0.215 (0.107)**	-0.130 (0.104)
Institutional Quality	-0.017 (0.015)	-0.011 (0.017)	-0.009 (0.014)	-0.022 (0.015)
Govt. Consumption	-0.232 (0.123)*	-0.202 (0.121)*	-0.157 (0.092)*	-0.148 (0.100)
Secondary Schooling	-0.043 (0.074)	-0.018 (0.074)	-0.042 (0.062)	-0.025 (0.068)
Life Expectancy	-0.005 (0.009)	-0.005 (0.009)	0.011 (0.008)	0.001 (0.008)
Population Growth	-0.237 (0.066)***	-0.234 (0.065)***	-0.119 (0.047)**	-0.084 (0.049)*
Terms of Trade Growth	-0.000 (0.003)	-0.000 (0.003)	0.002 (0.003)	0.000 (0.003)
Private Credit	0.025 (0.037)	0.010 (0.036)	-0.001 (0.027)	0.002 (0.029)
Equity Turnover	0.026 (0.117)	0.042 (0.114)	0.011 (0.098)	0.116 (0.092)
Current Acct. Openness	0.094 (0.079)			
Capital Acct. Openness		-0.021 (0.077)		
Financial Openness			-0.268 (0.123)**	
Official Equity Market Liberalization				0.022 (0.034)
Observations	29	29	40	40
Countries	10	10	12	12

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 18

Arellano-Bond GMM estimation using dynamic panel data, controlling for financial crisis

	(1)	(2)	(3)	(4)
	Growth in Gini	Growth in Gini	Growth in Gini	Growth in Gini
Constant	1.011 (0.595)*	1.008 (0.563)*	-0.167 (0.491)	0.404 (0.528)
Growth in Gini (1 st lag)	-0.443 (0.153)***	-0.367 (0.136)***	-0.458 (0.121)***	-0.409 (0.125)***
Growth in Gini (2 nd lag)	-0.125 (0.121)	-0.057 (0.115)	-0.214 (0.094)**	-0.152 (0.095)
Institutional Quality	-0.019 (0.015)	-0.011 (0.016)	-0.009 (0.014)	-0.020 (0.015)
Govt. Consumption	-0.207 (0.114)*	-0.208 (0.107)*	-0.165 (0.089)*	-0.190 (0.094)**
Secondary Schooling	-0.024 (0.069)	-0.023 (0.065)	-0.036 (0.058)	-0.026 (0.062)
Life Expectancy	-0.004 (0.008)	-0.003 (0.008)	0.010 (0.007)	0.001 (0.008)
Population Growth	-0.224 (0.066)***	-0.246 (0.062)***	-0.120 (0.047)**	-0.084 (0.048)*
Terms of Trade Growth	-0.001 (0.003)	-0.002 (0.003)	0.002 (0.003)	-0.000 (0.003)
Years in Crisis	-0.025 (0.207)	-0.123 (0.186)	0.011 (0.160)	0.102 (0.164)
Current Acct. Openness	0.073 (0.081)			
Capital Acct. Openness		-0.040 (0.072)		
Financial Openness			-0.272 (0.111)**	
Official Equity Market Liberalization				0.028 (0.033)
Observations	29	29	40	40
Countries	10	10	12	12

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Appendix

Variable	Description and Source
Current Account Openness	Quinn Financial Current Account Openness (Quinn & Toyoda, 2008)
Capital Account Openness	Quinn Capital Account Openness (Quinn & Toyoda, 2008)
Financial Openness	Ratio of equity-based foreign liabilities to GDP (Loayza, Olaberria, & Rigolini, 2009)
Official Equity Market Liberalization	Official Equity Market Liberalization (Bekaert, Harvey, & Lundblad, 2004)
Gini coefficient	Measure of the extent to which a country's Lorenz income distribution curve deviates from the perfectly equitable distribution (United Nations University/ World Institute for Development Economics Research – World Income Inequality Database V2.0c, May 2008)
Institutional Quality	Composite of ICRG corruption, democratic accountability, law and order, and bureaucratic quality indices (Loayza, Olaberria, & Rigolini, 2009)
Govt. Consumption	Ratio of government spending to GDP (Loayza, Olaberria, & Rigolini, 2009)
Secondary Schooling	Average years of secondary schooling in total population (Barro & Lee, 2000)
Life Expectancy	Life expectancy at birth (World Bank World Development Indicators, 2008)
Population Growth	Rate of population growth (World Bank World Development Indicators, 2008)
Terms of Trade Growth	Growth rate of terms of trade (Loayza, Olaberria, & Rigolini, 2009)
Growth	Growth rate of per capita GDP (Loayza, Olaberria, & Rigolini, 2009)
Inflation	Log of inflation rate [$\ln(1+\text{inflation})$] (Loayza, Olaberria, & Rigolini, 2009)
Black Market Premium	Log of black market premium paid over market exchange rate [$\ln(1+\text{BMP})$] (Dollar & Kraay, 2002b)
Trade Openness	Ratio of total trade to GDP [(exports + imports)/GDP] (Loayza, Olaberria, & Rigolini, 2009)
Private Credit	Ratio of domestic credit to GDP (Loayza, Olaberria, & Rigolini, 2009)
Equity Turnover	The number of shares traded for a period as a percentage of the total shares in a stock exchange (Beck, Demirgüç-Kunt, & Levine, 2000)
Years in Crisis	Number of years in each period during which a country underwent a systemic banking crisis (Loayza, Olaberria, & Rigolini, 2009)