

PN-ABU-985

ISN 94814



**PROPERTY RIGHTS, INEQUALITY
AND GROWTH**

April, 1995

Philip Keefer and Stephen Knack

Working Paper No. 153

Working Paper Series

The Center for Institutional Reform and the Informal Sector (IRIS) has two main purposes: expanding knowledge about institutions in economic development through research, and assisting reform efforts in the third world and in countries undergoing transitions to a market economy. The premise of the IRIS Center is that in unsuccessful economies the existing rules establish poor incentives, often forcing economic activity into the informal economy, and that appropriate reforms improve economic performance. IRIS is especially concerned with the legal and policy framework needed for democratic societies with competitive markets.

IRIS
2105 Morrill Hall
College Park, MD 20742
(301) 405-3110

PN-ABU-985

CENTER FOR INSTITUTIONAL REFORM AND THE INFORMAL SECTOR

University of Maryland at College Park

Center Office: IRIS Center, 2105 Morrill Hall, College Park, MD 20742
Telephone (301) 405-3110 • Fax (301) 405-3020

**PROPERTY RIGHTS, INEQUALITY
AND GROWTH**

April, 1995

Philip Keefer and Stephen Knack

Working Paper No. 153

This publication was made possible through support provided by the U.S. Agency for International Development, under Cooperative Agreement No. DHR-0015-A-00-0031-00.

The views and analyses in the paper do not necessarily reflect the official position of the IRIS Center or the U.S.A.I.D.

Author: Philip Keefer, The World Bank; Stephen Knack, American University; IRIS, University of Maryland, College Park.

Property Rights, Inequality and Growth

Philip Keefer
The World Bank
1818 H St. NW
Washington, DC 20433
Internet: pkeef@worldbank.org

Stephen Knack
IRIS/University of Maryland and
School of Public Affairs
The American University
Internet: sk0899a@american.edu

December 1994

Comments Welcome

Property Rights, Inequality, and Growth

Philip Keefer and Stephen Knack

This paper presents evidence that the effect of income inequality on economic growth is mediated by political dynamics that affect the security of property rights. The theory presented here suggests that inequality gives rise to a polarized political environment which undermines the protection of contractual and property rights, slowing growth. Inequality-induced polarization may also make it more difficult to respond quickly and effectively to economic crisis.

We offer direct empirical evidence that inequality is a significant determinant of the security of property rights, as measured by firms specializing in evaluation of investor risk. Controlling for our property rights measures, the influence of inequality on growth diminishes. Further evidence indicates that risk of default on the sovereign debt increases with inequality.

We discuss differences between democratic and non-democratic political systems that may affect the strength of relationships between inequality and property rights, and between inequality and the risk of loan default. Our findings in general suggest that inequality is a more destructive force in democratic than in non-democratic polities. However, we are unable to rule out the possibility that greater measurement error in the non-democratic sample is responsible for these differences (as well as for the inequality-democracy interaction found by Persson and Tabellini in their growth regressions).

No evidence is found that inequality influences growth through median voter-driven redistribution, the channel emphasized in recent papers by Alesina and Rodrik, and Persson and Tabellini. Other tests find no support for the view that greater equality of incomes enhances growth by increasing demand for domestically-produced manufactures in the presence of barriers to international trade.

Our results have implications for less-developed countries beginning the transition to democracy. The potential economic benefits of democratic institutions appear to increase with the degree of equality of income and wealth. In nations with more highly-skewed distributions of assets and marketable skills, it is thus particularly crucial that democratic reforms are accompanied by measures such as land reform, and investments in primary and secondary education. By tending to equalize assets and income-earning potential, these policies can reduce class-based polarization over policies ranging from the protection of property rights to the prevention of debt crises.

Property Rights, Inequality and Growth

Philip Keefer and Stephen Knack

The impact of inequality on government policy, political stability and violence has long been of concern to researchers and political philosophers. James Madison argued that ". . . the most common and durable source of factions has been the various and unequal distribution of property. Those who hold and those who are without property have ever formed distinct interests in society."¹ Madison and many others, including Marx, Ricardo, Mill, Macaulay and Daniel Webster, have suspected that, because of these distinct interests, universal participation in political decision making (for example, universal suffrage in democracies) would jeopardize property rights. Madison wrote in Federalist Paper No. 10 that ". . . democracies. . . have ever been found incompatible with personal security or the rights of property; and have in general been as short in their lives as they have been violent in their deaths." He was not alone among the Founding Fathers in his opinion. John Adams wrote to Thomas Jefferson that "Democracy will envy all, contend with all, endeavor to pull down all. . ."

More recent research has formalized this early intuition. Meltzer and Richard (1981) show theoretically that the level of income tax preferred by the majority of voters increases with the degree of income inequality (in their case measured by the difference between the income of the mean and median voter). Alesina and Rodrik (1994) and Persson and Tabellini (1994) conclude that inequality is harmful for growth, and that this effect is most pronounced in democracies. Their logic follows that of earlier commentators and seems to be equally compelling: inequality gives rise to redistributive pressures in all polities, but these pressures are more easily manifested in democracies in which the beneficiaries of redistribution have greater political influence.

¹ James Madison, Federalist Paper no. 10.

In this paper, we suggest a complementary hypothesis regarding the effects of inequality on economic growth. This theory, and the evidence for it presented below, add to the growing body of evidence establishing political links between inequality and growth. The theory relies not on the level of redistribution that countries undertake in response to inequality, but rather on the uncertainty about the allocation and definition of property rights that high levels of inequality generate in a society. This uncertainty, independent of whether the level of actual redistribution through policy channels is high or low, reduces investment and creates inefficiencies in production, slowing growth.

The distinction between redistributive and uncertain policies is not trivial. On the one hand, countries with strongly redistributive policies can nevertheless offer high levels of security to property and contractual rights, and prosper, as Sweden demonstrates. On the other hand, Latin America has provided ample evidence that countries that do not pursue effective policies of redistribution can still exhibit significant insecurity in the allocation of property and contractual rights, and stagnate. The policy implications are also different in each case. If redistributive policies, *per se*, are to blame for the low growth engendered by inequality, there is little room for government intervention in confronting distributional concerns. If, on the other hand, it is the insecurity of property rights that slows growth when inequality is high, then governments that can commit over the long run to a set of redistributive policies, as Malaysia has done, incur less risk of slowing economic growth. This second policy alternative is consistent with the possibility that fiscal redistribution could actually increase growth by reducing internal political violence and the uncertainty that it generates.²

In what follows, we briefly outline how inequality gives rise to policy uncertainty and then provide evidence for the claim. The evidence shows that there is a direct link

²"From ancient times to the present, history records numerous insurrections involving the unlawful use of force to defy the established system of property rights and taxation." (Grossman, 1991) Redistribution may increase the incomes of both rich and poor by inducing the poor to refrain from "extralegal appropriative activities." (Grossman, 1992).

between inequality and property rights. Further evidence suggests that the significance of inequality in growth equations drops in the presence of variables controlling for the stability of property rights. The paper also reexamines alternative links between inequality and growth. We find little evidence of a link between levels of redistribution and inequality, the most direct test of the political model proposed by Alesina and Rodrik (1994) and Persson and Tabellini (1994). The results of their indirect tests, comparing inequality in democracies and autocracies, support their hypothesis, and are consistent both with the model and evidence presented in this paper. We also briefly review the evidence on the connection between political violence and inequality. All of these tests confront imposing problems of data quality: the measurement of political violence, regime type, property rights stability and inequality itself is sufficiently uncertain that all results in this literature can only be regarded as suggestive. We also examine the non-political hypothesis of Murphy, Shleifer and Vishny (1989) and find little evidence that inequality slows growth by reducing the size of the middle class, thereby depriving manufacturers of sufficiently large markets to invest in technologies with increasing returns to scale.

Some of the previous work testing the impact of inequality on growth has used one of two variables that might be taken as proxies for the security of property rights. One of these is the level of redistribution through the government budget (Persson and Tabellini, 1994). This does not reflect the insecurity of property rights, but rather a particular allocation of property rights. Others have used measures of political instability (Alesina and Perotti, 1993). Political instability is certainly related to the security of property rights. However, it does not capture variations in insecurity in countries that do not manifest the extreme levels of political instability that are captured by these variables. We employ variables that specifically evaluate the credibility and predictability of property and contractual rights in a large number of countries. There are two advantages to these data: they explicitly treat property rights issues (that is, they are not proxies), and

they focus on the insecurity of property rights rather than the allocation of rights (unlike measures of fiscal redistribution).

Inequality and Property Rights

Like the papers of Persson and Tabellini (1994) and Alesina and Rodrik (1994), this paper links inequality to growth through a political mechanism, although one that differs from theirs. They have rigorously developed the hypothesis that inequality increases redistribution, and thereby lowers growth.³ When inequality is severe, governments face pressures to redistribute income from those who have invested most, or have the greatest ability, to those who have invested less or have less ability.

Their empirical evidence that inequality hinders growth through increased pressures for redistribution consists primarily of two findings. First, the effects of inequality are more pronounced in democracies than dictatorships, which is consistent with their hypothesis that the median-income citizen in dictatorships that are plagued by inequality is less able to manifest policy preferences for redistribution than a median voter is in a democracy. Second, Persson and Tabellini (1994) find (weak) evidence that transfer payments are higher in countries in which inequality is higher and that they are (weakly) negatively associated with growth. These empirical results are reviewed in greater detail in a subsequent section.

In the models developed by these authors, a government instantaneously adopts a redistributive policy. The policy is constant over time, in part to ensure its time consistency. However, a policy that is known immediately and is unvarying over time presents no uncertainty. Inequality causes property rights to be initially rearranged in these models, but does not give rise to a threat of continuing reallocation. This paper examines whether inequality also jeopardizes property rights by increasing the uncertainty surrounding them.

³Similar results are presented in Clarke (1992) and Birdsall, Ross and Sabot (1994).

We assume, consistent with most work on inequality, that greater inequality leads to greater polarization of policy preferences in a society. Polarization expands the set of policies that, in equilibrium, might be chosen in a society. This has three related effects. First, provided that there are fixed costs to changing policies, stability is more likely when the set of equilibrium policies is smaller, since the potential gains from policy change are low. Second, when the equilibrium set of policies is larger, the extent to which policies can be changed is greater. Third, consensus is more difficult to reach when there is substantial divergence in policy preferences, and crucial laws that allow property and contractual rights to be defined are simply not passed, or are subject to continual cycling in the uncovered set. Through each of these effects, inequality creates greater uncertainty regarding policy outcomes.

This logic depends on the characterization of the political equilibrium. One equilibrium notion, the core, is the following: a policy x^* is an equilibrium if there is no other x in the policy space that is preferred by any majority of policy makers. This notion of policy equilibrium implicitly underlies all studies that find that income redistribution is greater in societies that exhibit greater inequality, since they assume that the voting process chooses a unique tax rate. In a single dimension, with convex preferences, the median voter theory of Black (1958) shows that a core always exists.⁴ However, in a multidimensional policy space it is only under unusual conditions that a core exists. Plott (1967) and Davis, DeGroot and Hinich (1972) identified strict conditions under which such an x^* might exist. These conditions essentially require that for every voter on one side of x^* in the policy space, there is a voter on the other side who would vote against any proposal by the first voter to move away from x^* . Such a distribution of preferences

⁴ Romer (1975) cast doubt on the applicability of the median voter model to voting on the income tax, by showing that individual preferences over income tax rates need not be single-peaked if not everyone works. However, Roberts (1977) demonstrates that under fairly modest assumptions, voting mechanisms give rise to a most preferred outcome even if some do not work. Much more restrictive assumptions are needed to extend Roberts' result to a multidimensional issue space.

among decision makers is unlikely. Since the democracies that are the focus of these research efforts do not exhibit tremendous instability, subsequent research on political decision making turned to less stringent equilibrium concepts. While not permitting predictions of particular policy outcomes, these concepts described plausible conditions that would confine policy outcomes to an identifiable subset of the entire policy space.

The *uncovered set* is among those equilibrium concepts that have received great attention.⁵ A policy alternative y is said to *cover* a policy choice x if y defeats x and the points that defeat y form a proper subset of the points that defeat x . That is, not only does y defeat x , but if there exist other policies that defeat y , they also defeat x . Policies with the attributes of x are clearly unattractive choices for policy makers, and can be sensibly excluded from the set of possible equilibrium policy proposals. If covered points such as x are excluded from the set of policy outcomes that might result from the policy making process, the uncovered set is naturally the set of policy alternatives that remain. The points in the uncovered set dominate the set of points outside the covered set. However, a majority of voters can be found that favors one policy proposal in the uncovered set over any other policy proposal in that set. Figure One demonstrates in a straightforward manner how the uncovered set grows when participants in the policy making process become more polarized.

Figure One assumes three decision makers, circular indifference curves, and a two-dimensional issue space. The issues might be income redistribution on one axis and, on the other, spending on any public goods, including law enforcement. The only condition on preferences over these two issues is that there be a different median (decisive) decision maker on each policy dimension. If not, then the two-dimensional policy space collapses to one, and with these preferences the median voter result holds. Although these models use the terminology of democratic decision making (median

⁵ This discussion is taken from Ordeshook (1986), pp. 184-187.

voters, for example), they are also applicable, for example, where a single dictator is influenced by multiple constituencies with different preferences.

The labeled points are the ideal (most-preferred) points of the decision makers. Two sets of decision makers are depicted. The less polarized decision makers, whose policy preferences are relatively similar, have ideal points that are closer together, given by a , b , and c . Polarization is depicted as a simple expansion out from the original points, and the ideal points of the more polarized decision makers are given by a' , b' and c' . A result reported in Ordeshook (1986, p. 186) states that with circular indifference curves, the uncovered set is bounded by a circle (or n -dimensional ball) with radius $4r$, where r is the radius of the smallest circle that intersects all of the median lines. Median lines divide decision makers such that at least half are on or to one side of the line, and half are on or to the other side of the line. That is, policies to one side of the line can be defeated by competing proposals on the other side.⁶ With only three decision makers, there is a family of median lines, all of which intersect in the area given by abc or $a'b'c'$.

Figure One makes clear that the uncovered set is much larger with decision makers a' , b' and c' than with the less polarized decision makers. Without specifying greater institutional detail regarding the decision making process, this suggests that policy uncertainty is greater in the more polarized environment. The gains from feasible policy changes are higher, providing greater incentives to mobilize forces to change policy; the extent to which policies can move is greater, by definition; and the likelihood of achieving consensus is lower, since the sacrifices incurred under any compromise proposal (as measured by the distance between the compromise proposal and the ideal point of a particular decision maker) are greater than when polarization is less.⁷

⁶ If all median lines intersect at one point, then the Plott (1967) and Davis, DeGroot and Hinich (1967) conditions are met for a unique policy equilibrium.

⁷ Alesina and Drazen (1991) make a similar point about the difficulty of reaching consensus from a different perspective. In a uni-dimensional policy setting, they argue that consensus on economic reforms

In dictatorships, the ideal points relevant for policy making depend on the costs of representing "constituent" preferences to the dictator. If these costs are high enough, only the dictator's ideal point is relevant for policy making. As long as the costs to these constituents are higher than in a democracy (as in the median voter-driven models of Alesina and Rodrik (1994) and Persson and Tabellini (1994)), the effects of polarization on the uncovered set are likely to be lower in a dictatorship relative to a democracy, at least over the course of any dictator's tenure. The effects of inequality, under these conditions, are likely to be greater in a democracy than a dictatorship, consistent with the findings of Alesina and Rodrik (1994) and Persson and Tabellini (1994).

However, this generalization ignores the fact that dictators change. When there is a change in dictators, the original, polarized uncovered set depicted in Figure One is the relevant description of the set of possible policy outcomes since, depending on which individual becomes the next dictator, policy outcomes can end up anywhere in the uncovered set. It is possible, then, for the effect of inequality to be as severe in a dictatorship as in a democracy.

Two arguments are briefly sketched out below suggesting the ways in which inequality might lead to instability over crucial rules regarding property rights. First, the state's decision making regarding levels of income distribution may be combined with its decisions regarding the laws that define property and contractual rights, such as commercial codes, corporation law and bankruptcy law. In countries with significant inequality, or polarization, any clarification of these legal standards can become entangled in arguments about redistribution, preventing their adoption or clouding their meaning if they are adopted.

The market is not likely to provide a costless substitute for court-ordered contract enforcement. Consequently, compliance with economic transactions will be less

with significant redistributive impact is slowed when parties have imperfect information about each other's relative costs of delaying reform.

predictable, and the number of transactions will simply decline, when legal standards are not established, or when those that are established are more vulnerable to significant variation. Birdsall, Ross and Sabot (1994) make an analogous argument, suggesting that government capacity to minimize the long-term disruptive impact of exogenous shocks is increased when it enjoys the broad-based legitimacy that equality confers. Another way of phrasing their argument is that equality reduces the distance between the most preferred policies of individuals in the society, and therefore reduces possibilities for disagreement with government responses to these shocks. In the same way, a society is less likely to approve legal standards that define and protect property rights when inequality is great because the policies lack legitimacy in the eyes of the alienated majority.⁸

A second way in which inequality might undermine property and contractual rights is by feeding political violence. The willingness to bear high costs in order to change policy outcomes increases as the difference between one's own preferred policy and the policy actually chosen increases, a situation that is more likely to occur with greater inequality and polarization. The connection between inequality and violence has provoked a large empirical literature in political science: although there is substantial dissent regarding the cross-national statistical evidence, anecdotal evidence suggests that inequality is a catalyst for political violence. To the extent that this link exists, inequality may also reduce growth, since political violence obviously attenuates the security of property rights, and therefore reduces investor confidence.⁹

The foregoing arguments suggest ways in which inequality might subvert property rights. However, there is also reason to believe that the poor definition and

⁸ The new generation of South African leaders will have to grapple with exactly that difficulty.

⁹ Barro (1991), Alesina et. al. (1991) among others have found evidence that instability curtails growth. We have shown in other work (Knack and Keefer, 1994) that even after accounting for political instability, insecure property rights still significantly reduce growth.

protection of property rights might in turn exacerbate inequality. Countries providing formal and substantial guarantees of property rights generally do so with institutions such as courts that are, in principle, available to all. Countries that do a poor job of protecting property rights generally lack such institutions, with property rights typically depending on informal guarantees. These might take the form of brute force, or require personal relationships between state officials and owners of assets.¹⁰ Fewer people are able to marshal the necessary instruments of violence or have access to these relationships than would be able to appeal to more formal mechanisms for protecting property rights. Therefore, fewer people gain a larger share of the entrepreneurial opportunities in the society (see Keefer, 1994). In this way, the insecurity of property rights lays the groundwork for greater inequality.

Empirical Analysis

The remainder of this paper offers an empirical examination of the questions raised above. The first of these is whether there is a significant relationship between inequality and the ability of a country to reach a consensus on a particular set of critical policy issues. If inequality (polarization) is greater, we would expect consensus to be more difficult to achieve. Second, we ask if there is a significant relationship between the security of property rights and inequality, a direct test of the theory outlined above. The third issue examined below is a comparison of the effects of property rights instability and inequality on growth. If inequality operates principally through the security of property rights in reducing growth, then the effect of inequality on growth should fall when the stability of property rights is controlled for. On the other hand, if inequality operates primarily through high, but certain, levels of redistribution, we would not expect the coefficient on inequality to fall in the presence of the property rights variables.

¹⁰A pattern of severely unequal land distribution in the Chiapas region of Mexico seems to have begun in 1817, when a group of Mayan Indians were forced off their land at gunpoint by a group of ranchers (see *The Washington Post*, Monday, February 28, 1994, section A).

Subsequently, several competing or complementary hypotheses linking inequality and growth are considered. Apart from the Persson/Tabellini and Alesina/Rodrik hypotheses, these include the model advanced by Murphy, Shleifer and Vishny (1989), and the connection between inequality, political instability and growth.

Inequality, policy reform and policy oscillation

If the underlying model linking inequality and the uncertainty of property rights is correct--that in highly polarized political environments, there is greater uncertainty about political decision making--then one would expect societies with unequal distributions of income to confront more generally greater difficulties in forming consensus. This is the logic that has been used in arguments about the effect of polarization on the capacity of countries to emerge from economic crises. It has been commonly observed that unequal income distributions contribute to social and political polarization that undermine the consensus for needed policy reforms (Berg and Sachs, 1988; Haggard and Webb, 1993; Birdsali, Sabot, and Ross, 1994). The inability to reach consensus in order to avert or resolve a crisis is consistent with any story of the costs of forming decisive coalitions when decision makers are polarized. The most complete theory has been that of Alesina and Drazen (1991), who propose a war of attrition model that explains why these costs might be high. In their model, the absence of consensus depends on divergent preferences on a single policy dimension and imperfect information about the costs of waiting. The argument in this paper relies on divergent preferences in a multi-dimensional policy space in a perfect information setting. The larger uncovered set in a more polarized political regime creates greater opportunities for cycling among alternatives, or failure to reach consensus.

The most frequent application of theories of gridlock in the face of crisis has been on the response of countries to foreign debt crises. Countries that are highly polarized are more likely to rely on outside borrowing in response to an inability to reach consensus

internally on policies with redistributive implications. In the 1970s, for example, Mexico attempted to contain social conflict by relying on foreign borrowing to engage in populist redistribution while dropping tax reform measures opposed by influential elites, precipitating a debt crisis (Berg and Sachs, 1988). Berg and Sachs (1988) show more generally that a country's likelihood of rescheduling debt and the rate of discount on the debt increase with the ratio of top to bottom quintile income shares, in a sample of 35 developing nations.

We use different, qualitative measures of debt risk that allow us to look at samples of 70-plus nations and obtain similar results. We also consider the effect of inequality on the ability of countries to mitigate inflation. A sovereign debt subjective risk rating, based on a survey of international bankers and supplied by *Institutional Investor*, is available from 1981 to the present. A loan defaults risk rating from *International Country Risk Guide (ICRG)* is available since 1982. For both of these ratings, higher numbers are better than lower. Controlling for per capita income levels -- and even for Latin America and Africa continent dummies -- income inequality is found to increase the subjective probability of defaulting on debt as evaluated by *Institutional Investor*, using the mean over the sample period (see Table 1). The effect of the middle quintile's share of national income, but not the ratio of the top quintile to the bottom two quintiles, is nearly significant for the *ICRG* measure, and both are of the expected sign (positive for middle quintile and negative for the ratio measure).

Table 3 reports the effects of the inequality measures on these two measures of default risk for democracies and non-democracies. The table reveals a consistently stronger effect in democracies. These findings suggest that, in this sample and for this time period, the costs to citizens of opposing dictatorial decisions are sufficiently high so

as to reduce the size of the uncovered set to the immediate neighborhood of the dictator's ideal point.¹¹

Table 1 and Table 3 report similar results with respect to inflation, measured as the average annual percentage depreciation of currency over the time period. The effect of inequality seems to be insignificant in Table 1. However, as Table 3 indicates, although inequality has little influence on the ability of autocracies to combat inflation, it is a significant impediment to democracies.

Inequality and property rights

The responsiveness of countries to crisis, however, is only one of the consequences of polarized political environments. The inability to reach consensus and the instability of policy outcomes also undermine the security of property rights that is essential to economic transactions, in every macroeconomic climate. The first evidence for this hypothesis comes from the cross-national relationship between available measures of inequality and property rights.

Inequality data are from various sources, with early-period observations principally from Jain (1975) and later-period data chiefly from the World Bank. International Country Risk Guide (ICRG) and Business Environment Risk Intelligence (BERI) are two sets of subjective evaluations of various aspects of the security of property and contractual rights around the world. Two private firms make these evaluations for sale to potential foreign investors in the evaluated countries. We have created two indices from some of the variables collected by these two services. The *ICRG* variable is an additive index of the five variables *Quality of the Bureaucracy*, *Corruption in Government*, *Rule of Law*, *Expropriation Risk* and *Risk of Repudiation of*

¹¹ Countries are categorized as democracies that score less than 4 on the average of the Gastil indices of political and civil liberties. The higher the cutoff point, the more heterogeneous is the set of democracies, and the more homogeneous is the set of autocracies.

Contracts by Government. The *BERI* variable is an additive index of *Bureaucratic Delays*, *Nationalization Potential*, *Contract Enforceability* and *Infrastructure Quality*.¹²

The definitions and evaluator criteria for these variables indicate that they represent the insecurity of the definition of property rights in a society, rather than the level of redistribution of those rights. Where the rule of law is weak, where there are few constraints on government repudiation of contracts, or where bureaucracies are able to act arbitrarily, every allocation of property rights is more likely to be uncertain. The *BERI* values for Singapore, Sweden and Brazil illustrate this difference. Singapore and Sweden are both fairly to very wealthy countries. Few would disagree that Sweden has a substantially more interventionist stance with regard to government participation in economic activities and redistribution. Brazil, however, would be regarded by most as a less secure place to do business. If *BERI* only measured the level of redistribution in a society, then Singapore should rank considerably higher than Sweden and Brazil. However, if it is the security of property rights that *BERI* measures, then the values of Singapore and Sweden should be considerably higher than Brazil's. In fact, the *BERI* scores for Singapore and Sweden are 12.4 and 11.7, respectively, but Brazil's is only 7.9 (only Bolivia and Iran score lower than 6, and no country scores higher than Switzerland, with 14).

The dependent variables are means over the available years up to 1990: 1982-90 for *ICRG*, and 1972-90 for *BERI*. Given the high costs of setting up institutions for protection of private property and the enforcement of contracts, such institutional development may be a function of the size and volume of market transactions. Thus, we control for initial GDP per capita (and its square) and aggregate GDP when testing the

¹² For further information on these property rights variables see Keefer and Knack (1993), in which they are found to be strong determinants of economic growth, and Knack and Keefer (1994), in which they are found to provide strong explanatory power in growth equations even in the presence of political violence indicators.

relationship between inequality and property rights.¹³ Neither, in fact, is significant, suggesting that the benefits of institutions that protect property rights outweigh their costs at all levels of income in the sample. Two inequality measures are used, the share of national income going to the middle quintile of households (*MIDDLE*) and the top quintile's share divided by the bottom two quintiles' shares (*RATIO*). For the *ICRG8290* regressions, inequality observations are circa 1980, and for *BERI7290* are circa 1970.

Results presented in Table 2 support the argument that inequality undermines the security of property rights.¹⁴ Both inequality coefficients are significant at the 5% cut-off for both measures of the security of property rights. The strength of the relationship between inequality (as measured by either *MIDDLE* or *RATIO*) and property rights again is significantly stronger in democracies than in nondemocracies (see Table 3), which is consistent again with the hypothesis that opposing interests in nondemocracies in general confront high costs in influencing policy decisions.

Inequality, property rights and economic performance

The argument in this paper is that inequality reduces investment and growth by undermining the security of property rights. Insecure property and contractual rights affect growth directly, by influencing the choice of production process and the efficiency with which production is carried out, and indirectly, through investment. Consequently, if insecure property and contractual rights are an important channel through which inequality influences growth and investment, then the coefficient on inequality in regressions estimating the determinants of growth and investment should drop after controlling for the security of property and contractual rights.

¹³The squared OLS residuals in the *ICRG* equations, although not the *BERI*, are correlated with per capita income. The *ICRG* equations were therefore run using weighted least squares, using *GDP80* as the weight.

¹⁴ Unfortunately, the lack of reliable data on inequality or property rights over long periods of time precludes a thorough investigation of the possibility of reverse causality.

Following Persson and Tabellini (1994) and Alesina and Rodrik (1994), the specification of the growth regression is

$$GR6090 = \beta_0 + \beta_1 GDP60 + \beta_2 PRIM60 + \beta_3 INEQUALITY + \varepsilon$$

alternately including and excluding *BERI* or *ICRG*.¹⁵ The two measures of inequality, *MIDDLE* and *RATIO*, are once again employed. All of our inequality observations are from the first half of the period 1960-1990; most are from before 1970, mitigating doubts regarding the interpretation of the results with respect to causality. *PRIM60* is primary school enrollment in 1960. Weighted least squares is employed since the squared residuals of the OLS regressions are significantly negatively correlated with per capita income levels. The results are displayed in Table 4. Equations 1 and 2 show that, when *ICRG* is included, the effect of inequality (*MIDDLE*) on growth drops by nearly one half. A similar effect is found when *ICRG* is added to the growth equation with the *RATIO* measure of inequality, as reported in equations 3 and 4. Equations 5 - 8 indicate that *BERI* exerts a smaller, but still large influence on effects of *MIDDLE* and *RATIO*.¹⁶

A similar set of equations was run for investment. The effects of the inclusion of the property rights variables on the inequality coefficient were similar. However, the inequality coefficients were less often significant determinants of investment, even in the absence of the property rights variables.

There are other channels, particularly education, through which inequality may operate on growth, as well. Indeed, the significance of the inequality variables in the samples explored here also falls substantially in OLS equations when secondary school enrollments, which are highly correlated with *MIDDLE*, are taken into account.¹⁷ The

¹⁵Secondary education is included as a regressor in much of the growth literature, but is often left out in inequality-growth studies, due to its high multicollinearity with inequality measures. When observations are weighted by (the square root of) per capita income, both inequality and secondary education generally remain statistically significant predictors of growth.

¹⁶A similar pattern is obtained using the Gini measure of inequality.

¹⁷In Clarke (1992), it is the secondary education variable that verges on insignificance.

relationship of inequality and human capital may be characterized by causal relationships that go in two directions. Birdsall, Ross, and Sabot (1994) summarize results showing that as educational opportunities expand, the earnings disparity between the least and most educated workers drops. At the same time, they argue that higher incomes for the better-educated poorer segments of the population increase their demand for education; in this way, reduced inequality spurs the accumulation of higher levels of human capital.¹⁸

These results demonstrate, then, that the explanatory power of various inequality measures in growth and investment equations systematically falls in the presence of two different measures of property rights insecurity. This supports the hypothesis that an important channel of influence of inequality on economic outcomes is through its effect on polarization and instability in political decision making. These results do not exclude the possibility that inequality also reduces growth by creating greater tendencies for more redistributive, but certain, policies to be put into place. At the same time, this latter hypothesis does not explain why the explanatory power of inequality would drop in the presence of measures of *uncertain* (as opposed to *known, but unfavorable*) property rights allocations.

Alternative links between inequality and growth

Early theories of the relationship between inequality and economic development held that inequality may be necessary to generate the savings needed for growth in poor nations (Lewis (1954), Kuznets (1955), Kaldor (1956)). The literature surrounding this claim is substantial. However, all recent empirical investigations have found negative or insignificant associations between inequality and growth after controlling for such factors as initial income and education (e.g., Clarke, 1992). Moreover, the importance of

¹⁸ Although they do not draw this connection, property rights also affect investments in human capital. Human capital accumulation not only increases levels of basic knowledge, but also permits greater degrees of specialization in the work force. However, if government policy is unpredictable, then the optimal fields of specialization may change dramatically from period to period, creating disincentives for human capital accumulation.

domestic savings for growth has also fallen as a result of the increasing role attributed to foreign investment and technology.

Murphy, Shleifer, and Vishny (1989) have recently formalized a second way in which inequality might be related to growth. They argue that successful industrialization depends on the ability of manufacturers to find outlets for their products sufficient to justify using technologies that have increasing returns to scale. However, in the presence of less than perfectly free trade, successful industrialization may depend on the existence of a sizable middle class in the local market to provide this demand. Murphy et. al. offer historical anecdotes to support their model. Their theory is a non-political explanation for the general finding of negative cross-country correlations between inequality and growth.

However, their hypothesis does not seem to withstand more specific tests. If their theory is correct, the effect of inequality should matter more in smaller markets. In larger markets, the absolute size of the middle and upper classes is large even in the presence of high levels of income inequality. Markets are small when the domestic market is small and there are barriers to trade. A natural way to investigate these more specific hypotheses is to interact measures of inequality and market size in standard growth equations. Three types of market size variables are employed: population, aggregate GDP, and various measures of trade openness. The interaction of inequality with each of these variables is insignificant.¹⁹ These simple tests suggest that the primary effects of inequality on growth do not operate through inequality's impact on the attractiveness of technologies with increasing returns, and reinforce the importance of using political channels to explain the effect of inequality.

¹⁹ Moreover, both population and aggregate GDP are insignificant, suggesting that these scale effects are more difficult to detect than the Murphy, Shleifer, Vishny theory would suggest.

Redistribution, inequality and growth

Persson and Tabellini (1992, 1994) and Alesina and Rodrik (1992, 1994) argue that inequality gives rise to redistributive policies, slowing growth.²⁰ This effect relies on the median voter being a determining influence on policy.²¹ If the median voter is important, then growth in countries that offer the franchise to the poor should be more sensitive to inequality. Data availability in cross-country growth regressions requires that the extent of the franchise be proxied with regime differences, on the assumption that the poor can influence policies more easily in democracies than in autocracies.

An obvious test of the hypothesis that high inequality impairs economic performance by creating pressures to redistribute income is to examine the relationships between inequality and government transfers, and between transfers and growth. Persson and Tabellini (1994) find in an OECD sample that transfer payments have a negative, but statistically insignificant effect on economic growth. They also find no direct evidence linking inequality and transfer payments, since the variable *MIDDLE* is an insignificant determinant of the level of transfer payments in their sample. They suggest, however, that transfer payments are not a sufficient test of their model, since redistribution can take place through non-fiscal means as well.

However, it seems probable that the median voter would be more decisive in debates over the government budget, which are most often conducted in legislatures, than over other redistributive issues, such as eminent domain proceedings or regulatory hearings, which are conducted in regulatory agencies and courts, over which legislatures (and therefore the median voter) have less direct influence. To further test the existence

²⁰ They suggest that the redistribution argument can be recast in terms of property rights. This paper argues that there is an important difference between an unfavorable allocation of property rights to those with high ability, which is consistent with a known policy of redistribution, and an uncertain allocation of property rights, which is not.

²¹ Although the first sections of this paper suggest that the underlying assumption necessary for a "median voter" to exist is a uni-dimensional policy space.

of direct links of transfer payments to inequality, we examine a variety of other measures of redistribution and find that they uniformly fail to suggest a positive relationship between redistribution and income inequality in democracies. Contrary to the predictions of the median voter model, the share of income held by the middle quintile of the entire sample is positively, although not always significantly, correlated with such measures or proxies of redistribution as social security and welfare payments, tax revenues as a fraction of GDP, average government consumption, total government expenditure as a percentage of GDP, government transfers, and share of employment in the state sector.²² The lack of a positive relationship between redistribution and inequality persists using alternative measures of inequality, such as the Gini coefficient, and using a broader definition of democracy.²³

Wagner's Law, although much in dispute, derives from the observation that government spending appears to increase with per capita income. However, the results of the bivariate analysis of redistribution and inequality are not reversed by controlling for per capita income. In regressions of the various available measures of redistribution on initial income and *MIDDLE* or the Gini coefficient, the inequality variables always enter with the wrong sign (positive in the case of *MIDDLE*, negative for Gini) and generally are not significant.

The strongest evidence presented by Alesina and Rodrik (1992) and Persson and Tabellini (1994) for their median voter-directed models lies in their results that the effect of inequality on investment and growth is stronger in democracies than nondemocracies. These findings are consistent with the model, as well as many of the empirical results.

²² The data are from Levine and Renelt (1992), Barro (1991), and Milanovic (1994).

²³ Countries that are added in this expanded list of democracies score a mean of between 4 and 6 over the 1973-86 period on Gastil's index, namely Botswana, India, Israel, Sri Lanka, Greece, Spain, the Dominican Republic, Jamaica and Colombia.

presented here. However, measurement error may play a significant role in determining this difference.

Using cross-country inequality data from Paukert (1973), Persson and Tabellini (1994) test a regression of the form:

$$GK6085 = \beta_0 + \beta_1 GDP60 + \beta_2 PRIM + \beta_3 MIDDLE + \varepsilon$$

where *MIDDLE* is the share of income of the third quintile of the population and *PRIM* is the rate of enrollment in primary school education. They find that the income share of the middle quintile of the population (*MIDDLE*) has a significant, positive effect on growth -- but not for a subsample of autocracies. We find this difference between democracies and dictatorships to be heavily dependent on the use of six of seven observations -- all autocracies -- on income inequality that Paukert (1973, p. 125) warns are of "rather doubtful value."²⁴ Deleting these suspect observations produces a positive and statistically significant coefficient for *MIDDLE* among the autocracies, and the interaction term *MIDDLE*DEMOCRACY* is no longer significant in the combined sample of democracies and nondemocracies, indicating that regime type does not significantly mediate the affect of inequality on growth.^{25, 26} These results are displayed in Table 5.

²⁴ The six countries are Nigeria, Morocco, Tunisia, Sudan, Niger and Chad.

²⁵ Persson and Tabellini do not describe their system for classifying countries as democracies or autocracies. We split the sample into autocracies and democracies using an index resulting from the simple addition of the country averages of Gastil's political freedoms and civil liberties indices over the 1973-86 period. These indices are likely to be most favorable to the Persson and Tabellini hypothesis because countries that are scored most democratically not only have elections and other trappings of democracy, but also provide indications (freedom of the press, for example) that democratic structures actually allow the access assumed in the median voter model. Countries that score four or less out of 14 (where 14 is least democratic) were counted as democracies. There are fifteen such countries included in the Persson and Tabellini sample.

²⁶ Clarke (1992) also claims to reject the null hypothesis that inequality affects democracies and non-democracies differently, with a sample of 68 countries. However, he interacts income inequality measures with a democracy dummy, but does not allow democracy to enter independently, despite substantial literature suggesting that political regimes might independently affect growth. If democracy has a positive effect on growth, this omission would increase the chances that Clarke would falsely reject

Using a larger sample, relying on income distribution data from Jain (1975) and other sources, Alesina and Rodrik (1992) also find a stronger relationship between inequality and growth among democracies than among nondemocracies. However, democracy may merely be an indicator that inequality is measured more accurately: we find that interactions of inequality with per capita GDP are as significant as interactions of inequality with democracy. If high-income countries tend to be democratic, and tend to generate more reliable data on inequality and income levels, there is a stronger probability of detecting statistically a true relationship in the democracy subsample than in the non-democracy subsample. This weakness would apply as well to the other results reported above that indicate a stronger effect of inequality in democracies than in non-democracies.

In fact, the weakness of the democracy-inequality interaction in growth equations should not be an entirely unexpected result. The fact that dictatorships do not have smooth-running electoral processes does not imply that they are immune to all political pressure. The short tenure in office experienced by most autocrats suggests that they might, in some circumstances, even be more sensitive to the pressures generated by income inequality, although our results do not support such a strong statement. In general, autocrats are vulnerable to replacement, and there are any number of reasons why high inequality could make overthrow more likely, a point that is discussed in greater detail below.

Political violence, inequality and economic growth

An additional, but related avenue by which inequality could influence economic performance is through political violence. A large body of empirical work in political science has debated the existence of a robust link between inequality and the number of

the Persson and Tabellini hypothesis: if democracy positively affects growth, the interaction term will be biased towards zero, showing impact of regime type on inequality's effect on growth.

deaths due to political violence.²⁷ Following Barro (1991), many cross-country growth analyses have included counts of revolutions, coups and assassinations, generally finding them to be negatively and significantly correlated with growth.

Alesina and Perotti (1994) directly address the question of whether income inequality operates through political violence to reduce growth. They use principal components analysis to create a variable out of the number of politically motivated assassinations, the number of deaths due to domestic mass violence, the number of successful and unsuccessful coups, and whether a country is a democracy, "semi-democracy" or dictatorship. They find that high socio-political violence reduces investment over the 1960-85 period in a simultaneous equations model. This finding is highly sensitive to alternative specifications, however. The violence-investment link disappears when initial GDP per capita is included in their investment equation as a proxy for the stock of existing capital. Omitting the dictatorship dummy from their violence index construction also weakens the inequality-violence link.²⁸

Some forms of political violence -- particularly the frequency of coups -- are undoubtedly correlated with growth across nations. On balance, the inequality-violence connection requires more research. This research is as much conceptual as empirical, since one would expect inequality to correlate most strongly with forms of violence requiring mass participation -- for example, riots, revolutions, armed attacks, and guerrilla wars. It turns out to be as or more strongly related to coups, which typically involve merely elite participation.²⁹ Furthermore, coups are known to be endogenous to

²⁷ See, for example, Wang, et al. (1993).

²⁸ The presumption that violence is higher in dictatorships is more appropriately the object of analysis rather than an assumption to be imposed on the data. They justify inclusion of the dummy in their principal components exercise as a correction for underreporting of political violence in autocracies, but adding the dummy's principal components loading into a scale is no less arbitrary a procedure than adding in any other desired number.

²⁹ However, Berg and Sachs (1988) argue inequality may "increase the prospects of a military coup, by requiring a civilian government to rely on the army to maintain peace."

economic performance (Alesina et. al., 1991). This raises the possibility that coups are only an indirect result of inequality, as inequality reduces growth through other channels.

There are two obstacles to detecting the intermediate influence of political violence on the connection between inequality and growth. First, political violence is only one of many political channels through which inequality might operate, and perhaps the costliest. The effects of any one channel, are likely to be clouded by other influences. Second, the forms of political violence that are generally agreed to be the most related to inequality, such as riots, are likely to be severely undercounted in developing countries.

Conclusion

Although economic inequality continues to be a complex, incompletely understood phenomenon, this paper presents additional reasons to suspect that its influence on economic growth is mediated by political dynamics that affect the security of property rights. The theory presented in this paper suggests that inequality gives rise to a polarized political environment that undermines the security of property rights. The inadequate protection of contractual and property rights stifles economic activity and slows growth. The theory provides a simple framework to explain such phenomena as the effects of inequality on growth and on property rights security, and on the link between inequality and the difficulty that countries have in responding to economic crises.

The paper also provides evidence on several fronts that supports the hypothesis that the effect of inequality on growth and investment is intimately linked to its relationship with property rights. We offer direct evidence that inequality is a significant determinant of the security of property rights. We also offer suggestive evidence that the effect of inequality in growth equations drops substantially in the presence of variables that measure the insecurity of property and contractual rights. In principle this effect may operate through the influence of the median voter on redistributive policies. However,

we find further evidence that the link between inequality and levels of redistribution is not significant. The evidence in this paper also suggests treating with great caution findings that inequality matters more in democracies than in autocracies, the primary evidence in support of median-voter driven models. We also find evidence for this difference, which is consistent with (but not a necessary outcome of) the model presented here. However, such findings are shown to be susceptible to measurement error. Because the policy implications of these two theories are quite distinct, an important research objective remains the development of tests that can more firmly distinguish the two possibilities.

References

- Alesina and Drazen (1991). "Why are Stabilizations Delayed?" *The American Economic Review* 81:5, 1170-1188.
- Alesina, Alberto et al. (1991). "Political Instability and Economic Growth." NBER Working Paper.
- Alesina, Alberto and Roberto Perotti (1993). "Income Distribution, Political Instability, and Investment." NBER Working Paper.
- Alesina, Alberto and Dani Rodrik (1994). "Distributive Politics and Economic Growth." *Quarterly Journal of Economics*
- Alesina, Alberto and Dani Rodrik (1992). "Distribution, Political Conflict, and Economic Growth: A Simple Theory and Some Empirical Evidence." in *Political Economy, Growth and Business Cycles*, A. Cukierman, et al., editors. Cambridge, MA: MIT Press.
- Barro, Robert (1991). "Economic Growth in a Cross Section of Countries." *Quarterly Journal of Economics* 106: 407-44.
- Berg, Andrew and Jeffrey Sachs (1988). "The Debt Crisis: Structural Explanations of Country Performance." *Journal of Development Economics* 29: 371-306.
- Birdsall, Nancy, David Ross and Richard Sabot (1994). "Inequality and Growth Reconsidered." presented at the American Economic Association annual meetings in Boston, MA.
- Black, Duncan (1958). *Theory of Committees and Elections*. Cambridge: Cambridge University Press.
- Clarke, George R.G. (1992). "More Evidence on Income Distribution and Growth." World Bank Policy Research Working Paper (NUMBER).
- Davis, Otto A., Morris DeGroot and Melvin J. Hinich (1972). "Social Preference Orderings and Majority Rule," *Econometrica* 40: 147-57.
- Flora, Peter, Franz Kraus and Winfried Pfenning (1987). *State, Economy and Society in Western Europe*, vol. 2. Chicago: St. James Press.
- Grossman, Herschel (1991). "A General Equilibrium Model of Insurrection," *American Economic Review* 81: 912-21.
- Grossman, Herschel (1992). "Robin Hood and the Distribution of Property Income," IRIS Center Working Paper No. 43.

- Haggard, Stephan and Webb, Steven B. (1993). "What Do We Know about the Political Economy of Economic Policy Reform?" *World Bank Research Observer* 8: 143-68.
- Hibbs, Douglas A. (1973). *Mass Political Violence: A Cross-National Causal Analysis*. New York: Wiley.
- Jain, Shail (1975). *Size Distribution of Income: A Compilation of Data*. Washington: The World Bank.
- Kaldor, Nicholas (1956). "Alternative Theories of Distribution." *Review of Economic Studies* 23: 83-100.
- Keefer, Philip (1994). "The Dilemma of Credibility: Institutional Difficulties in Guaranteeing Property Rights and Reducing Rent-seeking." mimeo. The World Bank.
- Keefer, Philip and Stephen Knack (1993). "Why don't Poor Countries Catch Up? A Cross-National Test of an Institutional Explanation." IRIS Center Working Paper #60, University of Maryland.
- Knack, Stephen and Philip Keefer (1994). "Institutions and Economic Performance: Cross Country Tests Using Alternative Institutional Measures." IRIS Center Working Paper, University of Maryland.
- Kuznets, Simon (1955). "Economic Growth and Income Inequality." *American Economic Review* 45:1 (March).
- Lecallion, Jacques, Felix Paukert, Christian Morisson and Dmitri Germidis (1984). *Income Distribution and Economic Development: An Analytical Survey*. Geneva: International Labour Office.
- Lewis, W. Arthur (1954). "Economic Development with Unlimited Supplies of Labor," *The Manchester School* 22.
- Levine, Ross and David Renelt (1992). "A Sensitivity Analysis of Cross-country Growth Regressions." *American Economic Review* 82: 942-63.
- Madison, James. The Federalist Papers, #10.
- Meltzer, R. and S. Richard (1981). "A Rational Theory of the Size of Government." *Journal of Political Economy* 52: 914-27.
- Milanovic, Branko (1994). "Determinants of Cross-Country Income Inequality: An Augmented Kuznets' Hypothesis." World Bank Policy Research Working Paper 1246.

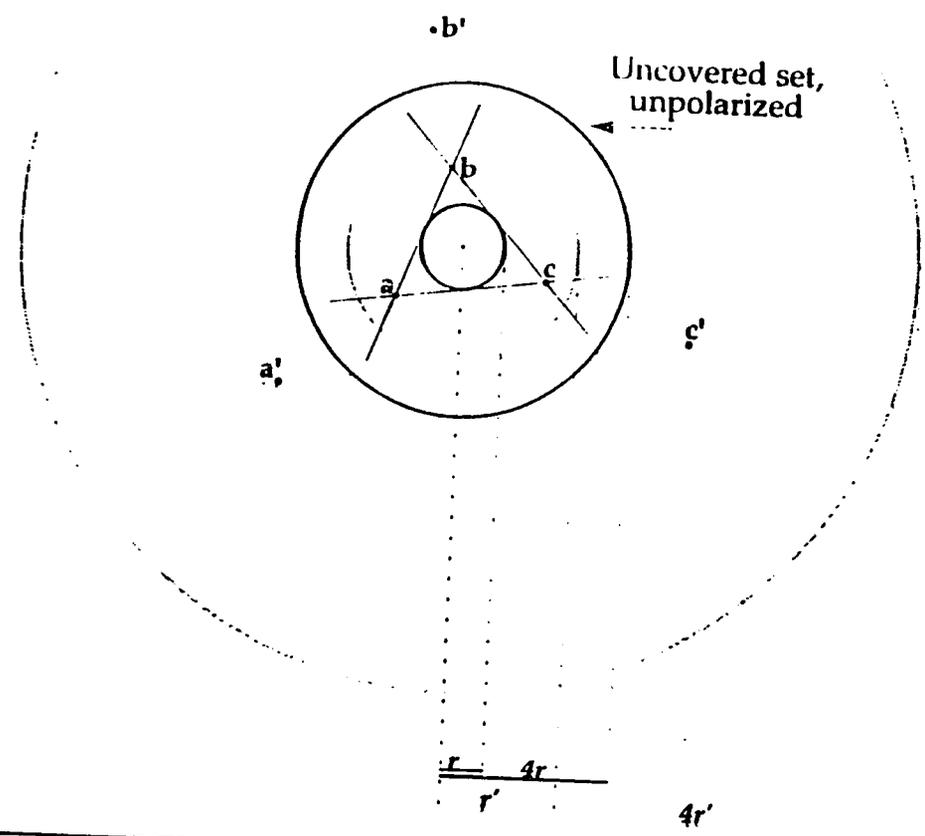
- Murphy, Kevin, Andrei Shleifer and Robert Vishny (1989). "Income Distribution, Market Size and Industrialization." *Quarterly Journal of Economics* 104: 537-64.
- Ordeshook, Peter C. (1986). *Game Theory and Political Theory*. Cambridge: Cambridge University Press.
- Paukert, F. (1973). "Income Distribution at Different Levels of Development: A Survey of the Evidence." *International Labor Review* 108: 97-125.
- Persson, Torsten and Guido Tabellini (1992). "Growth, Distribution and Politics." in *Political Economy, Growth, and Business Cycles*. A. Cukierman et al., editors. Cambridge, MA: MIT Press.
- Plott, Charles R. (1967). "A Notion of Equilibrium under Majority Rule." *American Economic Review* 57: 787-806.
- Persson, Torsten and Guido Tabellini (1994). "Is Inequality Harmful for Growth?" *American Economic Review* 84:3, 600-621.
- Przeworski, Adam and Fernando Limongi (1993). "Political Regimes and Economic Growth." *Journal of Economic Perspectives* 7: 51-69.
- Roberts, Kevin W.S. (1977). "Voting over Income Tax Schedules." *Journal of Public Economics* 8: 329-340.
- Romer, Thomas (1975). "Individual Welfare, Majority Voting and the Properties of a Linear Income Tax." *Journal of Public Economics* 4:163-185.
- Summers, R. and A. Heston (1991). "The Penn world Table (Mark V): An Extended Set of International Comparisons, 1950-1988." *Quarterly Journal of Economics* 106: 327-68.
- van Ginneken, Wouter and Jong-goo Park (1984). *Generating Internationally Comparable Income Distribution Estimates*. Geneva: International Labour Office.
- Wang, T.Y., William J. Dixon, Edward N. Muller, and Mitchell A. Seligson (1993). "Inequality and Political Violence Revisited." *American Political Science Review* 87: 979-993.
- World Bank (1979). *World Development Report, 1979*. Washington: The World Bank.

Figure One

Issue 2

Uncovered set,
polarized

Uncovered set,
unpolarized



BEST AVAILABLE DOCUMENT

Issue 1

29

TABLE I
Default Risk, Inflation, and Inequality

Equation	1	2	3	4	5	6
Dep. Var.	Institutional Investor Rating, 1981-92		ICRG Risk of Loan Defaults, 1985-90		Currency Depreciation, 1969-90	
Constant	-4.186 (6.293)	20.858 (3.055)	2.146 (0.858)	4.012 (0.342)	18.168 (4.869)	6.447 (4.231)
GDP per capita	5.067 ⁺⁺ (0.594)	5.790 ⁺⁺ (0.464)	0.459 (0.048)	0.502 ⁺⁺ (0.035)	4.629 (2.367)	4.157 (2.240)
GDP per capita ²					-0.592 ⁺ (0.253)	-0.555 ⁺ (0.248)
per capita growth 75-80	2.016 ⁺⁺ (0.475)	1.792 ⁺⁺ (0.502)	0.092 ⁺ (0.045)	0.069 (0.047)		
Middle quintile share	1.692 ⁺⁺ (0.551)		0.116 (0.064)		-0.669 (0.439)	
Top20/Bot40 ratio		-1.220* (0.515)		-0.123 (0.098)		0.827 (0.590)
Adj. R ²	.74	.72	.64	.64	.09	.09
N	78	78	81	81	78	78
Mean, D.V.	44.3	44.3	5.74	5.74	13.6	13.6

Standard errors are calculated from White's heteroskedastic-consistent variance-covariance matrix. Inequality is circa 1980 except in currency depreciation equations (circa 1970). GDP per capita is 1980 except in currency depreciation equations (1970).

BEST AVAILABLE DOCUMENT

TABLE 3
Inequality, Default Risk, and Property Rights
by Regime Type

	Middle Quintile Share		Top20/Bottom 40	
	Democr.	Non-dem.	Democr.	Non-dem.
Institutional Investor Rating	4.197* (1.858)	1.488* (0.579)	-10.175** (2.484)	-0.686 (0.527)
	N = 23 R ² = .66	N = 55 R ² = .46	N = 23 R ² = .70	N = 55 R ² = .41
Risk of Loan Defaults (ICRG)	0.460* (0.204)	0.058 (0.065)	-0.914** (0.251)	-0.045 (0.099)
	N = 22 R ² = .55	N = 59 R ² = .14	N = 22 R ² = .55	N = 59 R ² = .14
Currency Depreciation	-0.669* (0.328)	-0.414 (0.410)	1.657** (0.358)	0.594 (0.585)
	N = 23 R ² = .26	N = 55 R ² = .16	N = 23 R ² = .40	N = 55 R ² = .16
ICRG Index 1982-90	2.462** (0.698)	0.307 (0.322)	-4.624** (1.434)	-0.327 (0.366)
	N = 22 R ² = .58	N = 59 R ² = .39	N = 22 R ² = .65	N = 59 R ² = .39
BERI Index 1982-90	-0.298 (0.371)	0.193 (0.102)	-1.876** (0.478)	-0.178 (0.138)
	N = 17 R ² = .27	N = 28 R ² = .19	N = 17 R ² = .62	N = 28 R ² = .14

BEST AVAILABLE DOCUMENT

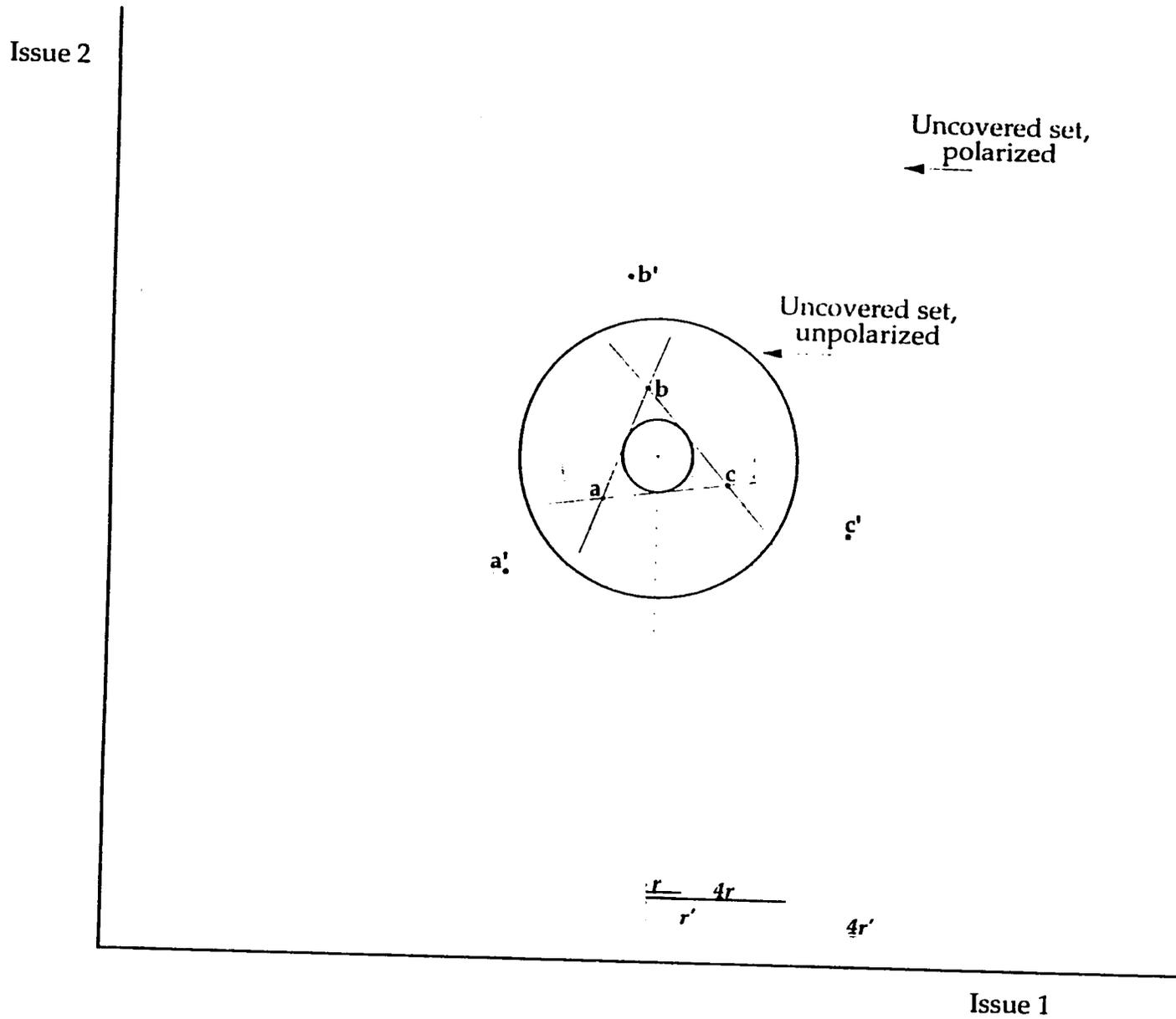
TABLE 5
Inequality, Regime Type and Economic Growth, 1960-85

Equation	1	2	3	4	5
Sample	Democracies (15)	Autocracies (33)	Autocracies (27)	All (48)	All (42)
Constant	-5.717 (3.733)	-1.506 (1.244)	-2.544 (1.222)	1.521 (1.139)	-2.525 (1.143)
GDP per capita, 1960	-0.976** (0.319)	-1.027* (0.446)	-0.688 (0.405)	-0.999** (0.275)	-0.857** (0.251)
Primary enrollment, 1960	4.649+ (2.106)	4.661** (1.219)	3.141 (1.348)	4.618** (0.094)	3.671** (1.036)
Middle Quintile Income Share	0.491* (0.213)	0.105 (0.092)	0.242+ (0.096)	0.106 (0.088)	0.227+ (0.089)
Democracy				-4.211 (3.412)	-1.796 (3.187)
Middle*Democracy				0.394 (0.240)	0.207 (0.226)
Adj. R ²	.37	.32	.38	.38	.42
Mean, D.V.	2.55	1.65	1.84	1.93	2.09

BEST AVAILABLE DOCUMENT

22

Figure One



BEST AVAILABLE DOCUMENT