The Political Economy of Growth:
A Critical Survey of the Recent Literature
and Some New Results

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1 Introduction.

Two of the most active fields in economics in the last few years have been growth theory and macro-political economy. The first one was inspired by new "endogenous growth theories" to reconsider which economic factors influence economic development. Recent research in "macro political economy" has explored the connections between politics, institutions and macroeconomic policies and outcomes.

Both fields are motivated by empirical questions and are very much concerned with policy issues. The growth literature attempts to understand which economic conditions such as education, openness, government regulation, infrastructures, government spending in various programs are more or less important for growth. The political economy literature is based upon the idea that economics alone cannot fully explain the enormous variance across countries of economic outcomes and policy choices. Similarly, economics alone cannot explain why different countries at relatively similar stages of development, facing relatively similar economic shocks have adopted rather different policies. Economic policy choices are not made by "benevolent dictators", who can be found only in academic papers. Policy is the result of political struggles within a certain institutional structure. The empirically oriented researcher and the policy advisor has to be aware of how politics influences policymaking.

This paper reviews the recent literature which has grown at the intersection of these two very active areas of research. Specifically, we analyze what we have learned and what puzzles (and there are many !) are left unsolved in the area of the socio-political

determinants of growth. We focus on the relation between four key variables: economic growth and capital accumulation; political instability; political freedom and democratic institutions; and income inequality.

Needless to say, the literature on this topic is immense. Both political scientists and economists have devoted decades to the study of these interactions.[1] We do not even attempt to offer a comprehensive review of this literature. We focus instead on the more recent research efforts in this area.[2] In fact, several recent papers have investigated various links between a subset of the variables listed above: income distribution and growth; political instability and growth; political rights, democracy and growth; savings, investment and political instability. The goal of this paper is to clarify how all these contributions to the literature fit together, by taking a more systematic view at the interactions between the variables described above.

We begin in section 2 with a discussion of the relation between political instability and growth. The two key issues here are how to define and measure political instability and how to account for the fact that neither of the two variables is exogenous to the other. In section 3 we discuss the question of whether democratic institutions and, more generally, political rights foster or hinder economic growth. Section 4 reviews the basic insight of several recent papers that have argued that income inequality is harmful for growth through its effects on taxation and therefore the return to capital accumulation.

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[1]A classic in this area of research is Huntington (1968).

[2]For more comprehensive surveys the reader is directed to Adelman-Robinson (1988) on income distribution and growth; to Roubini (1990) on democracy and growth; to Huntington and Dominguez (1975) for a "political scientist" approach.

In section 5 we propose a way of integrating the literature reviewed in the preceding sections.[3] Specifically, we investigate whether the effects of income inequality on growth and investment goes through political instability. The hypothesis is that less egalitarian societies are more unstable socially and politically, and instability has a negative effect on capital accumulation and growth. Up to this point, we have focused on the relation between politico-institutional factors and income distribution on one side and growth on the other side. In section 6 we begin exploring the intermediate links between these two sides by focusing on fiscal policy. We investigate the two mechanisms that drive the models of income distribution and growth surveyed in section 4: the effects of income distribution on fiscal policy and the effects of fiscal policy on investment and growth. Finally, section 7 concludes.

2 Political instability and growth.

Quantitative studies on the relationship between political instability and growth have to tackle two major issues. First, how to define political instability. Second, how to deal with joint endogeneity: does political stability foster growth or viceversa, or both ?

The first issue, the definition and measurement of political instability, has been addressed in two different ways. The first way is based upon the construction of an index of socio-political unrest. This index summarizes several indicators of more or less violent forms of political protest and social violence. The second way of defining political

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[3]This section draws upon some recent work of Alesina and Perotti (1992).

instability focuses on executive turnover, namely the frequency of government collapses.

The first approach, which we label the "socio-political instability" (SPI) approach, begins with a list of variables which identify events such as riots, political demonstrations against the government, assassinations etc.[4] The researcher must then construct an aggregate index that projects in one dimension this multitude of variables. A statistical technique that leads to such reduction from a multidimensional set of variables to a single one is the method of "principal components".[5] More recently, this method of construction of an SPI index has been used by Venieris and Gupta (1986), who show that SPI affects negatively the saving rate.[6] Using similar measures, Benhabib and Spiegel (1992) argue that socio-political instability reduces investment. However, their empirical results are not very strong on this point.[7]

As far as growth is concerned, Barro (1991) adds two political variables in his cross-section growth regressions (the frequency of coups d'etat and the number of political assassinations) and finds that they negatively influence growth.

The second approach to modelling political instability focuses on executive turnover. This "executive instability" (EI) approach begins by estimating the propensity of government collapses by means of probit regressions. The independent variables in these regressions are political variables (protests, riots, executive reshuffling etc.), economic

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[4]The most widely used sources for these variables are Jodice and Taylor (1985) and Banks (various issues).

[5]The classic reference for this approach is Hibbs (1973).

[6]Venieris and Gupta (1989) point out interesting non linearities in this relationship.

[7]The concept of SPI has proven quite powerful in explaining other phenomena, especially in developing countries: for example, Ozler and Tabellini (1992) show that more instability leads to an increase in external debt in developing countries.

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variables (past growth, inflation etc.) and institutional variables (whether the country is a democracy or not, the electoral system etc.). A high estimate of the probability of government change is viewed as an indicator of executive instability.

This measure of instability is used by Cukierman, Edwards and Tabellini (1992) in regressions where the dependent variable is inflation. They conclude that political instability increases inflation. Edwards and Tabellini (1991) pursue this line of research further and show that executive instability (EI) leads to "myopia" in fiscal policy decisions: unstable executives borrow more heavily than stable ones. Similarly, Goodrich (1991) finds that in LDC's foreign direct investments are negatively affected by this measure of executive instability.

An important problem that the contributions surveyed above do not address formally is that of the joint endogeneity of political instability and growth or inflation. This problem is particularly evident when dealing with the notion of executive instability. Economic variables such as growth and inflation are used to explain the propensity of government changes, which in turn is used as an explanatory variable for economic outcomes. Clearly, problem of simulteneity and reverse causality are crucial here.

Londegran and Poole (1990) suggested a clever way of dealing with this problem. They estimate a two equation model. One equation is a probit regression where the dependent variable is the number of coups d'etat. The dependent variable in the second equation is per-capita income growth. They find that poverty and, to some extent, low growth increase the likelihood of coups. Furthermore, coups d'etat are "persistent": past

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coups increase the likelihood of more coups. Thus, if a country has a history of coups, it is likely to experience more coups in the future. On the contrary, and somewhat surprisingly, they find that the propensity to coups does not reduce growth. The same authors (Londegran and Poole (1992)) confirm these results using a different sample and estimation techniques.

Alesina, Ozler, Roubini and Swagel (1991) adopt Londegran and Poole's technique but use different specifications. First, they control for many more economic determinants of growth. Second, they focus not only on coups but on a broader definition of government changes, which includes both coups and constitutional changes of the executive. While they confirm Londegran and Poole's results on the effects of poverty on coups, they find that a high propensity to executive instability reduces growth. This result is quite robust and holds in several different specifications of the system. Recent results by Block-Blomberg (1992) confirm the findings of Alesina et al. (1991) on this point.

In summary, the picture that emerges from this line of research is the following. Poor countries tend to have coups and are socio-politically unstable. Since political instability reduces the incentives to save and invest and therefore reduces growth, poor countries may fall into a "trap". They are unstable because they do not manage to become rich; they find it hard to become rich because they are politically unstable.[8]

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[8]A somewhat different view on this topic has been put forward by Huntington (1968), who concentrates on the causal link from growth to socio-political instability. He argues that it is not always true that all good things go together. When poor countries experience a period of take-off and rapid growth, social unrest may actually increase: new demands are generated, the process of urbanization accelerates, the entire society is in turmoil. This is not in general true for those rich countries that, for some reason, experience a period of high growth: rich countries, unlike poor ones, have already the institutions in

Some summary statistics on the data typically used in this area of research are quite suggestive. These statistics are reported in Table 2. Table 1 defines all the variables used not only in Table 2 but also in the rest of this paper.[9] Table 2 shows that Latin America is the region which has had the highest frequency of "major government changes" and coups d'etat. It is also the region with the second lowest rate of growth, after Africa. Africa also has a very low frequency of constitutional changes of government and a high frequency of coups and the lowest income per-capita. The variable DEM varies from close to 1 (fully democratic systems) in the industrial countries, to almost 3 (dictatorships) in Africa (see Table 2). A monotonic relationship between this variable and growth does not jump out of Table 2. Africa is the least democratic region and has the lowest growth rate. However, Asia is less democratic than Latin America but has grown more rapidly.

These simple observations point to the following hypothesis: what influences growth is not so much the type of regime (dictatorship or democracy) but regime instability, i.e. the propensity to coups and major changes of government. In the next section we turn to a more systematic discussion of the relationship between growth and political freedom.

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place to cope with social and economic transformations. Therefore, according to Huntington, the relation between instability and growth is nonlinear, and its sign depends on the level of development: positive for poor economies, negative for richer economies.

[9]Table 2 is adapted from Alesina et al.(1991).

3 Democracy, freedom and growth.

The concept of "political freedom" can be viewed in two ways, which are related but not identical. The first defines "democracy" and "political freedom" based upon the existence of free competitive (i.e. more than one party) elections. This definition was used in Table 2 above. The second focuses on the amount of civil and economic rights that are available to the population.

The two definitions are not identical. Some dictatorships are certainly undemocratic according to the first criterium, but may grant a certain amount of civil and especially economic rights to the public. The "four dragons" in South East Asia (South Korea, Singapore, Taiwan and Hong Kong) are a good example.

Why should one expect any relationship between growth and democracy defined in the first way? One line of argument emphasizes the possibility of a negative relationship. With political freedom various pressure groups have a "voice" in the political arena. Their demands for redistributive policies either imply legislative deadlocks or are resolved by increasing the size of the government. Furthermore, democratic institutions are supposed to be slower in responding to external shocks. Finally, incumbent politicians are expected to engage in sub-optimal and short-sighted policies to be re- elected.[10]

Each of these arguments, however, has a rebuttal. First, even dictators need to please various constituencies to avoid being overthrown (see Ames (1987)). Redistributive

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[10]On pressure groups and lobbying see Krueger (1974), Bhagwati (1982) and Mueller (1979). On fiscal deadlocks see Alesina (1988) and Alesina-Drazen (1991). For a survey of political business cycle models see Alesina (1992).

struggles between various socio-economic groups can certainly occur in various forms even without democratic institutions. In fact, lacking a constitutional way of changing a leader, political change often requires violence and disruption of market activities. Thus, a priori, there seems to be no obvious relationship between democracy and growth.

As a matter of fact, Alesina et al. (1991) find no relationship between democracy defined in this way and growth. This inconclusive result is consistent with the earlier literature (reviewed by Roubini (1990)). Basically, the point is that several dictatorships have followed growth enhancing economic policies (again, think of South-East Asia) while many others have destroyed their economies (think of much of Africa). Indeed, the careful and extensive study by Helliwell (1992) concludes that "it is still not possible to identify any systematic net effects of democracy on subsequent economic growth."

Perhaps one may try to disaggregate the group of dictatorships, by differentiating the truly "kleptocratic" ones from the more "benevolent". The former would include those rulers who have aimed at maximizing their personal wealth and the welfare of their clan and close supporters, and have disregarded to a large extent social welfare. The second group would include the dictators that have followed policies favorable to the socio-economic development of their countries. The problem of this exercise, of course, is that it easily becomes very close to a tautology: growth is high in dictatorships which are growth enhancing, and low in dictatorships where the rulers follow sub-optimal policies !

Another problem of this line of research is that democratic institutions are very highly

correlated with per capita income which, in turn, is highly correlated with education.[11] Thus, when a democracy variable is found significant in a regression where the dependent variable is growth, one has to worry about whether what is really being captured is the effect of per capita income or education. Disentangling the individual effects of these three highly correlated variables (GDP, education and democracy) is not a simple matter (see Helliwell (1992) on this point).

The second definition of democracy does not focus on elections, but on the level of political and economic freedom. The most widely used index of civil liberties is the Gastill index that ranks countries in seven groups. As an indicator of economic rights on might use measures of restrictions on capital mobility, trade restrictions or other measures of economic regulations. As before, one can think of arguments which are consistent with either a positive or a negative correlation between civil liberties and inflation. One may argue that economic liberty fosters entrepreneurship, market activities and growth. On the other hand, more economic liberty may translate into more conflicts over distribution. Results by Barro (1991) and Ozler and Rodrik (1992) suggest that, in fact, civil liberties are conducive to growth and capital accumulation.

As to economic freedom, it is perhaps easier to argue that less regulation and fewer obstacles to individual market activities should spur growth. Bhalla (1992) uses the black market premium as a proxy for economic freedom and reports a weak but positive effect

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[11]Table 2 illustrates this correlation. Recently there has been a welcomed push towards democratization in many parts of the world. However, in the sixties, seventies and early eighties (the sample typically covered in growth studies) there were very few democracies outside of the OECD group of countries.

of civil and economic liberties on growth.

The problem with these concepts of economic liberty is that the results obtained by using them are virtually undistinguishable from statements like "economic inefficiencies are bad for growth". It is not completely clear whether these results on economic freedom are implying something other than the fact that economic inefficiencies are not conducive to growth.[12]

What one can conclude from the research effort summarized in this section is that the hypothesis that democratic institutions are not conducive to growth is not supported by the available evidence. Certain dictatorships which score very low in terms of political rights because they do not allow free competitive elections, have grown very fast and have created the necessary environment for market activities to prosper. Other dictatorships have performed very poorly.

An interesting question, which links the previous section on political instability to the present one, is what happens in period of transitions, from dictatorship to democracy. Transitional periods may be associated with high levels of political uncertainty concerning the institutional outcome of the process. Furthermore, social demands repressed under the unconstitutional rule are likely to explode at the beginning of a new democratic regime. Until the new democratic regime is consolidated, it may face tremendous pressure to accommodate conflicting demand of different groups. In addition, collapsing dictatorships are likely to bequests serious economic problems for two reasons. First,

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[12]Roubini and Sala-I-Martin (1991) find that a measure of openness is positively related to growth. In some sense, openness, like the black market premium can be thought of as a proxy for economic liberty.

poor economic performance is likely to be one of the causes of the collapse of the old regime. Second, collapsing dictators may have a very high discount factor and follow very short-sighted policies. Haggard, Shariff and Webb (1990) and Haggard and Kaufman (1989) document, in fact, that countries in transition exhibit a worse performance in terms of many economic indicators than either established democracies or "strong" (i.e., established and not collapsing) dictatorships.

4   Income distribution and growth.

A third strand of literature focuses on the relation between income distribution and growth. Needless to say, this is not a new topic in economics: starting from the theories of Kuznets and Kaldor, these issues have been hotly debated in the development economics literature (for a survey, see Adelman-Robinson (1988)). What characterizes the new contributions is their close connection with the new theories of endogenous growth, and a focus on previously neglected links *from* income distribution *to* growth, rather than from growth to income distribution.

In particular, three links are emphasized in this recent literature. The first approach stresses the role of imperfect capital markets. In general, individuals cannot freely borrow against their future income: two frequently cited reasons for this difficulty are imperfect information and monitoring on the part of lenders. Thus, most people must rely, partially or completely, on their own resources to invest in physical or human capital. It

follows that the original distribution of these resources determines how many agents can invest, and therefore what is the resulting rate of growth of the economy. Important contributions to this line of research are Galor-Zeira (1988), Banerjee-Newman (1991) and Aghion-Bolton (1991).

In the second approach, the more unequal is the distribution of resources, the larger the incentives for agents in the lower tail of the distribution to engage in rent-seeking activities, which hinders investment and therefore growth. A recent formalization of this argument is Benhabib-Rustichini (1991).

In the third approach, on which we mostly focus here, the level of government expenditure and taxation is the result of a voting process in which income is the main determinant of a voter's preferences; in particular, poor voters will in general favor a high level of taxation.[13] This is because they will either pay a lower share of taxes, or will disproportionately benefit from government spending. In an inegalitarian society, with many poor agents relative to the average, the majority of voters will then vote for high taxation, which again will discourage investment and therefore growth. Alesina and Rodrik (1991) (henceforth A-R), Bertola (1991) (B) and Persson and Tabellini (1991) (P-T) are three contributions in this area.[14]

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[13]This line of research generalizes to a dynamic context static models of voting on the tax rate by Romer (1975), Roberts (1977) and Meltzer and Richard (1981).

[14]Perotti (1990) and Saint-Paul and Verdier (1991) are two other recent contributions that study the politico-economic determinants of growth. In both papers the agents vote over the level of government expenditure and growth is driven by accumulation of human capital, but the two mechanisms are different. In the former, individuals vote over the level of purely redistributive transfers: this determines the post-tax income of the agents of the economy and therefore who can privately invest in education. In turn, this determines the rate of accumulation of human capital. In the latter, agents vote over public expenditure on education: therefore, income distribution affects the accumulation of human capital through this channel.

Despite some differences in the specifics of the models, the contributions in this group share a common structure. Each of them consists of an *economic mechanism* and a *political mechanism*.[15] The former describes the effects of fiscal policy on growth. The latter describes how income distribution determines fiscal policy (taxes and government expenditure) through the voting process.

The papers differ in the type of government expenditure they consider: public investment (A-R), redistribution from capital to labor (B), purely redistributive transfers (P-T). The common element is that, whenever the share of government expenditure on GDP rises, the accompanying increase in taxation reduces the after tax marginal product of capital that can be appropriated by private investors: this reduces the rate of accumulation of capital and therefore growth. The distribution of initial resources comes into play because it helps explain how these types of government expenditures are determined.

Consider first A-R. Here the relevant distribution of resources is the functional distribution of income. The economic mechanism is as follows: public investment is financed by proportional taxation of capital income. Therefore, when taxes increase in order to finance more public investment, the after-tax return from private investment in capital decreases. This effect tends to decrease the rate of investment and therefore the rate of growth of an economy. Now consider the political mechanism: the higher the proportion of capital income in an individual's total income, the higher the price that individual has to pay for the benefits of public investment, and therefore the lower the tax rate that

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[15]For a more complete survey of these models, see Perotti (1992a).

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individual will vote for. According to the median voter theorem, when agents vote on the tax rate to be adopted the level of taxation preferred by the median agent in the distribution of resources will prevail on all the other proposed tax rates.

By combining the economic and the political mechanisms one obtains that, the higher the proportion of capital income to total income of the median voter, the lower the tax rate that prevails through the voting process and the higher the resulting rate of investment and growth. Unfortunately, we have no reliable cross-section data set on the distribution of wealth. However, it is well known that the distribution of wealth is more skewed than the distribution of labor income. This means that, if in country A the median income is lower than in country B, the same is true for their median wealth/labor ratios. Thus, one can use data on the distribution of income to proxy for the data on wealth/labor ratios. The testable implication of this model is therefore that there should be a positive relation between the income of the median voter and the rate of growth of the economy.

B also focuses on the functional distribution of income, but the economic mechanism is different: revenues from taxation are used for redistribution, not for infrastructure investment. Capital income is taxed and the proceeds are directly redistributed to agents who derive their income from labor. The effect of a higher level of taxation is then similar to the A-R model: it decreases the after-tax marginal product of capital that an investor can appropriate, and therefore it decreases investment and growth. The political mechanism is also similar to that of A-R: the higher the proportion of capital income to labor income, the more an agent has to lose from a proportional tax rate on capital that is

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redistributed to an individual in proportion to his labor income. Thus, the tax rate that prevails through the voting process is again a negative function of the wealth/labor ratio of the median voter. Combining the two mechanisms, one obtains the same reduced-form prediction as in A-R: the higher the wealth/labor ratio of the median voter, the higher the rate of growth of the economy. By applying the same reasoning used above, this can be translated into a testable prediction, i.e. that there should be a positive association between the income of the median voter and the rate of growth of the economy.

P-T also analyze the effects of redistributive policies, but they focus on redistribution from rich agents to poor agents rather than from capital to labor; therefore, the relevant concept is now that of the personal distribution of income. In the economic mechanism, agents work and invest in human capital. Taxes are proportional to income, and the revenues are redistributed lump-sum to all agents. Again, higher taxes discourage investment in human capital and therefore reduce growth. As to the political mechanism, since taxes are redistributed lump-sum, poor voters pay a relatively small amount in taxes, but receive the same benefits as rich voters. This means that the tax rate favored by an individual is inversely related to his income. When preferences are aggregated through the voting process, the implication is that the poorer the median voter relative to the average, the higher the tax rate and again the lower the rate of investment and growth.

In summary, the common testable prediction of all these models is that there should be a positive relation between growth or investment and the share of income accruing to the third quintile (a proxy for the income of the median voter relative to the aver-

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age). Although one might not want to take the median voter result too literally, the main message of this type of models is fairly clear: democratic societies with a more inegalitarian income distribution will have a higher level of government expenditure and taxation resulting from the political process, will invest less and therefore will grow more slowly. Reduced-form regressions of the rate of growth or the rate of investment on income distribution variables seem to support this conclusion.

These regressions are displayed in Table 3. The dependent variable is the average growth in per-capita GDP from 1960 to 1985 (first 5 columns) and the average rate of investment over the same period (last 3 columns).[16] The regressions in columns (1), (2), (3), (5) and (6) use the sample of 29 democracies; the other three columns include all the 65 countries for which data are available. The list of countries in the sample is reported in Table A.2 in the Appendix.[17] Our income distribution variables are measured in or around 1960, therefore at the beginning of the sample period on which growth is computed. This is appropriate because in all these models the initial distribution of income is taken as predetermined. The first three columns of this table highlight a positive relationship between the income share of the third quintile of the population

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[16]We use total domestic investment as the numerator in computing the average rate of investment. It would be more appropriate to test these models using private domestic investment instead. Data on private domestic investment, however, are only available for the 1970-85 periods. We use both private domestic investment and total domestic investment in our regressions for the 1970-85 period. Results using the two measures do not differ significantly. All these considerations apply to the regressions of Tables 6 and 7 as well.

[17]For the precise definition of "democracy" used to select the 29 countries see Perotti (1992b). In any case, the results presented in Table 3 are very robust to "sensitivity tests" on this definition; the results do not change when "dubious" cases are kept in or left out from the group of democracies. On this point see Alesina and Rodrik (1991,1992), Persson and Tabellini(1991) and Perotti(1992b).

and growth in democracies, as predicted by the theory. This result is robust to several changes in the specification.[18] Column 4 shows that the relationship between inequality and growth does not hold when the non democracies are added in the sample. This result is consistent with the theory; in fact the latter is based upon a voting mechanism, which is clearly more applicable to democracies than to dictatorships. Columns 5, 6 and 7 display similar results obtained when the dependent variable is the ratio of total domestic investment to GDP.[19]

Despite their apparent empirical success, several criticisms have been raised against these models. First, all of them assume a very stylized voting process, where all proposals are voted on in pairwise comparison in a referendum-type competition. Although this is a frequently voiced criticism, we do not regard it as particularly damaging because the empirical analysis concerns the long-run relations between income distribution, growth, investment and fiscal policy, not their year to year relations. Therefore, even though year by year fiscal decisions may be taken based upon many considerations which have nothing to do with the median voter's preferences and wealth, in the long-run it is not implausible to assume that the political equilibrium will reflect to some extent the position of such "focal points" as the "median voter" and the "middle class".

Another frequently voiced criticism is that these theories are limited in their applicability to democratic societies, and therefore almost exclusively to high-income countries.

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[18]Alesina-Rodrik(1991,1992) present similar results obtained using a sample and data sources almost identical to those of Table 3. Persson-Tabellini(1991) also obtain similar results using different data sources on income distribution.

[19]See Alesina and Rodrik (1992) for further results on this point.

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Again, in our opinion this is not a serious limitation for three reasons. First, even in dictatorships, an unequal income distribution may generate pressure for redistribution which may influence government policies. Second, it is possible that different political and institutional mechanisms explain fiscal policy in democratic and non-democratic societies. Indeed, we exploit this difference when we investigate the role of political instability below. Third, the level of income is controlled for in all these regressions.

A third objection is that the predictions of these models can be quite sensitive to the type of taxation and government expenditure considered. For example, in B's model when taxes are used to redistribute income from owners of capital to labor (as we have assumed up to now) it is intuitive that the rate of investment and growth will decrease. However, when taxes are used to subsidize investment, a high level of taxation promotes investment and growth by decreasing the price of capital relative to consumption and therefore by inducing agents to postpone consumption. In both cases, rich agents oppose high taxation: in the first case for obvious reasons, in the second because a high level of subsidization of investment reduces the price of the capital these agents already own. Thus, in a society where the median voter has a relatively low income the resulting high level of taxation will hamper growth if taxes are used to redistribute income from capital to labor, while it will promote growth if taxes are used to subsidize investment. Since in the real world both instruments (and more) are used, a reduced form regression that estimates the relation between income distribution and growth or investment may not be completely informative. At a minimum, it is necessary to disaggregate this relation into

its two components: the effects of income distribution on a *specific* type of government expenditure (the *political mechanism*) and the effects of that government expenditure variable on growth and investment (the *economic mechanism*).

We will attempt to explore this point in section 6. First, however, we investigate another link between income distribution and growth, one that passes through socio-political instability.

5   Income distribution, political instability and growth.

The idea we test in this section, which is based on Alesina and perotti (1992), is at the same time simple and plausible: when income distribution is very inegalitarian, the resulting tensions within a society induce a high level of political instability. This instability discourages investment and therefore generates a low rate of growth of the economy.

As pointed out in section 2 two definitions of political instability can be adopted: socio-political instability (SPI) and executive instability, i.e. the frequency of government collapses (EI). In Alesina and perotti (1992) we adopt the first definition. More specifically, we use a measure of socio-political instability originally proposed by Venieris and Gupta (1986) and obtained by applying the method of "principal components" to a large set of socio-political variables. It is constructed as follows:

$$SPI = .00065 PROTEST + .127 log(DEATHS + 1) + 2.84 DEM \tag{1}$$

where $PROTEST$ is the number of political demonstrations against a government, $DEATHS$ is the number of individuals killed in acts of political violence, and DEM is a dummy variable taking a value of zero if a country is a democracy, 1 if it is a dictatorship and .5 in intermediate cases. A democracy is defined in the first way discussed in section 3: a country is a democracy if its leaders are elected in free competitive elections.[20] The democracy variable corrects for the fact that a given level of unrest (captured here by the combination of $DEATH$ and $PROTEST$) is a an indicator of more serious socio-political instability in a dictatorship than in a democracy, since in the former demonstrations and political activities in general are obviously severely limited. Thus, this index captures two forms of political demonstrations; less violent ($PROTEST$) and more violent ($DEATH$).[21]

A simple bivariate system captures the basic mechanisms we are investigating:

$$INV = \alpha_0 + \alpha_1 SPI + \alpha_2 PPPIDE + \alpha_3 EDUC + \alpha_4 AFRICA + \epsilon_1 \qquad (2)$$

$$SPI = \beta_0 + \beta_1 ID + \beta_2 GDP + \beta_3 INV + \beta_4 URB \qquad (3)$$

$$+\beta_5 AFRICA + \beta_6 LAAMER + \beta_7 ASIA + \epsilon_2$$

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[20]The intermediate cases that receive a value of .5 are those countries in which some forms of elections are held but without full liberty. An example is Mexico.

[21]The variable $DEATHS$ is used in logarithmic form to prevent the cases of civil wars with thousands of deaths from dominating the results.

In the first equation we estimate the effects of socio-political instability (SPI) on investment, after controlling for some obvious economic variables, common in the literature. The variable $EDUC$ (enrollment ratio in primary school in 1960) captures complementarities in production between human and physical capital. $PPPIDE$ is the deviation of the PPP value of the investment deflator from the sample mean in 1960. It thus captures distortions that make investing in physical capital more costly. We expect a higher level of socio-political instability to discourage investment, i.e. $\alpha_1 < 0$.

The second equation specifies what can be regarded as plausible determinants of socio-political instability. The variable GDP measures the level of economic development. URB captures the degree of urbanization of a country. The regional dummies are meant to capture region-specific cultural factors. We are particularly interested in the two remaining variables. INV is essentially a proxy for the growth performance of an economy: it is plausible to assume that socio-political instability should be a decreasing function of the rate of growth of the economy. As to ID, the income distribution variable, the hypothesis is that socio-political instability is a positive function of the degree of inequality in the distribution of resources across individuals. We use two compact measures of inequality: one is the share of income accruing to third and fourth quintiles ($MIDCLASS$): a wealthy middle class implies a less polarized society. The second is the ratio of the share of income accruing to the top quintile to the share of income accruing to the first and second quintiles ($TOPBOT$): a high value of this ratio obviously implies

more inequality.[22] As we show in Alesina and Perotti (1992), results using the share of

the third quintile, MID, are not significantly different from those using $MIDCLASS$.

Before presenting the results of the regressions, we present in Table 4 and Table 5

the sample statistics and the correlations between the variables used in our system. Our

sample consists of 64 countries. Both tables refer to the period 1960-85. The two key

correlations for our purposes are those between SPI and INV, and between the income

distribution variables ($MIDCLASS$ and $TOPBOT$) and SPI. The first correlation is

-.64. $MIDCLASS$ has a correlation of -.45 with SPI and $TOPBOT$ of .30. All of these

signs are consistent with our hypothesis. SPI is highly negatively correlated with both

the level of income and the level of education. However, the latter two variables are

highly correlated with each other: this explains why we did not include both variables

in our SPI equation. The same argument applies to the investment equation, where we

included only $PRIM$ and not GDP.

Table 6 presents the estimates of our system for the periods 1960-85 (first four

columns) and 1970-85 (last four columns). Note that, for the 1970-85 period, the in-

come distribution variables are measured as close as possible to 1970. The results are

extremely good. All the three coefficients of interest have the expected sign and are

statistically significant. In the investment equation, socio-political instability depresses

investment; in the second equation, a good growth performance (as captured by the in-

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[22]We use the share of income accruing to the first *and* second quintiles because measurement errors
are likely to be particularly severe when measuring the share of the poorest segment of the population.
Combining the two quintiles might eliminate some of the errors.

vestment variable) makes a society more stable, while inequality generates socio- political instability. All the other coefficients have the expected sign and are generally statistically significant. For instance, SPI is inversely correlated to the level of income per capita and (weakly) positively related to urbanization.

The negative effect of socio-political instability on investment is indeed a very robust result: it holds for the 1970-85 subperiod as well, when the dependent variable is private investment rather than total domestic investment, and for several different specifications of the two equations. Alesina and Perotti (1992) the robustness of these results in much more detail.

In summary, this section has successfully tested a causality link from income distribution to socio-political instability, and from the latter to investment.

6   Income distribution, fiscal policy and growth.

Until this point we have ignored the *policy* mechanisms which link sociopolitical variables (income distribution and SPI) to economic outcomes, such as growth and investment. We now turn to examining fiscal policy as the main link. In the models of income distribution and growth surveyed in section 4, fiscal policy plays a crucial role in both the political mechanism and the economic mechanism. In the former, government expenditure and the tax rate depend on the distribution of income through the voting process. In the latter, government expenditure and the associated tax rate affect the incentives to invest

and therefore the rate of growth. It is exactly these two mechanisms that we estimate in this section. Thus, in this section we go beyond the results presented in section 4 by decomposing the reduced form regression in its two main components.

We concentrate on the case of purely redistributive government transfers for at least two reasons. First, transfers are the main component of virtually all government budgets in the countries in our sample of democracies. Second, when public investment or investment subsidies are involved one should be careful about what type of taxation finances them. For instance, in the A-R model results are likely to be reversed if public expenditure on infrastructure is financed by proportional taxes on labor income. On the other hand, they would probably continue to hold with sufficiently progressive taxation on total income. In addition to this theoretical complications, the existing breakdown in the tax data does not easily allow a satisfactory use of tax data in these regressions.

In contrast to the case of public investment, the idea that redistributional transfers reduce the incentives to invest seems fairly robust. By their very nature, transfers are associated with a redistribution of income from the high income agents to low income agents, and are financed by distortionary taxes. As we discussed in section 4, high income agents also tend to own a disproportionate share of the capital stock and to make most of the investment in physical capital. Therefore, redistribution tends to hurt the agents with the highest propensity to invest.[23]

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[23]Perotti (1992b) presents results concerning public investment and public expenditure on education. They do not differ qualitatively from the results presented here.

We use data on a sample of 29 democracies[24] to estimate the following model:[25]

$$INV = \alpha_0 + \alpha_1 GTRAN + \alpha_2 PPPIDE + \alpha_3 EDUC + \alpha_4 AFRICA + \epsilon_1 \qquad (4)$$

$$GTRAN = \beta_0 + \beta_1 MID + \beta_2 GDP + \beta_3 AGE + \qquad (5)$$

$$\beta_5 AFRICA + \beta_6 LAAMER + \beta_7 ASIA + \epsilon_2$$

The equation for investment is similar to the one estimated in the previous section, except that now we want to estimate the effects of government transfers ($GTRAN$) on investment. According to the theories of income distribution and growth discussed in section 4, $\alpha_1 < 0$. The second equation estimates the main determinants of government transfers. The income level, GDP, controls for Wagner's law, which states that government transfers are a luxury good and therefore their share in GDP increases with GDP itself. The proportion of individuals over age 65, AGE, appears as a regressor because a large component of government transfers is social security benefits, which obviously depend on demographic factors. As usual, the regional dummies capture region-specific cultural and political factors that affect the share of transfers in GDP. Finally, and most

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[24]The reason why we consider only democracies is that the mechanism linking income distribution and transfers implies voting (see section 4).

[25]Note that in this specification the model is recursive. Estimates of a more complete model, which includes a third equation for growth and a slightly more complete specification of the investment equation, can be found in Perotti (1992b). In particular, in that paper the rate of growth appears as a regressor in the investment equation to capture an accelerator effect. The results, however, are qualitatively very similar to the ones presented here.

importantly for our purposes, MID is the share of the third quintile of the population in GDP. Since the median voter lies in the middle of the third quintile, this variable is the right measure if one wants to test the political mechanism of the models of income distribution and growth. The hypothesis is that the richer the median voter, the lower the tax rate and therefore the share of transfers in GDP. Thus, we expect $\beta_1 < 0$.

The results are presented in Table 7. One can see immediately that both the coefficient of government transfers in the investment equation and the coefficient of the third quintile in the government transfers equation, i.e. the coefficients that define the economic and the political mechanisms respectively, have the wrong signs. Transfers have a positive effect on investment and they increase with the share of the third quintile. Thus, the good reduced form results presented in section 4 seem to be generated by something more complex than the simple economic and political mechanisms postulated by the theories of income distribution and growth discussed there. Note also that the other variables of the system have essentially the expected signs. In particular, AGE is an important determinant of transfers, and a higher price of investment goods ($PPPIDE$) deters investment.

These results appear to be quite robust. As we did for the system of section 5, we subjected our estimates to several checks. First, we used $MIDCLASS$ and $TOPBOT$ as income distribution variables instead of MID. In so doing, we test a looser implication of these models, according to which societies with unequal income distribution express more demands for redistribution and therefore experience lower growth. However, in most

cases *MIDCLASS* has a positive sign and *TOPBOT* a negative sign in the *GTRAN*

equation, although they are never statistically significant. Thus, even when using these

measures the seemingly robust finding is that more inequality is associated with *less*

transfers, not more.

In addition, we changed the specifications of the two equations, without significant

changes in the estimates of the coefficients α_1 and β_1. We also computed a set of test

statistics to detect the presence of important measurement errors and heteroskedasticity,

and estimated the *GTRAN* equation using estimators that are consistent and efficient in

the presence of heteroskedasticity and/or measurement error. Finally, we estimated the

government transfer equation using the 2SLS version of the Krasker-Welsch "bounded-

influence" estimator already introduced in section 5. In nearly all these cases, the coeffi-

cient of the income distribution variable still have the same (wrong) signs as in Table 7,

although they are never significant at standard levels.[26]

As a matter of fact, we are not alone in finding that government transfers have a

positive effect on growth. Sala-I-Martin finds the same correlation in a large sample of

countries including both developed economies and LDCs. Devarajan, Swaroop and Zou

(1992) also find puzzling and intriguing results on the effects of the composition of public

expenditures on growth. They report that in a sample of LDCs "an increase in the share

of current expenditures has positive and statistically significant growth effects" while

"the relationship between the capital component of public expenditures and per capita

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[26]For a more technical and detailed sensitivity analysis of these and other results concerning models of
income distribution and growth, see Perotti (1992b).

growth is negative".

These rather counterintuitive results suggest what we regard as an important direction for future research. The basic idea of the models by A-R, P-T and B is that more inequality raises demand for fiscal redistribution. It would appear that just looking at the ratio of transfers on GDP is not enough to capture the general idea of redistributive policies: the latter may take more complex and hard to pinpoint forms. For instance, the composition of public expenditure in different programs, the degree of progressivity of the tax system and the relative share of income versus property taxes are only a few of the many channels that fiscal redistributions can take. This is, in fact, a promising and unexplored area of research.

7 Conclusions.

We conclude by indicating which are, in our view, the next steps in this area of research.

First, the role of political instability deserves a closer look, along several dimensions. Thus far, we have considered two definitions of instability, socio-political and executive instability. At least another concept seems to be potentially relevant, one that has to do with "legislative instability" . In fact, variables like the number of parties in a coalition and dummies for coalition governments and for majority governments are economically and statistically significant in explaining inflation (Edwards and Tabellini (1992)) and the share of transfers in GDP (Perotti (1992b)). This suggests that legislative instability

could play an important role in affecting the policy outcomes and therefore the growth performance of an economy. Another interesting question is whether different concepts of instability have different explanatory power and different impacts on policy outcomes depending on the level of income of a country and/or its democratic status.

This brings us to the second open question involving political instability. So far, we have studied the relation between investment and political instability (section 5) and between investment and government transfers (section 6) separately. However, there are good a priori reasons (and some empirical results, as just mentioned) to suggest that political instability in its three forms should have an impact on government transfers and on the composition of government expenditure. Sala-I-Martin (1992) has recently argued that the direction of causation could go the other way too: since government transfers are used by policy-makers to appease citizens in periods of discontent and unrest, transfers can *reduce* political instability. By reducing political instability, transfers could positively affect investment. The interactions of these three variables - investment, political instability and transfers - deserve to be investigated empirically.

A second important direction for research would be to use the time series dimension of the data more extensively. For instance, in trying to understand the positive effects of government transfers on investment, it would be interesting to investigate whether the positive cross-section association between investment and transfers is dominated by short-lived periods of high growth driven by demand effects, in particular government expenditure. Then, as government expenditure remains high, growth declines in con-

sequence of the distortionary effects of taxation. Similarly, it would be interesting to explore in time-series data if the relation between the different concepts of political instability and government expenditure depends on the level of instability, and what is the timing of this relation. This analysis might go some way in trying to explain the first puzzle pointed out in section 6: the positive association between government transfers and investment.

Another line of research might help explain the second puzzle, the negative association between inequality and transfers. Indeed, the positive association that the theory suggests depends crucially on a very specific assumption about the distribution of taxes and benefits across income classes: the combined effect of taxes and expenditure is uniformly progressive. This might well be a counterfactual assumption, which might explain the results we have obtained. There is a large literature of country studies on the distributional incidence of taxation and government expenditure which we plan to use in future research. More generally, a closer communication between the literature on case studies and the large cross-section studies would be very beneficial.

Table 1: Definition of variables and data sources.

This Table describes the data used in the regressions. All the data are from the Barro-
Wolf [1989] data set, except for the income distribution data (which are from a variety
of source detailed in Table A.1 in the Appendix) or unless otherwise indicated.

GDP: GDP in thousands of 1980 dollars, from the Summers-Heston data set.

GR: rate of growth of *GDP* between years 1960-85 or 1970-85.

EDUC: primary school enrollment rate in year 1960 or 1970.

MID: share of the third quintile of the population in or around year 1960 or 1970.

MIDCLASS: share of the third and fourth quintiles of the population in or around 1960
or 1970.

TOPBOT: ratio of the share of the fifth quintile to the share of the first and second
quintiles, in or around 1960 or 1970;

URB: Urban population as percentage of total in year 1960 or 1970. Source: World
Bank Tables;

AGE: Percentage of population over age 65 in year 1960 or 1970. Source: World Bank
Tables.

GTRAN: Nominal government transfer payments as ratio to nominal GDP (average
from 1970 to 1985).

INV: ratio of real domestic investment (prvate plus public) to real GDP (average from
1970 to 1985 or from 1960 to 1985.).

PRIVINV: Ratio of real private domestic investment to real GDP (average from 1970
to 1985);

PPPIDE: Deviation of the PPP value for the investment deflator from the sample mean,
1960;

GCHANGE: Dummy variable takung the value of 1 for every change of the executive,
both constitutional and unconstitutional. Source: Jodice-Taylor (1982), corrected by
Alesina et al. (1992);

MJCHANGE: dummy variable taking the value of 1 for every unconstitutional change
of the executive *and* every constitutional change of government with a change in the party
(or group) leading the executive. Source: Alesina et al. (1992);

COUPS dummy variable taking the value of 1 for every unconstitutional change of the
executive. Source: Jodice-Taylor (1982);

EXADJUST: dummy variable taking the value of 1 for every adjustment in the com-
position of the executive, without a change of leadership. Source: Jodice-Taylor (1982).

Table 2: Sample means of the data: 1960-82.

	ALL	LATIN	AFRICA	ASIA	INDUST	OTHER
GCHANGE	.28	.29	.21	.30	.39	.37
	(.45)	(.45)	(.41)	(.46)	(.49)	(.48)
MJCHANGE	.11	.16	.11	.07	.12	.16
	(.32)	(.36)	(.31)	(.25)	(.32)	(.37)
COUP	.048	.078	.057	.040	.00	.058
	(.21)	(.27)	(.23)	(.20)	(.00)	(.23)
EXADJ	.49	.49	42	.54	.53	.57
	(.50)	(.50)	(.49)	(.50)	(.50)	(.50)
DEM	2.24	2.18	2.83	2.33	1.07	2.23
	(.93)	(.92)	(.50)	(.89)	(.37)	(.91)
GR	.024	.022	.015	.033	.029	.041
	(.069)	(.065)	(.084)	(.068)	(.035)	(.060)
EDUC	.827	.963	.625	.826	1.020	.995
	(.30)	(.18)	(.33)	(.25)	(.17)	(.22)
GDP60	2626	2170	881	3379	6021	1879
	(4202)	(1003)	(499)	(8521)	(1801)	(163)
Countries	113	24	41	21	21	6
Obs. (60-82)	2592	552	943	476	483	136
Obs. (70-82)	3259	759	1051	572	693	184

This table is from Alesina et al. (1992). For some variables, units of measurement may be different from those utilized in this paper. Region breakdowns uses the IMF coding system. Hence, the "other" category refers to non-industrialized European countries.

Table 3: Reduced form regressions, 1960-85.

	GR	GR	GR	GR	INV	INV	INV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
constant	-.54	5.64	-2.48	.96	5.65	-2.26	6.75
	(-.31)	(.72)	(-1.14)	(.71)	(.72)	(-.19)	(1.40)
GDP	-.43	.80	-.42	-.66	.80	.29	.02
	(-3.00)	(1.03)	(-2.75)	(-3.89)	(1.03)	(.28)	(.04)
$EDUC$	.01	.02	.03	.04	.02	.01	.14
	(1.01)	(.30)	(2.49)	(4.07)	(.30)	(1.31)	(3.91)
MID	.23	.90	.20	.01	.90	.89	.20
	(2.32)	(1.91)	(2.03)	(.12)	(1.91)	(1.64)	(.78)
$PPPIDE$		-14.17	-1.85	.14	-14.17	-12.33	-9.77
		(-2.76)	(-1.65)	(.21)	(-2.76)	(-2.00)	(-3.92)
URB		-.003	.004	.007	-.003	.03	.01
		(-.04)	(.31)	(.48)	(-.04)	(.29)	(.24)
$LAAMER$			-.59	-2.20		-1.54	-4.40
			(-.71)	(-3.69)		(-.34)	(-2.05)
$AFRICA$			3.68	-1.20		13.74	-.65
			(2.66)	(-1.56)		(1.81)	(-.23)
$ASIA$			-.14	-.25		-.72	-2.72
			(-.23)	(-.40)		(-.20)	(-1.20)
$NOBS$	29	29	29	65	29	29	65
$\bar{R}^2$	.23	.28	.52	.42	.28	.37	.55

OLS. t-statistics in parentheses. The sample of 29 countries includes democracies only. The sample of 65 countries includes all countries for which data on income distribution and urbanization are available.

Table 4: Summary statistics (sample 1960-85).

	NOBS	MEAN	STD. ERR.	MIN.	MAX.
INV	72	19.34	7.32	6.82	36.91
SPI	70	1.68	1.26	0.00	3.21
GDP	72	2.05	1.88	.021	7.38
EDUC	72	79.14	30.77	5.00	144.00
MIDCLASS	72	33.08	5.73	20.10	41.90
TOPBOT	72	4.31	2.40	1.32	13.85
URB	65	39.33	23.19	4.00	82.00
PPPIDE	72	-.004	.25	-.49	.86

For definitions of variables and units of measurement, see Table 1. For sources, see Appendix.

Table 5: Correlation matrix (sample 1960-85).

	INV	SPI	GDP	EDUC	MIDCLASS	TOPBOT	URB	PPPIDE
INV		-.64	.52	.64	.29	-.08	.51	-.30
SPI	-.64		-.73	-.69	-.45	.30	-.60	.05
GDP	.52	-.73		.69	.41	-.24	.77	.08
EDUC	.64	-.69	.69		.23	-.06	.74	-.03
MIDCLASS	.29	-.45	.41	.23		-.61	.35	-.11
TOPBOT	-.08	.30	-.24	-.06	-.61		.24	-.09
URB	.51	-.60	.77	.74	.35	-.24		.04
PPPIDE	-.30	.05	.08	-.05	-.11	-.09	.04	

For definitions of variables and units of measurement, see Table 1. For sources, see Appendix.

Table 6: Investment and SPI equations, 1960-85 and 1970-85.

	INV	SPI	INV	SPI	PRIVINV	SPI	PRIVINV	SPI
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
constant	15.41	4.08	14.61	2.71	12.42	2.32	12.48	2.55
	(3.26)	(4.92)	(3.08)	(4.42)	(2.60)	(3.04)	(2.62)	(3.55)
EDUC	.10		.10		.10		.10	
	(2.48)		(2.62)		(2.37)		(2.36)	
SPI	-2.89		-2.67		-3.27		-3.29	
	(-2.62)		(-2.40)		(-3.51)		(-3.53)	
PPPIDE	-8.83		-8.82		-7.74		-7.74	
	(-3.83)		(-3.85)		(-3.18)		(-3.18)	
AFRICA	2.83	.74	2.81	.59	3.97	.47	3.97	.49
	(1.46)	(1.85)	(1.45)	(1.44)	(1.70)	(.92)	(1.70)	(.96)
GDP		-.31		-.33		-.26		-.26
		(-3.42)		(-3.66)		(-2.91)		(-2.88)
INV		-.06			-.07			
		(-2.19)		(-2.65)				
PRIVINV						-.05		-.04
						(-1.16)		(-1.14)
MIDCLASS		-.04				.01		
		(-2.01)				(.30)		
TOPBOT				.09				-.02
				(2.04)				(-.35)
URB		.01		.01		.01		.01
		(1.35)		(1.49)		(.92)		(.71)
LAAMER		-.01		-.12		.33		.38
		(-.03)		(-.34)		(.89)		(.90)
ASIA		.28		.19		.30		.30
		(.80)		(.54)		(.30)		(.70)

2SLS. t-statistics in parentheses. Estimates using 3SLS are very similar. First four columns: 1960-85. Last four columns: 1970-85. Number of observations: 64 (1960-85) and 53 (1970-85).

Table 7: Investment and govt. transfers eqs., 1960-85 and 1970-85.

	INV	GTRAN	INV	GTRAN	PRIVINV	GTRAN	PRIVINV	GTRAN
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
constant	13.43	6.09	12.43	8.34	11.92	1.36	11.94	9.48
	(1.89)	(.81)	(1.78)	(1.72)	(1.63)	(-.16)	(1.63)	(1.53)
EDUC	.02		.04		.04		.04	.03
	(.22)		(.45)		(.49)		(.48)	(.07)
GTRAN	.56		.49		.32		.33	
	(2.34)		(2.06)		(2.11)		(2.10)	
PPPIDE	-6.98		-7.57		-4.87		-4.85	
	(-1.46)		(-1.62)		(-1.23)		(-1.23)	
AFRICA	10.96	-8.83	11.24	-8.99	13.67	-6.10	13.68	-4.52
	(1.72)	(-1.58)	(1.80)	(-1.29)	(2.57)	(-1.15)	(2.57)	(-.69)
GDP		-.12		-.10		-.11		.03
		(-.20)		(-.16)		(-.23)		(.03)
INV		-.06		-.07				
		(-2.19)		(-2.65)				
PRIVINV						-.05		-.04
						(-1.16)		(-1.14)
MID		.16				.64		
		(.34)				(.99)		
TOPBOT				-.06				-.70
				(-.07)				(-.72)
AGE		1.07		1.11		.91		.97
		(2.14)		(2.24)		(2.12)		(2.25)
LAAMER		-7.21		-7.52		-5.93		-6.01
		(-1.80)		(-1.87)		(-1.67)		(-1.67)
ASIA		-2.94		-2.88		-2.61		-2.43
		(-.82)		(-.78)		(.80)		(-.69)

2SLS. t-statistics in parentheses. Estimates using 3SLS are very similar. First four columns: 1960-85. Last four columns: 1970-85. Number of observations: 64 (1960-85) and 53 (1970-85).

Table A.1: Sources of income distribution data.

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Table A.2: List of countries and democracies.

Tanzania; Malawi; Sierra Leone; Niger; Burma; Togo; Bangladesh; Kenia; Botswana(D); Egypt; Chad; India(D); Morocco; Nigeria; Pakistan; Congo; Benin; Zimbabwe; Madagascar; Sudan; Thailand; Korea; Zambia; Ivory Coast; Honduras; Senegal; Gabon; Tunisia; Taiwan; Philippines; Bolivia; Dominican Republic(D); Sri Lanka(D); El Salvador; Malaysia(D); Ecuador; Turkey(D); Panama; Brazil; Colombia(D); Jamaica(D); Greece(D); Costa Rica(D); Peru; Hong Kong; Iran; Mexico; Japan(D); Spain(D); Iraq; Ireland(D); South Africa(D); Israel(D); Chile; Argentina; Italy(D); Uruguay; Austria(D); Finland(D); France(D); Netherlands(D); U.K.(D); Norway(D); Sweden(D); Australia(D); Germany(D); Venezuela(D); Denmark(D); New Zealand(D); Canada(D); Switzerland(D); U.S.(D).

A "(D)" indicates that the country is in the sample of democratic countries.

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