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"Economic development as a matter of political geography"

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Economic development as a matter of political geography [*]

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Abstract: We start out from the hypothesis that limited government leads to low uncertainty and low transaction costs. The impact of uncertainty and transaction costs on income per capita is formalized in a simple capital market model with credit constraints. If political institutions affect the degree of uncertainty and transaction costs, we show they should affect the steady state level of income per capita. Consistent with the idea that economic development is driven by political development, the empirical relation between political institutions and economic development shows that increases in political constraints precede economic growth. Economic development seems to require political stability once limited government is in place: polity persistence is positively related to economic development only if there are high political constraints.

JEL: E22, G11, O16, P16

Key words: limited government, property rights, capital market, economic development

Economic development as a matter of political geography

> "Democracy and aristocracy are not free states by their nature. Political liberty is found only in moderate governments ... So that one cannot abuse power, power must check power by the arrangement of things." Montesquieu, *The Spirit of the Laws*, Book 11.

> "To explain the changes following the Glorious Revolution we first characterize the problem that the designers of the new institutions sought to solve, namely, control over the exercise of arbitrary and confiscatory power by the Crown." North and Weingast (1989).

1. Introduction

Political uncertainty has been repeatedly related to growth. Besides a host of empirical studies (cf. a recent survey in), this is also the standard treatment in many textbooks (e.g. Barro and Sala-i-Martin, 1995). Instead, we will argue that one can expect a simple link between political uncertainty and income per capita.

It is easy to state our point in a nutshell in terms of an old discussion in macro: interest rates affect the desired capital stock, not investment.[1] Our formulation is even closer to a point made in international economics: interest rate differentials affect portfolio allocations, not capital flows.[2] In the context of economic development, higher political uncertainty raises interest rates through higher sovereign risk. A country with higher political uncertainty should thus have lower capital stock and income per capita.

In Section II, following Douglass North (1981, 1990), we review how low political uncertainty is produced by limited government. Furthermore, the process of institutional development takes time. A political structure that does not have a large track record leads to

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[1] This was the Jorgenson criticism in the early 60's to the Tinbergen style investment equations.

uncertainty about what rules actually apply, if one thinks of institutions as the rules of the game. But this is not enough: even when a political structure has persistence, the rules of the game may not restrict the possible outcomes much if there is a lot of discretion. As empirical measures of limited government and its track record, we will use two variables that reflect basic political institutions, political constraints and polity persistence (Henisz, 1998). Our starting hypothesis is thus that high political uncertainty is due to both low polity persistence and low political constraints.[3]

The historical literature shows that transaction costs may be an additional channel by which basic political institutions may affect development. Property rights are created under limited government. North (1981) points out how property rights lead to greater efficiency, reducing transaction costs. Property rights take time to evolve. The transaction cost channel complements the uncertainty channel pointed out above.

In Section III, we analyze how uncertainty and transaction costs affect the steady state level of income per capita in a simple framework, a capital market with credit constraints. Higher political uncertainty is modeled as a larger dispersion of the returns of projects. Higher transaction costs are modeled as a reduction in average returns. In the model, lower uncertainty and lower transaction costs imply lower interest rates and a larger capital market. Putting the initial hypothesis and the model together, the implication is that limited government leads to higher income per capita. Because of the slow process of institutional development, this relationship should grow stronger over time.

In the empirical part in Section IV, the paper explores the relationship of basic political institutions with income per capita. Given the high persistence of both the log of income per

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[2] See portfolio models versus flow approach to balance of payments.

capita and of political constraints, we first look at these variables in differences. The present framework implies that changes in political constraints should lead to growth, i.e. the view advanced by North that political development drives economic development. The data from a cross-section of countries is consistent with this view, since it points in the direction that changes in political constraints precede growth.

Since political constraints influence income in a Granger sense, we then look at the relation between basic political institutions and economic development in levels. There is a strong positive correlation of both political constraints and polity persistence with income per capita. However, the positive correlation between polity persistence and income per capita seems to be the consequence of the presence of high political constraints. This points in the direction of limited government as the path to economic development.

2. Basic political institutions

Because of the scope of political institutions, societies can be divided according to national borders. The marked influence of political institutions on economic development is very vivid in the contrasts between East and West Germany, or North and South Korea (Olson, 1996). Despite a common heritage, these countries had tremendously different economic performances. In both cases, the key difference was a political frontier.

Within a country, the basic political institutions are those that determine the organization of political power at a constitutional level. We use two variables to describe basic political institutions, political constraints and polity persistence (Henisz, 1998). Political constraints

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[3] See Streb (1999) on the dual nature of political uncertainty.

capture the degree of separation of powers.[4] The variable polity persistence measures how long a political structure lasts over time.

The idea of institutions as the rules of the game is useful (North 1981). The rules of the game in principle determine what is allowed and what not. Typically, rules do this not by limiting the choice set, but rather by affecting the payoffs of the alternative choices faced by individuals.[5] Basic political institutions can be seen as the basic rules, i.e. the rules on how rules that govern property rights are changed. Political constraints are basic rules that limit the actions of the agenda setter. Polity persistence refers to basic rules that last over time.

Though specific legislation and regulation are important because the legal system determines the exact content of property rights, we restrict the focus of our present analysis to basic political institutions. Basic political institutions are related in an indirect way to property rights: they determine the legal system that regulates property rights. That politics is at the bottom of property rights has a long history. Smith (1776) viewed the protection of private property as the reason for civil government. North (1981) elaborated this point in terms of the crucial need of a state with a comparative advantage in violence to define and enforce property rights.

Though property rights inherently rest on the decisions of political power, these political foundations can be very flimsy. In all political systems there is inherently some discretion in political decisions, but larger political constraints can be expected to limit the arbitrary use of that discretional power. The weaker the separation of powers, the easier it is for the assets of individuals to be subject to the whims or caprice of the government. An extreme case that

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[4] Political constraints do not merely refer to the difference between dictatorship and democracy. Not every democracy satisfies the characterization of limited government. Rather, a constitutional, or liberal, democracy that observes certain basic rights is required (see e.g. Nino, 1996).

illustrates this is despotism, where no one but the despot has any property rights. In Book 5, Montesquieu (1759) wrote, with the Ottoman Empire in mind where most of the goods were held in precarium,

> Of all despotic governments, none is more oppressive to itself than the one whose prince declares himself the owner of all the land and heir to all his subjects. This always results in abandoning the cultivation of the land and, if the prince is a merchant, in ruining every kind of industry.
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> In these states, nothing is repaired, nothing improved. Houses are only built for a lifetime; one digs no ditches, plants no trees; one draws all from the land, and returns nothing to it; all is fallow, all is deserted.

Montesquieu hints at a problem of moral hazard: anybody with absolute power will feel entitled to seize anything that she or he wishes. One can also think of this as a problem of adverse selection: an absolute ruler may be a madman or an illustrated despot. If basic rules set no constraints on the executive power, under asymmetric information individuals face the highest degree of uncertainty about the outcomes of their actions. Lower political constraints thus increase uncertainty. [6]

Political constraints are not enough to assure low uncertainty. We emphasize a reason that has to do with the track record of a system, which is close to Olson's (1997) observation that in new democracies economic performance can be worse than under a dictatorship.[7] In a new

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[5] Cf. for example Baird, Gertner and Picker (1994), who illustrate how liability laws affect the incentives of economic agents to exercise due care.

[6] In Akerlof (1970), institutions were offered as a solution to adverse selection problems in markets. The same applies to political questions: modern democracies establish constitutional restrictions to the actions of political leaders to avoid problems of adverse selection.

[7] Instability also causes uncertainty because an unstable regime cannot assure future property rights. We do not enter into expectations on the duration of a regime, though perhaps under high political constraints, expectations of a

constitutional democracy, what the constitution actually says has to be filled in with government practice, as well as with the interpretation of constitutional rights and obligations by courts, as *The Federalist* says of the U.S. Constitution. Besides, it takes time to enact specific legislation that governs property rights. Hence, uncertainty can be expected to decrease with polity persistence.

Though polity persistence can be expected to reduce uncertainty in a dictatorship, insofar as the actions of the ruler reveal information on its preferences and reduce the degree of asymmetric information, there is a fundamental difference. In an autocracy, men govern without institutions, so over the longer term this uncertainty is recreated with each successor.

Our starting hypothesis was the effect of limited government on uncertainty, but in the literature there is another channel by which basic political institutions affect the economy. North (1981) not only contrasts the arbitrary taxation power of the kings in France and Spain to the lower uncertainty in Netherlands and England, where the General Courts and the Parliament had to give their assent to the taxes proposed by the sovereign. In North's historical account, limited government also leads to reduced transaction costs. Elaborating on North and Thomas (1973), who show that a political system gives the right incentives to economic development only when the rents from innovation are appropriated by innovators, North points out that in the Netherlands and England in the XVIIth century more efficient property rights appeared.

The link between limited government and property rights is in the spirit of Montesquieu. Montesquieu considered that the separation of powers was required to assure property rights, as well as all other types of rights of individuals. Individual rights where the creature of limited

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change decrease as polity persistence increases (with low political constraints, expectations of a change may instead increase as the leader ages).

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government. North shows how clearly defined property rights historically lead to lower transaction costs, extending the implications outlined in Coase (1960).

The development of property rights takes time, so polity persistence can be expected to contribute to the development of property rights by a process of learning by doing. Polity persistence can be expected to have a beneficial effect on economic development once the correct political framework is in place, i.e. in countries with political constraints.

In short, low political constraints and low polity persistence lead to political uncertainty, as individuals do not know exactly what they are playing at. They also lead to high transaction costs. In the next Section we take these stylized facts as our starting point to link basic political institutions with economic development.

3. A model of the capital market

To model the effect of uncertainty and transaction costs on steady state income per capita, we focus on the channel of financial development due to its importance in the process of development. Olson (1997) has gone so far as to mark the difference between development and underdevelopment as the difference between the existence or not of a well-developed capital market. Olson has also emphasized that developed capital markets require an effective legal system that ensures that differed transactions and contracts are enforceable.

The legal system depends on the system of government, so one can go further down. North and Weingast (1989) did exactly this: they showed how specific basic political institutions underlie effective legal systems, linking the development of the capital market in England to the elimination after the 1688 Revolution of the arbitrary and confiscatory power of the English Crown. Instead of a case approach, we will apply this insight to a cross-section of countries, after elaborating the link analytically in this Section.

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We describe the effects of transaction costs and uncertainty in a model with imperfect information and credit rationing based on Williamson (1987).[8] We add more structure to the production sector, to see how the equilibrium in the credit market affects the level of income per capita.[9]

3.1. Interest rate

There are two sets of participants in the economy, firms and investors. Both sets of agents are assumed to be risk neutral.

Firm i receives a random return p_i on its investment project. It is common knowledge that the returns of each firm are independent and identically distributed according to a probability density function $f(p_i)$. For analytical simplicity, we assume p_i is uniformly distributed over the interval $(\mu - \beta, \mu + \beta)$, where μ is the expected return of a project and β measures the degree of uncertainty.[10] Greater uncertainty is a mean-preserving spread in the returns of investment projects, i.e. a larger β. Transaction costs τ affect the average return of undertaking investment projects, so average returns are given by $\mu - \tau$.

As in the costly state verification model (Townsend, 1979; Gale and Hellwig, 1985), we assume there is a monitoring cost $\gamma > 0$ for an investor. The cost γ can be interpreted as the cost incurred by the investor in case the firm declares it is bankrupt. A contract between a borrower and a lender will be a function that specifies the payment transfer from the borrower to the lender. Firms are assumed to have limited liability. In this type of setting, Williamson (1987)

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[8] The Williamson model is simpler than Stiglitz and Weiss (1981), since there is no adverse selection nor ex-ante moral hazard (there is ex-post moral hazard: firms have an incentive to underreport their returns in case of bankruptcy, which leads investors to incur monitoring costs). Freixas and Rochet (1998) consider that an advantage of the Williamson model is that, unlike Stiglitz and Weiss, it does not require special assumptions about the distributions of the returns to derive equilibrium credit rationing.

[9] Avila (1998) models the influence of country risk on steady-state income per capita. Streb (1998) in turn relates country risk to uncertainty about property rights in a portfolio model close to the current approach.

[10] This allows to derive a simple analytical solution (cf. Druck and Garibaldi, 2000).

established that the optimal contract is a standard debt contract which specifies the borrower shall pay the lender a fixed amount r^* at the end of the period, unless the borrower defaults on the debt. The amount r^* represents principal plus interest charges, and can be interpreted as the (gross) interest rate if the size of each project is normalized to one. The firm will default on the debt when π_i, the realization of return p_i, does not allow to cover the interest rate: $\pi_i < r^*$. In that case, the investor will receive the entire return of the project after paying the monitoring cost γ.

We assume each borrower is assigned to one lender, and the lender has all the bargaining power. The expected profit ρ for an investor in a project of firm i is a function of interest rate r:

(1) $\rho(r) = r\int_r^{\mu+\beta} f(p_i)\,dp_i + \int_{\mu-\beta}^r (p_i - \gamma)\,f(p_i)\,dp_i - \tau$

where the first term is the revenue when the loan is repaid, weighted by the probability of repayment, the second term can be interpreted as the expected value of the project net of the monitoring costs when the firm defaults, weighted by the probability of default, and the last term are transaction costs in the given economy.

Plugging the assumption about a uniform distribution in equation (1), an investor's profit function for $\beta > 0$ can be rewritten as

(2) $\rho(r) = r\dfrac{\mu+\beta-r}{2\beta} + \dfrac{r^2 - (\mu-\beta)^2}{4\beta} - \gamma\dfrac{r - (\mu-\beta)}{2\beta} - \tau$

Maximizing profit equation (2) with respect to r yields the optimal interest r^*:

(3) $r^* = \mu + \beta - \gamma$

for the interval $\gamma \in [0, 2\beta]$, where $r \in [\mu-\beta, \mu+\beta]$ as assumed in equation (1).

For $\gamma > 2\beta$, monitoring costs are so high that the lender cannot expect to recover more than $\mu-\beta$. The solution for $\gamma > 2\beta$ is instead

(4) $r^* = \mu - \beta$

Alternatively, the equilibrium may be described either by (3) for high levels of uncertainty β, or (4) for low levels of uncertainty β.

The model implies credit rationing: though all projects are identical, some are funded and others are not. A firm that does not receive funds and offers to pay a higher interest rate will be rejected.[11]

3.2. Portfolio allocation

In what follows, we will assume that investors can lend money either to firms in risky country R or in safe country S. We assume that $\beta_R \geq \beta_S$, so uncertainty in the safe country S is (weakly) lower. We also assume that $\beta_S \geq \gamma/2$, so interest rates are determined by equation (3).[12]

Investors have access to investment in the safe country S with an expected return $\mu_S - \tau_S$, while investment in risky country R has expected return $\mu_R - \tau_R$. Transactions costs are assumed to be (weakly) lower in safe country S: $\tau_R \geq \tau_S \geq 0$.

The investor will be indifferent between investing in the marginal projects in countries R and S when:

(5) $\rho(r_R^*) = \rho(r_S^*)$

Equation (3) can be used to replace optimal interest rate r_i^* in equation (2) for $i=R,S$:

(6) $\rho(r_i^*) = \dfrac{\gamma^2}{4\beta_i} - \gamma + (\mu_i - \tau_i)$

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[11] This is also known as type 2 credit rationing (type 1 is when a firm cannot borrow as much as it likes at the going interest rate, see e.g. Freixas and Rochet, 1998).

[12] If $\beta_S < \gamma/2$, interest rates in S would be determined by (4), something that would not change the qualitative results of the model. If, additionally, $\beta_R < \gamma/2$, interest rates in R would also be determined by (4), leading to the counterintuitive result that interest rates would be lower in the risky country. The assumption in the text discards either case, which imply that in equilibrium there is no default on debt.

Plugging (6) for $i=R,S$ into equation (5), one can derive the equilibrium condition for investors:

$$(7) \quad \mu_R = \mu_S + (\tau_R - \tau_S) + \frac{\gamma^2}{4}\left(\frac{1}{\beta_S} - \frac{1}{\beta_R}\right)$$

If the sum of the second and third terms in (7) is positive, $\mu_R > \mu_S$ will be required in equilibrium. The average returns will be determined endogenously by the capital stock sunk in each country.

3.3. Capital stock

We now model the average return of the project of each firm. The individual return will be assumed to be a decreasing function of the capital stock in each economy.

We assume that income per capita $y \equiv Y/L$ is a function of the capital stock per capita $k \equiv K/L$. The production function $f(k)$ is homogeneous of degree zero in K and L. The marginal productivity of capital is positive, and there are decreasing marginal returns to capital, so

$$(8) \quad y = f(k), \quad f'(k) > 0, \quad f''(k) < 0$$

The return on investment projects will be determined by the marginal productivity of economy-wide capital K_i in $i=R,S$ according to the condition

$$(9) \quad \mu_i = f'(k_i)$$

In this setting, the capital stock per capita will be equalized in both countries if both have the same uncertainty and transaction costs: by (7) $\mu_R = \mu_S$, so need $f'(k_R) = f'(k_S)$ and $k_R = k_S$. That in turn will imply by (8) that income per capita is equalized across both countries.[13]

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[13] If there were no risk ($\beta=0$), the interest rate on loans would equal the marginal productivity of capital by equation (4). In that case, all the factors of production would be remunerated according to their marginal product, and the expected profit of firms would be zero. However, under risk the expected profit of firms is positive (a Knightian feature). Given interest rates defined in equations (3) and (4), equation (1) implies that firms get nothing when they default, but they have a positive residual profit when the loan is repaid.

We depict the equilibrium in Figure 1, where the total capital stock K can be invested either in K_R (from the left) or in K_S (from the right). The marginal productivity of capital $f(k_i)$ is decreasing in K_i for a constant level of labor L_i, so by (6) the average return of investors $\rho_i \equiv \rho(r_i^*(K_i))$ slopes downward as K_i increases and more investment projects are carried out in the economy. The equilibrium is at the point where returns in both countries are equalized.

< insert Figure 1>

If either risk or transaction costs are larger in country R, $k_D = k_U$ cannot be an equilibrium since investors would prefer to switch to the safe country.

3.4. Comparative statics

We now describe how changes in transaction costs and in uncertainty affect the steady state equilibrium in the capital markets.

If transaction costs τ_R increase in country R, by (6) the ρ_R schedule would shift downwards by the amount $\Delta\tau_R$ of that increase.

< insert Figure 2>

In equilibrium, K_R falls and K_S rises. By equation (3), this implies that the shift of the ρ_R schedule will raise interest rates in country R (and it will lower them in country S). By equation (8), per capita income in R falls.

Likewise, an increase in risk β_R leads to a downward shift of the ρ_R schedule equal to $(\gamma/\beta_R^0)(\Delta\beta_R/\beta_R)$. This shift leads to a reduction in the capital stock in country R. The shift will also raise the interest rate in country S: an increase in β_R will increase interest rate r_R^* through equation (3) both directly, and indirectly through a smaller equilibrium K_R. By equation (8), per capita income in R falls.

4. Empirical evidence

We put together the implications of our framework to see how political development affects economic development. Section 2 spelled out how limited government lead, over time, to low uncertainty and low transaction costs. Section 3 modeled how low uncertainty and low transaction costs lead to a high steady-state income per capita. Hence, limited government should lead to higher income per capita.

Another implication of this framework is that limited government leads to a larger capital market and lower interest rates. This is exactly what North and Weingast (1989) found after the installation of limited government in England in 1688. Saiegh (1996) found the same pattern in Argentina after the 1853 constitution established republican government. We do not explore this empirical implication.

To address the problem that political institutions can depend endogenously on economic development, we first look at the causality between political constraints and income per capita. Our Granger causality tests point in the direction that political development precedes economic development.

4.1. Data set

The data on income per capita covers the period 1960-1990 and are taken from the Penn World Tables. The data set on political institutions is taken from Henisz (1998).[14] He constructs a very nice measure of political constraints to reflect the degree of limited government.

Polity persistence occurs when there is no change in the political regime. Examples of changes are the transition from democracy to dictatorship, or from a unitary to a federal system, the exclusion of significant groups from the political process, and the establishment of a legislature to limit the power of the executive.

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Political constraints are 0 when there is only an executive power without any kind of limit, while the values approach 1 if there is a legislative power, a federal structure and a judicial system. Divided government and an independent judicial system count as a larger degree of political constraints.

4.2. Causality tests

According to modernization theory, that has been very popular in political science, democracy is an endogenous consequence of economic development (cf. Preworski and Limongi, 1997).[15] The approach in this paper turns the issue on its head. In the line of Montesquieu and North, our hypothesis implies that political institutions drive economic development. Moderate government, and constitutional democracies, are expected to lead to economic development.

We test econometrically the causality between political constraints and income per capita. Political constraints and income per capita are statistically persistent variables, so we first difference both. Our hypothesis implies, in first differences, that changes in political institutions drive economic growth. The data set is divided in two periods, 1960-1975 and 1975-1990, to carry out Granger causality tests.

The changes in political constraints in response to changes in income per capita are shown in Table 1.

<insert Table 1>

Growth does not seem to precede changes in political constraints in the sample period. However, some of the changes in political constraints seem to cancel out later.

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[14] Cf. http://www-management.wharton.upenn.edu/henisz/ for the political constraints index and http://www.colorado.edu/IBS/GAD/spacetime/data/Polity.html for the polity database.
[15] According to Preworski and Limongi, modernization theory does not stand up to the facts. They point out that the positive association of democracy and economic development can be due to an exogenous explanation: even though democracies are established independently of economic development, they are more likely to survive in developed countries.

Table 2 shows the inverse relationship, how economic growth responds to changes in political constraints.

<insert Table 2>

Changes in political constraints are significant in the regression. Hence, the Granger causality tests point in the direction that changes in political constraints precede changes in income per capita. This is consistent with our view that political constraints drive economic development.

These results are intended as a first step. They are interesting in that they point out that political factors Granger-cause economic development. This agrees with North, and runs counter to the usual political science, and Marxist, views. These results can be integrated into a more standard analysis of the determinants of growth.

4.3. Political determinants of economic development

We now turn to the relation in levels between political constraints and income per capita, in order to get a grasp of the steady state relationship.

Both political constraints and polity persistence have strong positive correlations with income per capita in the data. However, according to our framework the key variable that drives economic development is not political stability, but rather its combination with limited government.[16] We try to disentangle the effects in what follows

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[16] Gaviria and others (1999) are close to our perspective. They point out that the Henisz political constraints variable places Latin America right behind the OECD and Europe and Central Asia in institutional development, and remark that this ranking is more in line with the relative income per capita of the different regions than other measures in the literature. Their view contrasts sharply with Burki and Perry (1998), who use ICRG indexes that reflect opinions on the protection of property rights and on corruption to point out that Latin America is relatively backward in its institutional development, being just above Sub-Saharan Africa.

Figure 3 shows a scatter diagram with the positive association of economic development and political constraints in 1960.[17] The size of the bubbles represents the years of polity persistence.

<Figure 3>

When there are no political constraints at all, there is usually no apparent pattern. For example, in 1960 one can find Ethiopia among the countries with no political constraints. Until the 1974 coup, Ethiopia had one of the most persistent political regimes. It was also one of the poorest nations on earth. On the other hand, when there are positive political constraints, larger bubbles seem to drift up.[18] This is the pattern we are looking for: we expect limited government to be positively related to economic development, and this relation takes time to build up.

To test non-parametrically if there is a positive influence of polity persistence on economic development once limited government is in place, we stratify the data each year into low and high political constraints using the median of the sample. To create a contingency table, we then rank the countries within each group according to their income per capita and their degree of polity persistence. Table 3 shows the result of using a chi-square test to see whether, within each group, polity persistence and income per capita are independent.

<insert Table 3>

As Table 3 shows, in most years of the sample we find no relation at all between polity persistence and income per capita when there are low political constraints. The relationship between polity persistence and economic development is robust only when high political constraints exist.

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[17] The figure is taken from Streb (1999), and is representative of other years.

The results above suggest that the influence of political stability on development is conditional of the correct political framework first being in place. The effect of polity persistence is much stronger in a system with political constraints. Consequently, one can expect that a system of government that does not limit in a substantial way the power of the executive will not achieve high economic development.

Finally, for a few selected years we divide the countries in a group with low polity persistence and a group with high polity persistence using the median value.

<insert Table 4>

As Table 4 shows, the relation between income per capita and political constraints is always significant when there is high polity persistence. This may indicate that the positive influence on credible commitments towards property rights outweighs the possible loss of flexibility due to status quo bias in the range of political constraints observed empirically (Gaviria et al., 1999, raise this issue).

The relation between income per capita and political constraints is sometimes significant when there is low polity persistence. This may have a similar explanation. However, it is somewhat surprising if one expects that with low polity persistence the order should be random, i.e. that the appearance of limited government is not related to initial economic development. A possible reason is that countries with low polity persistence have very different political backgrounds, some with a previous track record of limited government, which we do not capture here.

5. Conclusions

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[18] Continuous instability is detrimental to economic activity, as Olson (1997) stresses. Besides the fact that anarchy can be worse than the Leviathan, countries at civil war may not even appear in international statistics. On the other hand, political discontinuity is not bad per se: it can lead to limited government.

Unlike the prevailing approach in the empirical literature that concentrates on the relationship of uncertainty with economic growth, this paper is motivated by the link between political uncertainty and the level of economic development. The intuition for this link is that the political uncertainty translates to higher interest rates through sovereign risk. High interest rates should in turn reduce both the capital stock and income per capita. This approach implies that economic growth is related to changes in political uncertainty.

We draw on the economic history inspired by Douglass North to link low political uncertainty, and low transaction costs, to limited government. Since the process of institutional development is time consuming, the effect of limited government builds up gradually. We then link low uncertainty and transaction costs to high income per capita, in a capital market model with credit constraints. In this framework, economic development is the consequence of the combination of political stability with limited government.

In the empirical part, we carry out Granger causality tests to check if there is a relation between changes in political constraints and economic growth. There is, and it points in the direction that political development drives economic development.

We finally test non-parametrically the steady state relationship between basic political institutions and economic development. Polity persistence does not have a robust relation to development unless there are high low political constraints. The path of economic development seems to be conditional on limited government being in place first.

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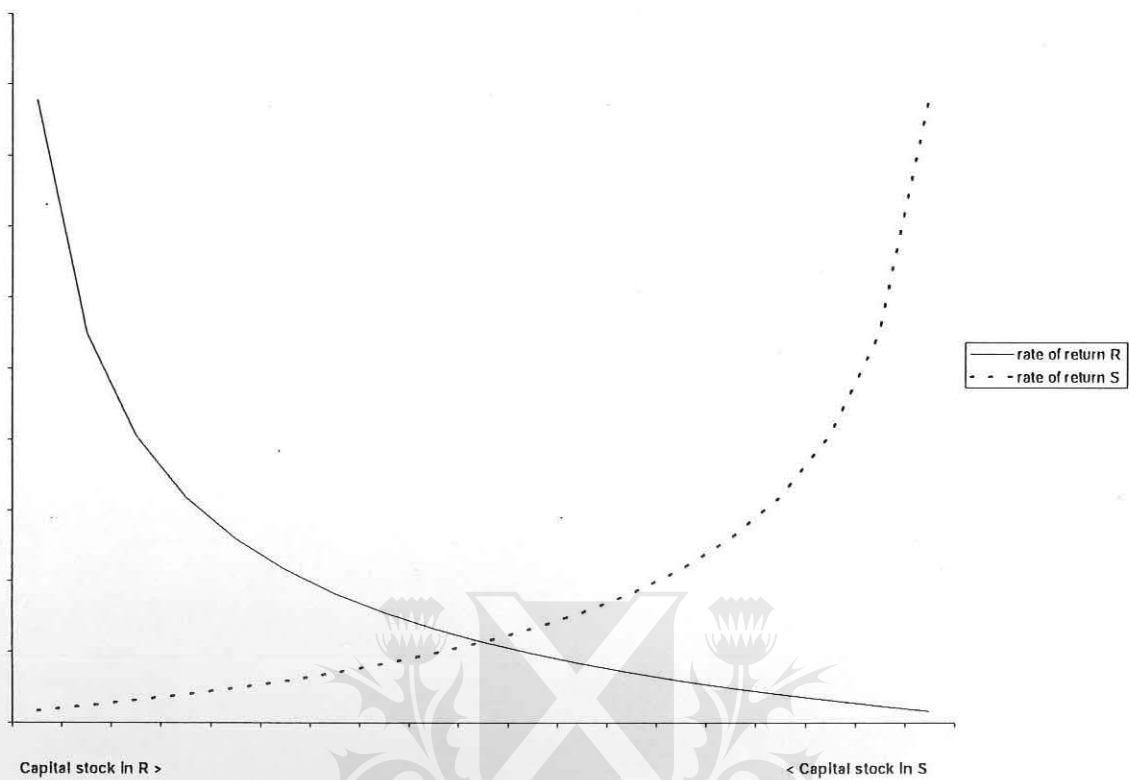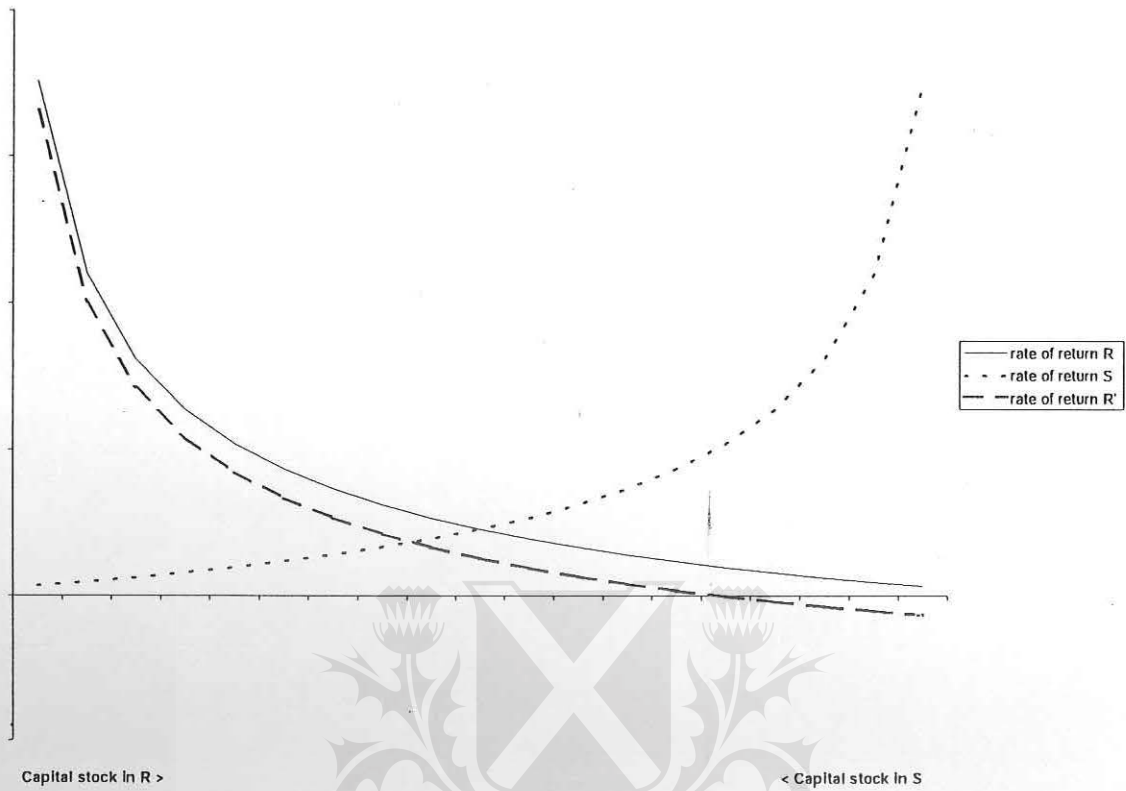
Figure 1

Figure 2

1960: Log(Y/L) given political constraints (weighted by polity persistence)
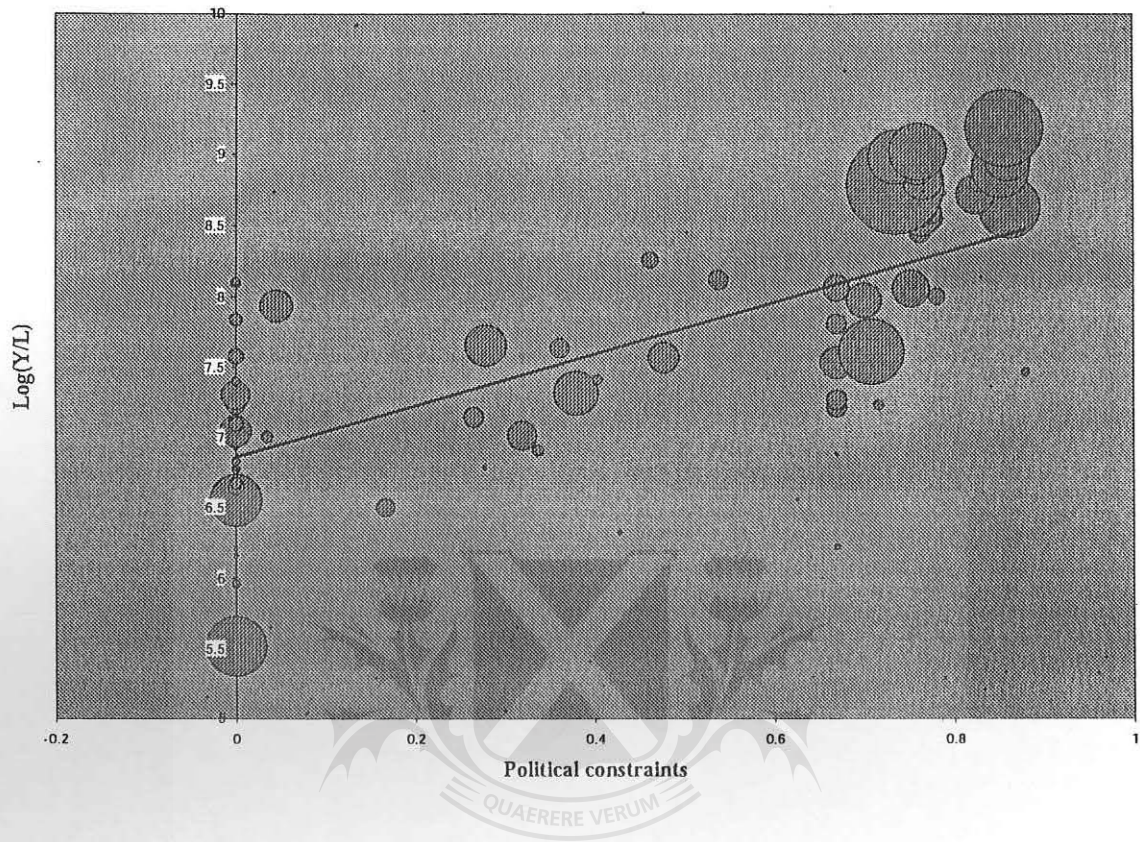
Figure 3

Table 1

Granger Causality Test

Δpolcon75-90

	Test 1	Test 2
$\Delta\ln(Y/L)$60-75	-0.0621 (-0.791)	-0.0478 (-0.632)
Δpolcon60-75		-0.3148 (-2.462)**
Constant	0.1158 (2.817)**	0.1013 (2.538)**
Adjusted R^2	-0.0062	0.0721
F value	0.625	3.37**
Observations	62	62

Note: t-statistics in parenthesis. One, two and three asterisks indicate significance at 10%, 5% or 1%.

Table 2

Granger Causality test

$\Delta\ln(Y/L)$75-90

	Test 1	Test 2
Δpolcon60-75	0.6440 (2.808)***	0.6159 (2.713)***
$\Delta\ln(Y/L)$60-75		0.2163 (1.612)
Constant	0.2534 (7.779)***	0.1516 (2.139)**
Adjusted R^2	0.1014	0.1247
F value	7.89***	5.35***
Observations	62	62

Note: t-statistics in parenthesis. One, two and three asterisks indicate significance at 10%, 5% or 1%.

Table 3

Polity Persistence and income per capita
Chi-square test of independence

Year	Countries	Median of political constraints	Independence given high political constraints	Independence given low political constraints
1960	76	37%	0.0231 **	0.1049
1961	76	26%	0.0231 **	0.1049
1962	76	26%	0.0231 **	0.1049
1963	93	25%	0.0093 ***	0.1715
1964	94	25%	0.0015 ***	0.0404 **
1965	98	25%	0.0010 ***	0.4708
1966	102	25%	0.0033 ***	0.8875
1967	103	26%	0.0032 ***	0.3929
1968	105	27%	0.0009 ***	0.3247
1969	105	26%	0.0009 ***	0.8415
1970	109	27%	0.0011 ***	0.4839
1971	110	16%	0.0003 ***	0.5023
1972	111	0%	0.0002 ***	0.2835
1973	111	0%	0.0009 ***	0.2921
1974	112	0%	0.0002 ***	0.3566
1975	114	0%	0.0016 ***	0.2401
1976	116	0%	0.0004 ***	0.1738
1977	115	0%	0.0003 ***	0.2031
1978	116	0%	0.0003 ***	0.0538
1979	116	0%	0.0004 ***	0.1738
1980	116	0%	0.0001 ***	0.4795
1981	117	0%	0.0001 ***	0.2560
1982	117	0%	0.0001 ***	0.2367
1983	117	0%	0.0009 ***	0.1670
1984	119	0%	0.0001 ***	0.0783*
1985	126	0%	0.0014 ***	0.0248 **
1986	124	21%	0.0001 ***	0.0222 **
1987	122	23%	0.0001 ***	0.0213 **
1988	118	34%	0.0002 ***	0.0134 **
1989	116	32%	0.0000 ***	0.0660*
1990	96	38%	0.0000 ***	0.4463

Note: One, two and three asterisks indicate that null hypothesis of independence is rejected at 10%, 5% or 1% probability value.

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Table 4

Political constraints and income per capita
Chi-square test of independence

Year	Countries	Median polity persistence	Independence given high polity persistence	Independence given low polity persistence
1960	76	3	0.0000 ***	0.4310
1975	114	6	0.0000 ***	0.0015 ***
1990	96	11	0.0000 ***	0.0027 ***

Note: One, two and three asterisks indicate that null hypothesis of independence is rejected at 10%, 5% or 1% probability value.

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