The Persistence of Underdevelopment: Constituencies and Competitive Rent Preservation

Finance Working Paper N°.150/2007
December 2006

Raghuram G. Rajan
IMF, University of Chicago, NBER and ECGI

ECGI Working Paper Series in Finance

The Persistence of Underdevelopment: Constituencies and Competitive Rent Preservation

Working Paper N°.150/2007

December 2006

Raghuram G. Rajan

This paper reflects the author's views and not necessarily those of the International Monetary Fund, its management, or its Board. I thank Peter Gourevich, Steven Haber, Robert Inman, Simon Johnson, Subir Lall, Rodney Ramcharan, Antonio Spilimbergo, Arvind Subramanian, and seminar participants at Brown University, Harvard University, the IMF, and the University of Pennsylvania for valuable comments. I am especially grateful to Karla Hoff, Bilge Yilmaz, and Luigi Zingales, whose contributions to this version have been invaluable. I thank Yannis Tokatlidis for research assistance. This is a substantial rewrite of an earlier paper entitled "The Persistence of Underdevelopment: Institutions, Human Capital, or Constituencies?".

Abstract

Why is underdevelopment so persistent? I argue that one reason is the initial inequality in endowments and opportunities, which leads to self-interested constituencies that perpetuate the status quo. Each constituency prefers reforms that preserve only its rents and expand its opportunities, so no comprehensive reform path may command broad support. Though the initial conditions may well be a legacy of the colonial past, persistence does not require the presence of coercive political institutions. This may be why underdevelopment has survived independence and democratization. On the one hand, such an analysis offers hope that the destiny of societies is not preordained by the political institutions they inherit through historical accident. On the other hand, it suggests we need to understand better how to alter factor endowments when societies may not have the internal will to do so.

Keywords: Underdevelopment, persistence, factor endowment, constituency

JEL Classifications: O43, G20

Raghuram G. Rajan
International Monetary Fund (IMF)
700 19th Street NW
Washington , DC 20431
United States
e-mail: rrajan@imf.org

Why is underdevelopment so persistent? A growing consensus in recent years suggests this is because in many underdeveloped countries, a privileged elite maintain their rents by forcing suboptimal policies on the rest of the population through oppressive political institutions. The persistence of those political institutions is then the deemed to be the cause for the persistence of underdevelopment. Yet political institutions do change. Unfortunately, underdevelopment has survived emancipation, independence, and even democratization. Unless these democracies are a complete sham – and no one witnessing elections in poor countries like India could conclude that – the question becomes even more compelling; Why choose poverty?

I will argue in this paper that initial inequality in endowments and opportunities can create constituencies that support bad policies that reproduce those initial constituencies over time – that is, the specific configuration of initial inequality can itself perpetuate underdevelopment, without any need to appeal to oppressive political institutions that give all the power to the elite. In fact, I will show that a democracy can sometimes be worse than a dictatorship in promoting development, and that the underprivileged can oppose reform as strongly as the privileged – an otherwise puzzling real-life phenomenon.

Specifically, let a constituency be a group where each member has the same factor endowments, and therefore similar preferences over policies even without being organized.[2] I model an economy with three possible constituencies: oligopolists (or oligarchs), the educated (or a middle class), and the uneducated (or the poor). Each oligopolist owns a firm, which needs two types of workers: managers and laborers. Managers and laborers are complementary (so that a manager is more productive when he has more laborers working with him and vice versa) and face diminishing marginal productivity (so that the marginal laborer (manager) is less productive as the number of laborers (managers) increase). While anyone can be a laborer, only the educated can work as managers.

In this simple framework, I examine the support for two kinds of policies: ones that increase competition (broadly termed pro market reforms, including a strengthening of property rights,

---

[2] I prefer the term constituency rather than interest group or class. Interest groups (e.g., textile workers) typically are much narrower than my notion of constituency (e.g., the uneducated), and imply organization (and thus, possibly, institutions), while the term "class" has prior associations (e.g., linked to the ownership of the means of production) that may confuse rather than enlighten.

expansion of access to finance, and opening to foreign competition) and ones that increase access to endowments such as education. I assume initially an imperfect democracy – that while the oligopolist has no institutionalized power of coercion, because of a combination of money power and numbers, each constituency has one vote. Reforms that get a majority (that is, two out of three votes) are enacted. Also, unlike prior work, I do not assume that reforms directly affect political participation and thus voting power. Instead, they affect economic outcomes and, thus, choices. The interesting result is that there is no non-trivial equilibrium where comprehensive reforms (that is, enacting both reforms) take place. In particular, reforms expanding access to education never take place, even though the direct effect of education is to make a majority better off.

The reason is simple. The uneducated are always for more education because it will give them access to better opportunities. The educated are against it because it will reduce their rents from opportunities open only to the educated. The oligopolists would prefer a more educated work force, because it can help them reduce the rents currently obtained by the educated. However, the oligopolists know that if they do vote for education, they will have a workforce (formerly uneducated and the formerly educated) that is united in interests. This enlarged constituency will then push for pro-market reforms. To forestall the greater loss from pro-market reforms, the oligopolist will vote with the educated against expanding education.

If education reforms are unlikely to be enacted, the uneducated may turn against pro-market reforms, preferring the status quo instead. While pro-market reforms expand opportunities for the educated, and create new employment opportunities for the uneducated, there is also a dark side. The greater opportunities of the educated may worsen the conditions of the uneducated: The uneducated benefit from the status quo where the educated are forced to work for the oligopolist as managers, thus enhancing laborer productivity (and wages). With fewer managers working for the oligopolist post pro-market reforms, the productivity of uneducated labor may fall, thus depressing its wages.

More generally, the status quo in an underdeveloped country constrains the opportunities of all constituencies except the elite. If we assume the constrained are one uniform constituency, they would be unified in their desire for reform. It is then puzzling why reforms do not take place, and the immediate diagnosis is the overwhelming power, de facto or de jure, of the elite. The solution to the problem of underdevelopment then seems to be destroy the power of the elite, often through reform of the oppressive political institutions. Yet political reform rarely seems to be key to economic growth.

In reality, the constrained in an underdeveloped country consist of multiple, unequal, constituencies. Matters are no longer as simple as in the two-constituency economy. Each reform typically expands the opportunities of a hitherto constrained constituency and reduces the rents of the elite but its effects on the other constituencies can be uncertain. Indeed, the disproportionate expansion of opportunities for one formerly constrained constituency can make other constrained constituencies worse off. As a result, the constrained may not act as a unified collective. Instead, they may act like crabs in a bucket, willing to pull down any crab that appears to be climbing out, with the active help of the elite oligopolist, who prefers them all to stay in the bucket. The oligopolist may even forego some reforms that could enhance his rents, for fear that they would unify the crabs in the bucket and help them climb out and overwhelm him. Competitive rent preservation ensures the collective choice is indeed poverty.

I also examine the effect of political institutions other than imperfect democracy. While the unrealistic ideal of perfect democracy would achieve comprehensive reforms in my model, that is not very surprising because perfect democracy ensures that amongst the constrained, the preferences of only one, the most populous and most constrained, constituency, matter.[3] More interesting is to examine a plutocracy, where the wealthy oligopolist initially has all the power. In a plutocracy, power can change over time, based on how wealth changes. Two results stand out. First, the plutocracy may result in more reforms than an imperfect democracy, even though political power is more concentrated – indeed because of it. So democratization need not lead to more reform. Second, to the extent that political institutions can be changed by those in power, the oligopolist may opt for democratization when he knows his power in the plutocracy is ebbing, because he welcomes the paralysis that an imperfect democracy induces. This may partially explain why it is so hard to find an effect of democratization on growth – democratization is often endogenous.

Given that the constituencies are not organized groups, negotiated deals between them are unlikely. Furthermore, because it is not a "bad" equilibrium, but instead a bad configuration of interests that results in reform paralysis, coordination is unlikely to result in better outcomes. Even if we consider the possibility of negotiated deals, the difficulty of committing to the compensating transfer or other compensating future actions on the one hand and the fear of additional rent-seeking generated by the transfers on the other will still limit reforms.

[3] There is, of course, an entire literature on why the tyranny of the majority has its own problems.

To summarize, the specific contribution of this paper lies in pointing out that inequality in endowments and opportunities can directly cause adverse interactions between "exploited" constituencies that might result in an underdevelopment trap – without any appeal to the power of the exploiting constituency. The model offers a characterization of situations where reforms might be relatively easier. In particular, homogenous and relatively equal populations may see reforms the same way, and thus be more open to reforms, a prediction shared with other theories. The model suggests that inequality of endowments in poor countries is likely to be more enduring than political power or institutions, and that initial inequality might determine whether a country can take full advantage of positive growth shocks, hypotheses for which there is some evidence in the literature.

My analysis suggests why reforms have been so difficult in Africa and Latin America, where a relatively small, educated urban middle class has often sided with a small ruling clique in opposing wider, deeper, reform. In a sense, this echoes an older literature (see, for example, Bates (1983) or Krueger (1974), and more recently Shleifer and Vishny (1999)), which sees the roots of underdevelopment not so much in the lack of institutions (which may be a proximate rather than a deep cause) but in the natural self preservation of a rent-ridden society.

This offers an alternative to the institutional view of development (see Acemogulu, Johnson, and Robinson (2004) for one perspective and Hoff (2003) for an excellent survey), which suggests that persistent coercive political institutions, set up to assert the power of a ruling elite in the distant past, serve to entrench the elite and their sub-optimal self-interested policies even today, when they have lost their initial sources of power.

While institutions may be important in shaping economic and political outcomes (though, see Glaeser et al. (2004) for an alternative viewpoint) I will argue that their role in the persistence of underdevelopment, while not necessarily irrelevant, is probably overstated. First, there are other explanations, including one suggested in this paper, that are equally consistent with the evidence, and simpler to boot. Occam's Razor would suggest favoring them over institutional explanations. Second, there are logical difficulties in the argument that persistent coercive political institutions are responsible for sub-optimal economic policies. Indeed, economic policies could be much better if it were possible to create persistent coercive political institutions. Third, we have a number of examples where a modern elite expect to lose their coercive non-institutional power (such as military might), and have the incentive to entrench themselves through institutional means, but simply prove unable.

Perhaps then political institutions, especially coercive ones that do not enjoy widespread popular support, largely reflect the underlying distribution of power, while conferring little on their own.

Whether institutions or self-perpetuating rent-preserving constituencies are the ultimate source of persistence, is not just a matter of semantics. First, to the extent that the persistence of bad institutions is not the primary explanation for underdevelopment, there is potentially greater hope for poor countries because their fate is not sealed as a result of their colonial legacy of institutions. While it may be difficult to alter factor endowments (and, later, I discuss exogenous factors that might be helpful), it is certainly far easier to do so than to alter history. Second, the focus of development action changes, from attempting to impose blue prints on societies such as liberal democratic constitutions, to changing the underlying endowments and hence the balance of interests and power. Third, the focus of research changes – from clubbing Mobutu Sese Seko and Lee Kuan Yew in the same box because the explicit constitutional limits on their power were similar, to putting them in very different boxes because the constituencies that afforded them power were very different.

The rest of the paper is as follows. In section I, I present a framework for the model, in section II, I analyze outcomes under different scenarios, in section III I determine the resulting political equilibria, in section IV I discuss extensions and implications for a theory of underdevelopment, in section V, I discuss policy implications and conclude.

I. The Framework

1.1. Technology and endowments

Consider an economy with three types of agents: incumbent oligopolists, educated workers, and uneducated workers. The economy starts out with each oligopolist having a production technology that enables him to produce $\theta\, m^{\alpha} l^{\beta}$ where m indicates the number of workers in managerial positions and l is the number of workers employed as laborers, and θ is an efficiency parameter. I assume

Assumption 1: (i) $0 < \alpha < 1$, $0 < \beta < 1$ (ii) $\alpha + \beta < 1$ (iii) $\alpha > \beta$

In words, (i) ensures diminishing marginal productivity of both managers and laborers, and (ii) implies decreasing returns to scale. Managerial positions are more productive than laborer positions – as in a production hierarchy where managers supervise workers (see Rosen (1983)), hence (iii).

In what follows, I normalize the number of oligopolists to one (knowing that there are competing oligopolists with the same technology of production in the background). The total number of educated workers initially (henceforth, all quantities are per oligopolist) is $\overline{e}$ and the number of uneducated is $\bar{u}$. In a developing country with substantial inequality, the number of uneducated workers will outnumber the educated, who in turn vastly outnumber the oligopolist. Therefore

Assumption 2: (i) $\bar{u} > \bar{e} >> 1$ (ii) $\frac{\bar{e}}{\bar{u}} < \frac{\alpha}{\beta}$

An educated worker can occupy either a managerial position or a laborer's position or divide his time between the two (though he is not more productive in the laborer's position than an uneducated worker), while an uneducated person can only occupy a laborer's position. The oligopolist is a pure rentier and does not work, though results would be largely unchanged if I assumed he did.

1.2. Reforms

Without reforms, only the oligopolist can produce, everyone perforce has to work for him. I consider two reforms. The first expands *access* to factor endowments. Specifically, *education* reforms allow all uneducated workers to receive an education. For simplicity, I assume there are no costs to this reform, and the uneducated bear no cost in getting an education.[4]

The second reform expands *opportunities* by increasing the ease with which new businesses can be set up. The precise nature of this reform can range from a strengthening of property rights to a removal of licensing laws and other bureaucratic barriers to entry. Such *pro-market* reforms allow the educated to set up new businesses, and produce $m^{\alpha} l^{\beta}$. Uneducated workers do not have the capacity to open their own businesses, but they can quit their jobs with the oligopolist and work as laborers in these new businesses. When they do so, however, they incur a personal cost of s times their marginal product. This could be thought of as the additional effort of producing in a new unfamiliar business, or it could be thought of as the costs of searching for a new job or the costs of transportation to it.[5] As I will argue later, less analytically convenient versions of the model allow us to dispense with s.

[4] In practice, education is costly and disagreement on how this cost should be allocated may block an education reform. In this model we show that education reform might not be approved even if we ignore these costs.

[5] It is analytically convenient to make the cost proportional to marginal product. When the cost is effort, the rationale is obvious. When it is search or transportation costs, the justification is that firms with high marginal product are small, and therefore harder to search for, and more likely to be located in remote locations than a large firm, which is easily found, and has work locations everywhere. The educated, who start a new business, do not face any additional cost of effort because they set up business in an area conveniently close to their expertise or their domicile.

Note that each reform improves total output, education reforms because the marginal product of a manager is higher than that of a laborer, and pro-market reforms because, with decreasing returns to scale, more entry implies higher output.[6] Hence, the model is structured so that it is always efficient to have a comprehensive reform. The question, then, is whether the constituencies will allow it.

To abstract from problems relating to the transition phase, I assume that reforms can be implemented immediately. In practice, it takes time to educate large segments of society, which may further hamper the consensus for reforms. It is remarkable, thus, that we find an underdevelopment trap even abstracting from these.

1.3. Preferences

Agents do not have different preferences from anyone else of their type (that is, the initially uneducated, the educated, and the oligopolist), hence it is reasonable to assume that individuals of a type (or, equivalently, constituency) express their preferences as a single collective without necessarily being organized. Each constituency is forward looking, and evaluates the consequences of its current choices on future choices and outcomes. It chooses the option that maximizes the present value of its future income, where δ is its discount rate. I will consider three possible reform strategies – education only, pro-market reforms only, or both, that is, comprehensive reforms.

II. Outcomes under various strategies

Let us first examine outcomes under various strategies, after which we will discuss voting. Superscripts denote reforms (E -- education reforms, P-- pro-market reforms, and C – comprehensive i.e., education and pro-market reforms). Subscripts in lower case denote type of firm (o – oligopolist, e – educated entrepreneur).

2.1. Status Quo.

Under the status quo, per period production is $\theta\,(\overline{e})^{\alpha}\,(\overline{u})^{\beta}$, with the educated working as managers and the uneducated working as laborers.[7] Because the labor market is competitive (between

---

[6] Of course, if the oligopolist is extremely efficient, entry may not take place, and pro-market reforms trivially do not add (but neither do they subtract) value.

[7] The educated would work as laborers only if their marginal product would otherwise be below that of laborers, i.e., only if $\frac{\overline{e}}{\overline{u}} \geq \frac{\alpha}{\beta}$, which is ruled out by assumption 2 (ii).

oligopolists), each worker gets his marginal product as wage. Each manager gets $\theta\alpha\,(\overline{e})^{\alpha-1}(\overline{u})^{\beta}$ while each laborer gets $\theta\beta\,(\overline{e})^{\alpha}(\overline{u})^{\beta-1}$. The oligopolist gets the residual, which is positive and increasing in the managers and laborers he uses because the technology is diminishing returns to scale.

2.2. Partial Reforms: Education but no Competition

When only educational reforms are implemented, all the uneducated become educated. The oligopolist is still the only producer. Let m^E be the number of workers he employs in managerial positions and l^E be the number in laborer positions. Since workers are all educated, they must divide themselves into these positions so that marginal products in the manager and laborer position are equal. This implies $\theta\alpha(m^E)^{\alpha-1}(l^E)^{\beta} = \theta\beta\left(m^E\right)^{\alpha}(l^E)^{\beta-1}$, which simplifies to $\frac{m^E}{l^E} = \frac{\alpha}{\beta}$. Also, we know that the total workers employed should equal the total available so $m^E + l^E = \overline{e} + \overline{u}$. From these two equations, we can solve for l^E and m^E. We have

Lemma 1: Total production increases with education reform. After education reform, both the oligopolist and the uneducated are better off than with the status quo. The educated are worse off.

Proof: See appendix.

It is worth noting that education is a reform that enhances the incomes of a voting majority of the population. The oligopolist likes it because it improves the quality of his workforce, increasing production even while reducing the rents hitherto scarce managers can extract. The uneducated like it because it improves their productivity and their wages. However, the educated do not like it because it subjects them to greater competition from the currently uneducated, diminishing the positional rents they enjoy.

Interestingly, despite improving the lot of a majority of effective voters, an endowment-enhancing reform like education will not be undertaken alone. We will see why shortly.

2.3. Partial Reform: Pro-market competition but no education.

When only pro-market reforms are enacted, the educated can open their own businesses. The uneducated can leave their jobs with the oligopolist, and after incurring personal costs, *s*, can work for one of the businesses started by the educated. Note that while an educated worker may work for the oligopolist because of the latter's greater efficiency θ, diminishing returns ensure he will never work for another educated worker. This is because he can always get more by opening his own firm (which has the same technology as the firm opened by any other educated worker) and get both the wage of a manager as well as the rents of a proprietor.

So post-reform, all firms newly opened by the educated will have at most one full-time manager. Let l_e^P be the number of laborers employed in each new firm, while l_o^P and m_o^P are the number of laborers and managers respectively employed by the oligopolist. In equilibrium, it must be that the wages an uneducated person earns as a laborer in a new firm, after incurring personal cost, *s*, equal his wages with the oligopolist. So

$$(1-s)\beta\,(l_e^P)^{\beta-1} = \theta\beta\,(m_o^P)^{\alpha}(l_o^P)^{\beta-1} \tag{1.1}$$

Also, in equilibrium, an educated person who starts his own firm receives the difference between output and the cost of hired labor which is $(l_e^P)^{\beta} - l_e^P\beta(l_e^P)^{\beta-1} = (1-\beta)(l_e^P)^{\beta}$. In equilibrium, he should be indifferent between working for the oligopolist and working for himself, so that

$$\theta\alpha\,(m_o^P)^{\alpha-1}(l_o^P) = (1-\beta)(l_e^P)^{\beta} \tag{1.2}$$

Finally, market clearing requires the total number of laborers equal the number of uneducated workers so

$$(\overline{e} - m_o^P)l_e^P + l_o^P = \overline{u} \tag{1.3}$$

These three equations can be solved to obtain all the variables of interest.[8]

Lemma 2: (i) There is a level of efficiency, θ^*, such that pro-market reforms have no effect on outcomes if the oligopolist's efficiency is greater than θ^*. (ii) If $\theta < \theta^*$, the educated are better off with only pro-market reforms than under the status quo and the oligopolist is worse off. The uneducated may be better off or worse off depending on parameters.

Proof: See appendix.

---

[8] For instance, $l_e^P = \dfrac{\overline{u}}{\overline{e} + \left(\dfrac{1-\alpha(1-s)-\beta}{1-\beta}\right)\theta^{\frac{1}{1-(\alpha+\beta)}}\left(\dfrac{\alpha}{1-\beta}\right)^{\frac{\alpha}{1-(\alpha+\beta)}}\left(1-s\right)^{\frac{\alpha-1}{1-(\alpha+\beta)}}}$. To save space, we have examined only the case where the marginal productivity of managing is high enough that the manager does not also work part-time as a laborer – a sufficient condition is that $\dfrac{1}{l_e^P} < \dfrac{\alpha}{\beta}$, which is true if $\overline{u}$ is large enough relative to $\overline{e}$.

To understand why the uneducated may be worse off with pro-market reforms, note that the lack of outside opportunities for the educated under the status quo creates an implicit rent for the uneducated – when the educated are forced to work for the oligopolist, they enhance the productivity of the uneducated, thus increasing the latter's wages. After pro-market reforms, new firms started by the educated open up employment opportunities for the uneducated, potentially increasing their wage – though the personal cost the uneducated incur, *s*, limits the benefit. However, there are now fewer managers working for the oligopolist, which reduces the productivity of laborers who continue working for him, which has a depressing effect on laborer wages. The net effect determines how the uneducated think about more competition. More generally, pro-market reforms create opportunities but destroy old implicit rents – indeed opportunities for some may mean a loss of rents for others. It is this spillover effect that is important for the main result in this paper.

Corollary 1:

If $\theta < \theta^*$, ceteris paribus, an increase in the number of the educated, $\overline{e}$, (i) increases the number of firms that are set up; (ii) reduces the average number of employees per firm; (iii) reduces the profits of the oligopolist after pro-market reforms. If in addition, s is small (iv) an increase in the number of educated increases the preference of the uneducated for pro-market reforms over the status quo. (v) If $1-\alpha-\beta$ is also small, a decrease in θ, the efficiency of the incumbent oligopolist, increases the preference of the uneducated for pro-market reforms over the status quo.

Proof: See appendix.

It turns out that the number of educated who work for the oligopolist (as managers) after pro market reforms is independent of the total number of educated $\overline{e}$ or uneducated $\overline{u}$. (i) follows immediately because, ceteris paribus, any increase in $\overline{e}$ will be reflected, one for one, in new firms opening up. Moreover, given a fixed number of the uneducated, more new firms will mean fewer laborers per firm, hence (ii). Smaller new firms mean higher marginal product for the laborers they employ, higher wages for the uneducated, and thus a smaller firm run by the oligopolist. This implies smaller profits for the oligopolist.

Because more, smaller, higher paying new firms are created after pro-market reforms when there are more educated, the additional job opportunities obtained by the uneducated, provided the personal costs *s* are small, more than offset the loss of implicit rents in their existing jobs as the educated quit the oligopolist's employment. Hence (iv) -- the preference of the uneducated for competition increases. When the oligopolist is very efficient, the uneducated find staying in the oligopolist's employment very attractive, and the loss of the educated managers as a result of the opening of outside opportunities is very damaging to their productivity and wages. Hence (v).

Example: Let $\alpha = 0.5$, $\beta = 0.3$, $\overline{u} = 100$, s=0.2. In Figure 1, I plot for different values of θ and $\overline{e}$ the line that separates the region where the uneducated prefer competition to the status quo from the region where they prefer the status quo. Note that the line slopes upward, consistent with corollary 1 (iv) and 1 (v).[9]

In short, even though the status quo limits opportunities, it forces both the educated and the uneducated to work together. Pro market reforms enhance opportunities, but primarily for the educated. The uneducated may be made worse off, as they face the still limiting environment, post-reform, but without the support of the educated. Hence they may oppose pro-market reforms.

2.4. Comprehensive Reforms.

Now consider both education and pro-market reforms, that is, comprehensive reforms. Since workers are all now educated, they can open their own firms. Since no one wants to work for anyone else (except perhaps for the possibly more efficient oligopolist), each new firm will have only one self-employed worker, dividing time between managerial and labor activities.

In equilibrium, the educated worker's wage in any job with the oligopolist must equal his production from the outside option of self-employed production. Let m_e^C be the time the self-employed worker spends on managerial tasks and l_e^C be the time he spends on labor. Then it must be that if his marginal productivity at both tasks are equalized, $m_e^C = \frac{\alpha}{\beta} l_e^C$. Also, his time must be divided only between the two tasks, so $m_e^C + l_e^C = 1$. Solving, he produces $\left(\frac{\alpha}{\alpha+\beta}\right)^{\alpha}\left(\frac{\beta}{\alpha+\beta}\right)^{\beta}$ through self-employment, which must be the wage the oligopolist has to pay any educated worker.

Lemma 3 (i) There is a level of efficiency, θ^{**}, such that comprehensive reforms have no effect on outcomes if the oligopolist's efficiency is greater than θ^{**}.

[9] For all parameter values used for this example, the outcome under both partial and comprehensive reforms is (weakly) superior to the outcome under the status quo.

If $\theta < \theta^{**}$, (ii) the uneducated worker always prefers comprehensive reforms to the status quo or to partial reform (that is, either education only or pro-market reforms only); (iii) The educated worker prefers comprehensive reforms to only education reforms, but prefers only pro-market reforms to comprehensive reforms. His preference between the status quo and comprehensive reforms is parameter specific. (iv) Because $\overline{e}$ and $\overline{u}$ are large, the oligopolist prefers the status quo to comprehensive reforms. If in addition, $\frac{\overline{u}}{\overline{e}}$ is large, the oligopolist prefers pro-market reforms only to comprehensive reforms.

Proof: See appendix.

The uneducated worker is always better off when partial reforms become comprehensive, regardless of what the additional reform is. By contrast, the educated care very much whether the completion of reforms entails further opportunity (pro-market reforms added to prior education reforms) or further loss of rents (education reforms tacked on to prior pro-market reforms). For the oligopolist, pro-market reforms enhance competition and are uniformly bad. Education reform is beneficial in increasing productivity and decreasing the rents of the educated when the educated have no ability to compete. But if pro-market reforms are already in place, further education reforms also enhance competition by giving the uneducated the ability to compete – indeed if the number of uneducated are large relative to the educated, the oligopolist values the ability to exploit these workers under pro-market reforms only much more than any additional productivity obtained by allowing them an education.

Corollary 2: An increase in the number of the educated, $\overline{e}$, or a decrease in the efficiency of the incumbent's production technology, θ, increases the educated's preference for comprehensive reforms over no reforms.

Proof: See appendix

Intuitively, the educated especially benefit from the outside opportunities created by pro-market reforms if the number of educated is high (so that employment with the incumbent is not attractive because the many educated themselves compete down wages. Furthermore, these outside opportunities are relatively more valuable if the oligopolist's efficiency is low.

Example:

Let $\alpha = 0.5$, $\beta = 0.3$, $\overline{u} = 100$, s=0.2. In Figure 2, I plot for different values of θ and $\overline{e}$ the line that separates the region where the educated prefer comprehensive reforms (to the status quo) from the region where they prefer the status quo (to comprehensive reforms).

In order to determine outcomes, I have to discuss how voting power and voting is determined. This is what I turn to next.

III. Electoral Choice and Reform Outcomes

3.1. Voting and Voting Power

In the basic model I assume that each strategy (amongst the reform strategies and status quo) is placed in pair-wise comparison with every other strategy, and the constituencies vote on which one they prefer. Each constituency has one vote for each comparison, with the weight of that vote – its voting power -- determined by the political system. A strategy is implemented only if it is preferred by a simple majority of the voting power in every pair-wise comparison it features in. If only partial reforms are implemented (e.g., education only) or the status quo is maintained, further reforms can be voted on in future periods. All votes take place at the beginning of each period.

Each constituency *i*'s voting power at time t, is $v_{it} = f(w_{it}, n_{it}) \geq 0$ where w_{it} is its aggregate wealth and n_{it} is the number of agents who belong to that constituency at time t. I assume $\sum_i v_{it} = 1$, $\frac{dv_{it}}{dw_{it}} \geq 0$, $\frac{dv_{it}}{dn_{it}} \geq 0$. Also, focusing on the case of a populous, unequal, developing country, we have

$$n_{u0} = \bar{u} > n_{e0} = \bar{e} > n_{o0} = 1 \text{ and } w_{u0} = 0 < w_{e0} = w < w_{o0} = W$$

Let us now consider different ways voting power can be allocated.

3.2. Pure Democracy

First consider what would happen under a pure democracy where $v_{it} = \frac{n_{it}}{\sum_j n_{jt}}$. In this case, the uneducated would have the majority vote, and they would vote for comprehensive reforms. This is the ideal case.

3.3. Imperfect Democracy

All democracies are imperfect. Money matters, if nothing else in securing advertising time to inform voters. Oligopolists are few in number but have tremendous money power, while the uneducated have little money power but are large in numbers. The educated are in between. Let us therefore assume now that the combination of aggregate wealth and numbers results in each constituency having equal voting power, i.e., $v_{ut} = v_{et} = v_{ot} = \frac{1}{3}$. If this is not a democracy, the vote each constituency possesses could be thought of more broadly as its influence over policies.

What is interesting here is not just that the first best is not implemented but that even policies that benefit a majority of the voting power – such as education -- will not be implemented. To understand this, we need to consider the dynamics.

3.3.1. Dynamic effects

Thus far, I have analyzed only the immediate consequences that a reform has on the payoff of each constituency. But reforms also impact the endowment of each group in the next period and, therefore, their preferences. In particular, consider education reforms. If it is implemented, the uneducated will receive education and the following period will make common cause with the initial educated constituency to vote for pro-market reforms. Because the constituencies together will have the majority, education reforms today will inexorably lead to comprehensive reforms next period. The consequences of considering the dynamics in this case are simple: the higher the discount factor, the more the future will matter, and the closer will a constituency's preference ranking for education reforms today drift towards its preference ranking for comprehensive reforms.

Let us assume a high discount factor in what follows (see footnote 12 for the case of a low discount factor). In a developing country with the uneducated significantly outnumbering the educated, who in turn outnumber the oligopolist, the preferences are straightforward and are given in Table 1. Because of the considerable loss of rents from any increase in competition, the oligopolist prefers the status quo to pro-market reforms, which he in turn prefers to comprehensive reforms. Given that education reforms increase his rents briefly but inevitably lead to comprehensive reforms, he ranks education reforms above comprehensive reforms but below pro-market reforms.

The educated prefer pro-market reforms relative to the status quo, and dislike education reforms relative to the status quo, or comprehensive reforms relative to pro-market reforms. The uneducated like education reforms, as well as comprehensive reforms once they become educated. What is left ambiguous is (i) whether the educated prefer comprehensive reforms to the status quo or not, and (ii) whether the uneducated prefer pro-market reforms to the status quo or not. Corollary 1 and 2 describe how these preferences vary with the oligopolist's efficiency θ and the number of educated $\overline{e}$. We then have four regions.[10] Table 1 indicates the ranking of choices in each region for

[10] Note that the existence of the regions does not depend on the specific example.

each constituency. For the example discussed so far, with $\alpha = 0.5$, $\beta = 0.3$, $\overline{u} = 100$, s=0.2,the regions are as in Figure 3 (obtained by superimposing Figure 1 on Figure 2).

3.3.2. Trapped in the status-quo.

Let the number of educated (relative to the uneducated) be low and the oligopolist be relatively efficient (area A on figure 3.). Because they are relatively few, and the oligopolist is efficient, the educated earn substantial rents from the status quo, and are against comprehensive reforms. As always, though, they would prefer partial, pro-market reforms, to anything else. The uneducated dislike pro-market reforms because employment under the efficient oligopolist is quite attractive, and the departure of even a few of the small numbers of the educated from the ranks of management to start competing firms would erode the productivity of the uneducated.

In this situation, there is a majority against comprehensive reforms (the educated and the oligopolist), against education (the educated and the oligopolist), and against pro-market reforms (the uneducated and the oligopolist) relative to the status quo. Hence, the status quo will obtain a majority in all pair-wise contests and be retained, allowing inequality and underdevelopment to persist.

3.3.3. Partial reforms

If the oligopolist is not efficient and the educated are numerous (area B in Figure 3), the uneducated prefer pro-market reforms to the status quo, and the educated prefer comprehensive reforms to the status quo. There is clearly a majority for pro-market reforms over the status quo (the educated and the uneducated) and for comprehensive reforms over the status quo (the educated and the uneducated). But when these reforms are compared, the oligopolist prefers to side with the educated in favoring pro-market reforms only, over comprehensive reforms. Thus the economy settles for partial pro-market reforms even though a majority supports comprehensive reforms over the status quo.

If the oligopolist is moderately efficient and there are relatively few educated enjoying substantial rents, the educated prefer the status quo to comprehensive reforms and the uneducated prefer pro-market reforms to the status quo (area C in Figure 3). Again, the status quo is not an option because the educated and uneducated prefer pro-market reforms over it, but further education reform is also blocked by the educated and the oligopolist. Pro-market reforms are again the choice.

Finally, if the oligopolist is moderately efficient and the number of educated is large (area D in Figure 3), the uneducated prefer the status quo to pro-market reforms while the educated prefer comprehensive reforms to the status quo. No option obtains a majority in all pair-wise contests, generating the so called Condorcet cycle (where, depending on the order in which contests are presented, different outcomes prevail). To determine a unique solution, I need to impose more structure on the voting game without skewing it. Let's assume, therefore, that all the reform strategies are ranked by each constituency. The strategy that has the lowest sum of ranks is chosen. If two strategies tie, a final vote between the two is held. As Table 2 suggests, the earlier choices continue to be preferred in regions A, B, and C, but we now get pro-market reforms in region D also.[11] More generally, pro-market reforms take place in the south east areas of Figure 3. Therefore,

Lemma 4: If agents do not discount the future heavily and if the conditions or corollary 1 and lemma 3 hold (i) education reforms never take place; (ii) for any $\overline{e}$, there is a θ_e such that pro-market reforms take place only when $\theta \leq \theta_e$ (iii) for any θ , there is an e_θ such that pro-market reforms take place only when $e \geq e_\theta$.

Note that partial reforms are likely to take place if the number of the educated (that is, the middle class) expands, or as conditions under the oligopolist worsen.

3.3.4. The Difficulty of Comprehensive Reforms

Nevertheless, lemma 4 presents a very bleak picture about the possibility of moving away from the status quo. Indeed, under no circumstances are education reforms undertaken, suggesting the persistence of a grossly undereducated population in this economy. The underlying reason for too little reform is not because of the coercive power of the oligarchy as in other models. Indeed, the oligopolists have no more power than the other constituencies, and as we will see, might even reform more if they had more power. Too few reforms take place because of the active connivance of those whose opportunities are limited by the status quo today.

The reason is interesting. In an unequal and unreformed society, all manner of rents abound. It is not only the elite who enjoy rents, so in a manner do many other constituencies. Typically, reforms expand choice and competition, and thereby reduce rents. The multi-faceted reforms in my model, however, have two other effects. First, by enhancing the opportunities enjoyed by a semi-privileged minority, they can increase rents for that constituency. Take, for instance, pro-market

[11] Note here that because the uneducated are made worse off by the reform, reforms increase inequality.

reforms. Because only the educated can open firms, the opportunities created by reform enhance the rents available to them by dint of their privileged access to education. They are loathe to forego these enhanced rents and therefore oppose further reform. By contrast, pro-market reforms reduce the rents that stemmed to the uneducated because of their pre-reform access to the trapped human capital of the educated. So even though the uneducated benefit somewhat from the new jobs created by the educated under pro-market reforms they end up voting in region A against any reform because these benefits are small relative to the loss of rents entailed by pro-market reform. The key insight here is that the rents of the underprivileged (both the educated and the uneducated) are not monotonically increasing in every reform.

A second, less-commented-upon, effect of reforms is to change constituencies and thus power. The oligopolist fears education reforms – not because the educated participate more, are more aware of the issues, or have a pre-disposition towards freedom – but because education reforms will create a united constituency for further reforms. Not only will the now larger constituency of the educated have similar preferences on economic issues, and thus be harder to divide or block, it is also likely to be more internally competitive and thus have fewer rents to protect.[12]

3.4. Plutocracy and Dynamic Power Shifts.

Thus far, I have examined perfect democracy and an imperfect (but realistic) democracy. What if we had a plutocracy – where only the weight of money mattered for political power? In this case, we have $v_{it} = \dfrac{w_{it}}{\sum_j w_{jt}}$. Given our assumptions about initial wealth, the oligopolist's preferences will prevail initially. After that, however, political power will depend on the evolution of wealth. Let us examine what would happen, continuing to assume that the future is discounted very little, and assuming that all the income that accrues to a constituency adds to its wealth (or equivalently, assuming an equal propensity to consume out of income for all constituencies).

[12] What if the discount factor is low so that everyone cares only about their income in the period after reform, and not in the distant future. Assuming that the uneducated prefer education only to pro-market reform only (the results are not dramatically different if we assume the opposite), we get Condorcet cycling in all four areas. If we impose further structure by choosing the reform strategy with the lowest sum of ranks, we get comprehensive reforms only in area D.

Over time, cumulated income will dominate the effect of any initial period distribution of wealth on the prevailing distribution of wealth. Therefore, voting power will depend on the relative sizes of the incomes of each constituency. Let us now examine outcomes.

3.4.1. Plutocracy and education.

Clearly, the oligopolist will opt for education reforms (in preference to the status quo) only if he can be assured that he will continue to have the voting majority post-reform, so that he can block any further pro-market reforms. Since this will depend on whether his share of total income post reform, $1-\alpha-\beta$, exceeds the sum of the share of the educated and the formerly uneducated, $\alpha+\beta$, we get

Lemma 5: In a plutocracy, the oligopolist will opt for education reforms in the initial period if and only if $\alpha+\beta \leq \frac{1}{2}$.

Intuitively, for the oligopolist to retain power, it is important that his profits be high post reforms relative to wages, which will be true only if returns decrease considerably with scale so that marginal productivity and, thus, wages, for working constituencies are low. In other words, a plutocracy may produce education reforms, but only if the power of the elite is likely to remain undisturbed by the reforms.

What if this condition is not satisfied? Now the oligopolist will not choose education reforms, for he knows that it will inevitably lead to his least preferred alternative, comprehensive reforms. The extent of reform now will depend on the preferences (and wealth) of the different constituencies.

3.4.2. The Rise of the Bourgeoisie

It is easily shown that the aggregate income of the educated will always exceed the aggregate income of the uneducated under either the status quo or under pro-market reforms.[13]

Lemma 6: If $\alpha > 0.5$, the status quo will prevail until the wealth of the educated exceeds half the total wealth, after which pro-market reforms will be enacted.

In this case, the income share of the educated under the status quo is high enough that they will eventually obtain a majority share of the wealth and voting power, and force through pro-market

[13] For example, under the status quo, their income is $\overline{e}.\alpha(\overline{e})^{\alpha-1}(\overline{u})^{\beta} = \alpha(\overline{e})^{\alpha}(\overline{u})^{\beta}$, which exceeds the aggregate income of the uneducated, $\beta(\overline{e})^{\alpha}(\overline{u})^{\beta}$ because $\alpha > \beta$.

reforms. Key here is that the marginal product of managers be high enough – that the technology of production have sufficient high-value-added tasks that the "bourgeoisie" gain economic and political power.

Even when $\alpha \leq 0.5$ but $\alpha + \beta > \frac{1}{2}$, the combined voting power of the educated and the uneducated will eventually swamp that of the oligopolist. Because no constituency has the majority voting power at that point, however, we will be back to the situation described in the static model of imperfect democracy where the votes of two out of the three constituencies are needed for any reform option to win the pairwise contest against another reform option. The outcome at that point will follow the solution derived in section 3.3.

3.4.3. Discussion: Plutocracy vs Imperfect Democracy

Reforms that reduce the power of the powerful are particularly difficult, because the powerful are unlikely to be a party to their own loss of power. However, if the powerful are so strong that reforms do not weaken them (lemma 4), they may indeed go along with economic and social reform. Indeed, the all-powerful oligopolist in a plutocracy has the incentive to undertake education reform, while he would team with the educated in successfully opposing it if he were in a (imperfect) democracy. Democratizing, in the sense of spreading political power, does not always help reform.

Similarly, we see that in region A in an imperfect democracy, the equilibrium outcome is the status quo. However, if the educated are productive enough (lemma 6), they will gain power in a plutocracy and force through pro-market reforms. The point again is that concentration of political power in a particular constituency is not necessarily bad for reforms – it can break the gridlock that could ensue if power were spread across constituencies with different interests.

Taking this further, if indeed political institutions could be created by those in power, it might make sense for the oligopolist to voluntarily choose to democratize to induce gridlock; If the oligopolist is likely to lose political power because the educated are productive, and the other parameters of the problem put us in region A, then he can convert the political system to an imperfect democracy while he still has majority wealth and thus political power. By doing so, he gives up some of the political power that anyway was ebbing towards the middle class, but he empowers the uneducated who will join him in opposing pro-market reforms. By democratizing, therefore, the oligopolist can make the status quo persist.

IV. Extensions and Implications

Having presented the basic model and its intuition, let me now describe extensions and then discuss implications.

4.1. Compensating Transfers.

Thus far, we have ignored the possibility of compensating transfers that could be used to buy support for value-enhancing reforms. For instance, the educated might attempt to get support for pro-competition reforms in area A by indemnifying the uneducated for the loss they suffer as a result of the increased competition. The difficulty in achieving such transfers in our model start with the fact that the uneducated are likely to be disorganized, and simply "vote" their pocketbooks. Of course, the educated could simply state in public their intent to compensate the uneducated if their preferred reform is voted through (though even this requires the educated to organize). In practice, though, such indemnifying transfers are hard to commit to.

Without formal modeling for reasons of space, consider ways in which any agreement could break down. The transfers, amounting to the present value of all the losses the uneducated suffer over time, will need to be large. If they are made immediately and in a fungible form, then the uneducated can use these resources to obtain more political power, and use the power to push for comprehensive reforms. In other words, a transfer of fungible resources, in practice, also amounts to a transfer of political power. Since the educated prefer the status quo to comprehensive reforms in region A, the compensating transfer to buy support for pro-market reforms is unlikely to take place if it further tilts the balance of power (or if it overly escalates the level of dissipative political activity). More generally, Rajan and Zingales (2000) point out that agreements are hardest to seal through compensating transfers when the recipient is very poorly endowed, as is the case with the uneducated.

An alternative would be for the educated to not offer a lump sum transfer, but instead offer a steady compensatory payment over time, contingent on the uneducated not borrowing against this compensatory payment to gain political power (or perhaps offer compensation in a non-fungible, hard-to-borrow-against form). Here, however, the reverse problem might emerge. What is to stop the educated from reneging on their commitment to pay (see Besley and Coates (1997)), once the agreed upon reform catches on (also see Dixit and Londregan (1998) and Acemoglu (2003) for other variants of how the inability to commit can lead to difficulty in concluding Coasian bargains)?

Even the process of negotiating over reforms may be fraught with difficulty in a democracy. The oligopolist and the educated do not have formal legal rights to the rents they obtain by limiting competition or access to education. The moment they admit to these rents in a negotiation, they lose the moral high ground in the court of public opinion, which again could affect their political power and their ability to obtain compensation for the rents. In short, it might be hard for them to negotiate indemnification for the loss of rights they were not "supposed" to enjoy to begin with. A detailed investigation of the consequences of introducing transfers is, however, left to further research.

4.2. Extensions

There are many ways this simple model can be extended. I have space only to sketch some.

4.2.1. Spillover effects.

The personal cost, s, of employment away from the oligopolist is important in reducing the benefit of pro-market reforms to the uneducated. The broader point, though, is that additional opportunities for the educated can increase costs for the uneducated, when access to education is limited.[14]

This point can be made in other ways. For instance, suppose that the educated provide services like healthcare in the economy, which the uneducated also consume. Given that the educated have greater business opportunities with pro-market reforms, they can demand higher fees for the other services they provide. The uneducated, whose job opportunities go up only a little, if at all, may face a substantially higher cost of living because of the opportunities the educated now have. They may side with the monopolist in voting against pro-market reforms. For example, one reason for the growing opposition to reforms in China is the increasing cost of healthcare and education in the interior provinces, which have not benefited from the export boom but are suffering the costs as educated workers are drawn to the booming coast.

Galor et al. (2006) also model spillover effects. In their model, the differential marginal productivity of human capital between the agricultural and the non agricultural sector creates the friction. Since education will increase the cost of labor more than its productivity in agriculture, the landed aristocracy will oppose universal education.[15] More generally, the powerful have the incentive to choose inefficient technologies in order to maintain a larger share of a smaller pie (see, for

[14] As another alternative, the uneducated could have higher costs from the economic volatility created by competition because their unskilled labor is relatively inflexible (s is thus not a cost of searching for a job, but the expected cost of layoffs) while education allows workers to move more easily to new jobs.

[15] Also, Binswanger and Deininger (1997), an excellent survey of the difficulty of agricultural reform, discuss the role of the elite large farmers in limiting opportunities for small family farms in order to reduce the reservation utilities of their operators.

example, Hoff (1996)). The landlord in all these models resembles the oligopolist in mine. The contribution of my model though, is to show how the adverse spillover effects of reforms can induce the poor uneducated to support the oligopolist.

4.2.2. Alternative Models.

The phenomenon of competitive rent preservation is not specific to education reform and competition. It occurs every time reforms not only have major efficiency and redistributive effects, but also can change the political preferences of an entire constituency.

Consider, for instance, a variant of the model, couched in terms of access to finance and land reform instead of education and market reforms. Suppose the economy consists of a landlord (oligopolist), the liquidity unconstrained (educated), and the liquidity constrained (uneducated). Suppose also that it takes financial liquidity to run a small farm – for example, to buy fertilizer inputs and seeds – as also to obtain the health and education to be an overseer in a large farm. Thus prior to financial sector and land reform, both the liquidity constrained and the liquidity unconstrained work for the landlord, the former as laborer, the latter as overseer. Land reforms alone (even if the land is not expropriated from the landlord but is distributed from government holdings) will lead landlords to lose supervisory talent as overseers leave to run their own farms. The liquidity constrained may also lose because they cannot run farms, and their marginal product goes down as overseers leave. So the liquidity constrained and the landlord may both be against land reform.

Financial sector reforms alone will allow the liquidity constrained to upgrade their human capital and compete with the liquidity unconstrained for overseer jobs. But it will also make them more favorable to land reforms, which the landlord opposes. Hence, the very same structure of preferences arises in this case, with a similar impasse in reforms.

4.2.3. Alternative Identities.

I have associated an agent's identity entirely with his endowments. In reality, however, there are many other sources of identity such as ethnic group, religion, gender, etc. Clearly, introducing solidarity as well as discrimination based on these identities will introduce a whole new dimension to the model.

Indeed, it is not a priori clear how alternative identities would affect incentives to reform. In particular, if the opportunities created by reforms could be limited through discrimination based on identity, those enjoying rents (presumably, those whose identities secure them privilege) would not feel so threatened by the reforms. At the same time, though, the underprivileged will see considerably fewer benefits of the reform, and have less of an incentive to press for it, especially if the reform involves personal costs.

Matters become worse if non-economic sources of resentment accompany an ethno-linguistic divide, and if the divide reinforces an economic divide (as in the caste system). In this case, the crabs in the bucket become even more determined to pull each other down, ensuring persistence. The importance of the ethno-linguistic fractionalization in explaining underdevelopment (see Mauro (1995) or Easterly and Levine (2003)) could be seen in this light.

4.2.4. Expansion, agglomeration economies and other positive spillovers.

I have assumed that the educated are invariably made worse off when the uneducated receive education. Yet, it is possible to envisage situations where rapid growth expands opportunities beyond what can be serviced by the existing population of the educated. Indeed, Engerman, Mariscal, and Sokoloff (2002) find that the expansion of public schooling in Argentina and Chile took place during booms, and when these countries attracted large numbers of (more highly educated) immigrants, suggesting large opportunities. In the same vein, an extensive literature (see Collier and Hoeffler (2002)) suggests a rapid increase in conflict if economic opportunities shrink.

Agglomeration economies could contribute to the effects of expansion in overcoming concerns about rent dissipation – for example, when a country has more educated, it attracts more foreign direct investment (FDI) in skill-intensive industries, and hence disproportionately more opportunities for the educated. Similarly, the Hekscher-Olin theorem suggests that opening to trade favors the domestic factor that is in relatively abundant supply, and should thus facilitate reforms that expand that factor.

4.3. Are Coercive Political Institutions the Primary Cause of Underdevelopment?

Following the early work of Montesquieu (1748) and Smith (1776), and more recently, the work of North and Thomas (1973), and North (1981, 1990), among others, it is widely accepted that good political and economic institutions support economic activity and well-being. It is not also controversial that political power matters in the shaping of institutions, that political power can emanate from a variety of sources such as control over resources (see a large literature in sociology starting with Emerson (1962), for example), and that political institutions can serve to coordinate this political power.

But some economists go further, and ascribe an important role to political institutions in transmitting political power over time. Acemogulu, Johnson, and Robinson (2004, p9) state

"The framework we propose, therefore, emphasizes the importance of political institutions, and changes in political institutions, as a way of manipulating future political power, and thus indirectly shaping future, as well as present, economic institutions and outcomes."

They argue that the tendency for persistence stems from the fact that (p5)

"political institutions allocate de jure political power, and those who hold political power influence the evolution of political institutions, and they will generally opt to maintain the political institutions that give them political power."

Also

"Since de facto power [power from non-institutional sources] , because of the nature of the collective action problem, is intrinsically transitory and difficult to wield, political institutions are often crucial in creating a source of durable political power."

Others dispute the extent to which political institutions (see Glaeser et al. (2004) or Rajan and Zingales (2003)), or even political power matter. For instance, Engerman and Sokoloff (2005, p14) argue that

"The specific mechanisms that worked to produce the divergence in institutional and other development are complex and difficult to discern, but it seems clear that they often involved factors other than differences in the political power of the elite."

My model offers a reason why inequality in opportunities and endowments could lead to low growth, without any appeal to coercive political institutions. Occam's Razor would suggest such an explanation should not be easily discarded in favor of explanations relying on persistence of coercive institutions. Note that my model does not imply political institutions do not matter – they do, as we have seen by examining the effects of changes in the sources of voting power or of voting structure. The point is, however, that coercive political institutions, or even coercive political power, are not necessarily the channels for persistence. Second, there are logical difficulties in the argument that persistent coercive political institutions are responsible for sub-optimal economic policies. Third, we have a number of examples where a modern elite expected to lose their coercive non-institutional power, and had the incentive to entrench themselves through institutional means, but simply proved unable. Let me offer details in what follows.

4.3.1. Non-institutional explanations for persistence

Underdevelopment has persisted despite a dramatic increase in inclusiveness and decrease in coerciveness of the political institutions in poor countries – including independence, emancipation of slaves, democratization, and new constitutions. One explanation is that there are deep, hard-toobserve, "micro" political institutions that completely offset any effect of democratization or rewriting constitutions, and continue to entrench the coercive political power of the elite. An alternative, but observationally identical, explanation is that the elite also have non-institutional sources of power that are strengthened to allow sub-optimal economic policies to continue even when the institutional sources of power weaken (see, for example, Acemogulu and Robinson (2006)).[16] It is implausible though that if the institutional persistence explanation had merit, a weakening of major coercive political institutions would have such little effect on economic outcomes. Indeed, once we accept the possibility that the elite have non-institutional sources of power, then the whole institutional explanation for persistence is undermined. [17] Could it not simply be that the elite have power and use that power to implement preferred policies (see, for example, Engerman and Sokoloff (2003), Przeworski (2004))?[18] Here again though, the notion that it is only the power of the elite that holds back reform seems implausible when we recognize that power, both institutional and non-institutional, has undoubtedly become more widely distributed in a number of societies, even while reforms still remains very limited.

---

[16] In an attempt to explain how underdevelopment persists despite the obvious change in political institutions most poor countries have experienced – independence, democratization, and (in the case of some, multiple) new constitutions, Acemogulu and Robinson (2006) appear to abandon the strict institutional explanation, arguing a combination of power through formal political institutions (de jure) and informal sources (de facto) preserves the position of the elite. It is not clear how much they subscribe to their earlier view of institutions as the "fundamental cause of long-run growth" (AJR 2004), once they allow an unbounded role for the persistence of the power of the elite through informal, non-institutional sources.

[17] Of course, we need a theory of non-institutional sources of power – for example, the power from control over resources – and we need to offer evidence that this entrenched power hurts development (see Skaperadas (1991) and Rajan and Zingales (2000) for examples). The evidence that poor countries that possess considerable easily-extracted natural resources tend to be particularly underdeveloped (and that the presence of those resources tend to be associated with elite-focused and typically poor governance outcomes – see Salai-I-Martin and Subramanian (2003)) certainly is supportive of such a theory, but it would be good to have evidence of its wider applicability.

[18] In North and Weingast's (1989) canonical paper on the importance of political institutions in economic development, the checks and balances placed by Parliament on the British sovereign following the Glorious Revolution of 1688 allowed the sovereign to commit to respect the rights of investors. This, in turn, reduced the British government's cost of borrowing, a major factor in its subsequent military successes. The authors attribute the curbs in the monarch's power to constitutional elements like the Declaration of Rights by Parliament in 1689. But were these elements effective or were they simply evidence that Parliament, which had beheaded one king and just deposed another, had become powerful enough to constrain the monarch (see Rajan and Zingales (2003, Chapter 6)). Rajan and Zingales acknowledge the coordinating role played by political institutions like Parliament, but following Tawny (1941), argue that its underlying power may have come from the rise of the independent gentry. Put another way, was it the institution or the constituency backing it that mattered?

In this paper, we have seen that sub-optimal policies can persist so long as the status quo is highly unequal, even if the elite have no special coercive power, either formal or informal. Those policies maintain the inequality – the differential access to resources and opportunities – that in turn provide the political consensus for the policies. This offers a view of underdevelopment that neither relies on coercive power or institutions for persistence, which is a bonus for it allows us to explain how political liberalizations may have had little effect on economic outcomes if they left untouched the underlying inequality of opportunity and endowments.

In this view, the primary legacy of the early colonialists were the differential degrees of initial inequality in endowments and opportunities in their colonies. In some settlements, they came upon existing, heavily populated, hierarchical societies following feudal modes of production, and simply displaced the rulers. In others that were amenable to plantation modes of agriculture, or mining, they enslaved the local population, or imported slaves (see Engerman and Sokoloff (2005)). In yet others where land was fertile and plentiful, the disease environment not inhospitable, and the local population scarce, the colonists worked the land themselves in small holdings. Initial inequality led to policies or economic institutions like schooling (see Engerman, Mariscal, and Sokoloff (2002)) that reproduced the inequality, and eventually constrained growth.

Once we accept that institutions, especially bad ones, may not be able to project power very far on their own, it becomes easier to understand why even though the years spent under communism affected peoples' attitudes (see Alesina and Fuchs-Schudeln (2005)), socialist institutions were replaced by market institutions with remarkable speed. "Bad" socialist institutions were certainly not durable. Indeed, one of the virtues of communism is a very strong emphasis on education, and this creates the broad constituencies that can press for market reforms once the power of the nomenklatura (based on control of the military and the secret services) is broken. Ironically, instead of capitalism containing the seeds of its own destruction, the seeds for flourishing capitalism have been nurtured in the soil of communism. Capitalism may well be the final stage of communism!

While I have come to these qualified conclusions from a largely theoretical perspective, the work of Glaeser et al. (2004) goes further, and offers evidence questioning whether political institutions even play even a contemporaneous role in economic growth. They argue that the best measure of institutions – a measure of constraints on the executive – does not predict economic growth, while other factors like human capital do. Also, the historical instruments in the literature (specifically settler mortality and population density in 1500 from AJR (2001, 2002)) are more highly correlated with contemporaneous measures of human capital than with contemporaneous measures of political institutions. Indeed, when they use instrumental variable estimation using the historical instruments, they find that measures of human capital trump measures of political institutions in explaining growth.

The model in my paper, where initial inequality (including in human capital endowments) is persistent and leads to resistance to reform, would be one way of explaining the findings in Glaeser et al. (2004) – they offer another (see later). Let me now turn to a subtle logical problem in claiming primacy for the institutional approach.

4.3.2. Is the Logic of Institutional Persistence and Sub-optimal Economic Policies Airtight? .

If indeed political power could substantially be entrenched via coercive political institutions, there would be little need for the elite to maintain sub-optimal economic policies – except to the extent that those policies involved a direct weakening of the coercive political institutions or the elite's rents. For instance, in my model, if the oligopolist had absolute and unchangeable political power conferred through political institutions, he would be a strong supporter of universal education, for that would increase output and his income. Similarly, if the powerful elite were the monarchy, they would have an incentive to liberalize the economy (even if their unbounded political power caused businesses to fear expropriation and limit investment), because they would be able to tax a larger pie.

But as AJR (2004, p70) argue, citing Hill (1961):

...the reason that the Tudor and Stuart monarchs were not in favor of efficient economic institutions is because they feared that this would undermine their political power. He notes:

"...in general the official attitude to industrial advance was hostile, or at best indifferent. It was suspicious of social change and social mobility, the rapid enrichment of capitalists, afraid of the fluctuations of the market and of unemployment, of vagabondage, and social unrest..."

This discussion suggests powerful monarchs feared a reduction in inequality, as well as the acquisition of non-institutional sources of power by the populace, suggesting they themselves did not believe their coercive sources of institutional power were enough to maintain their rents. The failure of Coasian bargaining at the national level is precisely because political power is hard to assign through contract or institutions – all enforcement is endogenous at the national level so it is hard to see how there could be persistent "institutional" enforcement of actions that go against the prevailing distribution of power (see Rajan and Zingales (2000) or Acemogulu (2003)). Sub-optimal economic policies are therefore necessary to maintain the pattern of inequality, as well as the non-institutional distribution of power, that allows the elite rents.

A final set of examples is useful in indicating the limits of institutionalizing political power – the difficulty for a currently powerful elite in ensuring its rights will be protected in the future through political institutions.

4.3.3. The Difficulty for an Elite to Institutionalize its Power

Consider first Zimbabwe. As Acemogulu, Johnson, and Robinson (2004, p41) write,

"the white negotiators at the Lancaster House talks in 1979 that produced these agreements understood that any promises made by the black majority negotiators about what would happen after independence could not be believed. They sought therefore to find a set of rules [political institutions] that would get around this problem."

In short, the macro-political institutions were changing as the black majority asserted its power. Could they be tailored to entrench the power of the white elite, even after its underlying source of power – in particular, military power – was lost? The answer, it turned out, was no. The political institutions that preserved white interests were quickly overridden. In 1990, the senate was abolished, and the Constitution amended to allow for redistribution of land, leading AJR to conclude that "these guarantees were not enough to protect the property rights (and rents) of the whites in anything other than the short run."

Consider next another example from AJR (2004), Chile. Pinochet of Chile had a very strong incentive to put in place constitutional features that protected him from prosecution after he relinquished power. Indeed, he was willing to abide by the results on the 1989 plebiscite that he lost in part because as a senator, the constitution protected him from prosecution. Clearly, this faith in political institutions was misplaced because Pinochet was hounded with prosecution in his last years.

Indeed, it is hard to come up with examples of unpopular political institutions that endured without support from those rendered powerful by other means. Most examples of persistence are either inclusive institutions like the U.S. constitution that commanded popular support, or exclusionary institutions such as literacy requirements for voting in Latin America or Jim Crow laws in the U.S. South, which were supported by an elite made powerful through other means.[19] If political institutions cannot project the power of an elite even just a few years into the future, it is hard to

[19] Good institutions, like the U.S. constitution, can for all practical purposes become exogenous. Yet one should not go to the other extreme and neglect the role of supporting constituencies – a constitution can also be simply a piece of paper, as suggested by the very different effects of much the same U.S. constitution, when transplanted to Liberia. Similarly, the very same institutional environment and leadership that gave rise to a Chiang Kai-shek, who was deemed too corrupt to be supported by the United States against the Communists, with a different set of constituencies, set the foundation for Taiwan's prosperity.

imagine them conferring power on an elite, centuries after the elite lose non-institutional sources of power. Coercive political institutions may be part of the explanation but seem unlikely to be the primary source of persistence of underdevelopment.

4.4. Related literature

The model highlights the difficulty of enacting reforms that expand educational or financial endowments, even when the economy is not dominated by an all powerful oligarchy. Unlike Bourguignon and Verdier (2000), where education tends to increase the political participation of the poor, and thus threatens to subject the rich to redistribution, education in our model has no direct effect on political power. In fact, the oligopolist values the more skilled workforce he will have as a result of education. However, education does give the poor the ability to take advantage of pro-market reforms, and thus makes them predisposed to further reform. It is the fear of comprehensive reforms that makes the oligopolist oppose education reforms.[20]

Glaeser et al. (2005) also emphasize political participation when they argue that high levels of education make democracy more stable because the educated face lower costs of political participation. The educated are consequently more likely to support democracy even when it offers weak personal rewards. Glaeser et al.'s focus is not on the factors driving education. By contrast, my focus is not on the effect of education on political power or participation, but on incentives and the resulting support for reforms. Broader education builds more support for further education reforms as well as pro-market reforms because individuals perceive greater rewards from reforms.

My paper is also not the first to argue that the difficulty of commitment to future actions may lead to paralysis in policy. Besley and Coates (1998) identify three reasons why optimal policies may not be undertaken by the currently powerful. First, compensation may not be paid by the future powerful. Second, the action today may change the identity of those who get elected in the future. Third, actions today may change the preferences of future policymakers. All three factors are clearly at work in this paper, though the key is that taken in combination, they can work against any reform obtaining support, even when we allow a vote to those who are not the elite today.

Rodrik (1993) and Wei (1997) offer a different rationale for why comprehensive reform may be opposed even when a majority benefits (ex post) from it. Essentially, if the benefits of reform are

[20] Perhaps the elite oppose reforms because they have to pay the costs (say, for education). This certainly could be part of the story but does not explain why expenditures on public education have stayed limited even as societies become more democratic, especially given high returns to education.

uncertain, and spread unevenly across the population, one can create examples where the electorate will vote against them because of the expected incidence of benefits, even though more people benefit (ex post) from the reform than lose. Of course, by symmetry, it is also possible to create examples of excessive reform.

Finally, there is an extensive literature suggesting that inequality can lead to distributional conflicts that hamper growth (see, for example, Alesina and Rodrik (1994)). Typically, the literature focuses on the incidence of costs of public goods and of taxation. My paper abstracts from those effects, focusing instead on the uneven incidence of the benefits of reforms as well as the loss of rents. One broad implication – that inequality hampers growth – is similar, but that literature would suggest a narrowing of inequality over time as the rich are taxed, while my paper would suggest the persistence of inequality.

4.5. Empirical support.

One of the most important implications of my model is that, ceteris paribus, attitudes toward competition are affected by characteristics that represent the ability to take advantage of opportunities – education, status, and income. Using responses from the World Value Survey, an earlier version of this paper finds that more educated, higher status, and higher income respondents all have a greater pre-disposition towards competition, as the model would suggest (results available from the author).

If the rich already enjoy opportunities, the marginal improvement in opportunities through education should be greatest for the poor. It turns out that the effect of education on the predisposition of the poor is substantially greater the effect of education on the predisposition of the rich towards competition.

Clearly this evidence is just indicative that the basic outline of the model hangs together. We now obtain additional suggestive evidence. One measure of the extent to which expenditures are skewed in a society is the ratio of public expenditure per student in primary education to public expenditure per student in tertiary education. I calculate this from the World Development Indicators(detailed definitions of all variables are in the tables). Since the public goods aspects of primary education (which imparts basic health, hygiene, and nutrition, basic civic duties, and functional literacy) exceed the public goods aspects of tertiary education, and since the technological need for tertiary education is unlikely to be high in poor economies, poor economies should optimally have a high ratio. One reason the ratio may not be high is if the constituencies that already have access to basic education hijack public expenditure to pay for higher schooling, even while the underprivileged in the population is starved of access to basic education. Thus a low ratio could be a good proxy for unequal endowments and outcomes.

Indeed, as Chart 4 suggests, economies with a low ratio of primary to tertiary expenditure also tend to have low overall schooling outcomes. In Table 4 column (i), I present OLS regression estimates suggesting that the correlation is indeed strongly statistically significant. In column (ii), I instrument the ratio of primary to tertiary expenditures with the fraction of European settlers in the population in 1900. This is a good proxy for the historical size of the "educated" in my model. The greater the number of the educated in the population, the less should be the distortion in public expenditure. As the first stage in column (ii) suggests, the greater the fraction of European settlers in the population in 1900, the greater the ratio of primary to tertiary expenditure in 2000. As the second stage suggests, the instrumented ratio is strongly positively correlated with years of schooling – a one standard deviation increase in the ratio results in an increase in the years of schooling by 55 percent of its standard deviation.

An alternative set of instruments is settler mortality and the density of the population in 1500 (from AJR (2001, 2002)). Again, the higher settler mortality, or the greater the pre-existing population density, the more unequal the society's distribution of endowments, and the more skewed should be its expenditures. As the first stage in column (iii) suggests, this is indeed the case and, as suggested by the second stage, the skewed expenditure ratio does affect years of schooling. Finally, column IV indicates that the instrumented ratio is also strongly positively correlated with log per capita GDP – societies that have an especially skewed structure of public expenditure are also poor, a fact that is clearly brought out in Chart 5.

Finally, in Table 5 I take a first pass at examining persistence. First, in column (i) when I regress the years of schooling of population age 25 and above in 2002 on the extent of primary enrollment in 1900, I get a strong positive coefficient estimate, suggesting some persistence. The result is unchanged when I also include in column (ii) the extent of democracy in 1900 as measured in the polity IV database. The coefficient estimate for democracy is insignificant. This suggests that political institutions, though undoubtedly crudely measured, do not project their impact far into the future, at least on to education outcomes.

When I regress an index of democratic accountability in 2002 (higher index, more democracy) from ICRG on the extent of democracy in 1900, I get a strong positive coefficient (see column (iii)). But now if I include the extent of primary enrollment in 1900 (in column (iv)), the coefficient estimate on the extent of democracy in 1900 becomes greatly attenuated in magnitude and statistically insignificant. This suggests that the deep factors that limit education (such as unequal endowments and opportunities) may also be responsible for any perceived persistence in coercive political institutions, rather than vice versa. Of course, far more work is needed to place these suggestive findings on a firm footing.

Turning to prior studies, an extremely interesting one by Banerjee and Iyer (2005) is persuasive that inequality of endowments matters, because they examine its effects within a common political system – that of colonial and independent India. They find that districts in which proprietary rights were given to large landlords by the British had much greater inequality in land and incomes than districts where rights were given directly to the cultivator, and this inequality persisted till Indian independence. While inequality diminished after independence as a result of land reforms, it lingered on since the reforms were incomplete and, sometimes, ineffective. Banerjee and Iyer find that landlord dominated areas could take much less advantage of the post-independence agricultural reforms, spending far less on development, even after correcting for differences in income. As a result, agricultural productivity was lower in landlord areas, despite some evidence that the non-landlord areas were poorer at the outset in colonial times. Particularly relevant to my model is the finding that in the period after independence, landlord areas had 21 % fewer villages equipped with primary schools, while the gap in middle school and high school availability was 61% and 63% respectively relative to the more equally endowed non-landlord areas. The persistence of inequality, the difficulty of taking advantage of reforms, including those funded by the central government, as well as the under-emphasis on education in unequal areas are all consistent with my model.

Iyer (2004) examines the effects of political institutions. Comparing districts ruled by the British to districts ruled by Indian rulers, she finds that in 1961, 14 years after independence, British ruled districts had significantly fewer primary schools. She concludes that this was because the British, unlike the Indian rulers, could not have their territory seized [by the British] for poor governance, and therefore had lower incentives to provide public goods in colonial times. Political institutions thus do matter. What is interesting for this paper is that the effects of British rule on primary education, or on literacy, are no longer present in 1981-1991 data, suggesting the limits of persistence of "bad" political institutions (other than, perhaps, through inequality and the structure of interests).

Pal and Ghosh (2006) look at modern Indian data and find that in areas where there is a greater share of land held by the top 5 percent of the population, spending on education is lower. In a similar vein, Erikson and Ramcharan (2005) examine the effects of inequality in land holdings on public expenditure, such as on education, in the United States. Unlike Banerjee and Iyer (2005), where the pattern of land holdings is likely to be exogenously determined because the colonial system of land tenure was exogenously imposed, the system of land tenure in the states Erikson and Ramcharan examine is likely to be endogenous. Using the volatility of weather as an instrument (more volatile weather patterns means larger farm size in equilibrium), they find indeed that higher inequality in land holdings around the beginning of the twentieth century meant lower public expenditure on public goods such as education.

Finally, the model would suggest that countries that experience positive growth shocks when they also have low initial levels of inequality are more likely to undertake the necessary policies to sustain growth opportunities. Indeed, Berg, Ostry, and Zettelmeyer (2006) find that growth episodes have a significantly longer duration in countries that start with lower levels of income inequality (a rough proxy for inequality in opportunities and endowments).

V. Discussion and Implications for Development

When attempting to explain the slow economic growth in a country like Mexico, which has been through independence, revolution, one party rule, and democratization, far too many people continue to blame political institutions. When faced with a paralyzed economic and social reform process, those with presidential systems seek parliamentary systems and vice versa, those with proportional representation seek to change to a majoritarian system, and vice versa, some seek to decentralize, while others to centralize decision making. While economists have found some effect of these changes (see Persson and Tabellini (2002, 2005) for an excellent overview), they are subtle and far more limited than one might expect. Indeed, it is hard to rule out the possibility that the economic effects reflect the underlying change in circumstances that prompt the change in political structures, rather than the effect of changes in political structures themselves.

The point my paper makes is that economic paralysis may well reflect the broad aggregation of preferences of the electorate. Even though everyone can see a better place for the economy to be in, each constituency's "better place" is not the same as every other constituency's "better place" because they start with different endowments and opportunities, and therefore want to protect different rents. The status quo may be the only common ground since it happens to be the one everyone is standing on.

5.1. Sequencing

How does one jump start the economy? It may be tempting to do what is possible. For instance, some have argued that the strengthening of property rights and the expansion of competition and associated opportunities will help the very poor (see, for example, De Soto (1989,2002)). Such reforms could certainly create growth for a while but the lack of endowments, especially of education, may leave the poor unprepared for the market economy, and possibly worse off. Reforms could grind to a halt. To the extent that a large constituency -- the uneducated or, more generally, the poorly endowed -- benefit little from these pro-market reforms, it creates general skepticism about reform. Furthermore, it converts a constituency -- the educated or more generally the well-endowed -- that is hungry for reforms, into one that is unenthusiastic about further reforms. Perhaps then, in some situations of extreme inequality, it may be wiser to focus first on broadening access to endowments. If market oriented reforms follow soon after, they may fall on more fertile ground.

Sequencing therefore matters. Broadening the ability to take advantage of opportunity first, and then broadening opportunity, will ensure widespread support for comprehensive and thorough reforms, while the reverse sequence, though politically more feasible, will likely leave reforms stalled and incomplete. Unfortunately, though, reforms expanding access to endowments are the hardest to effect, which is perhaps one reason why underdevelopment is so hard to cure. There are, however, situations when such reforms do take place.

5.2. Motivated Government

Let us leave aside the unrealistic possibility of a benevolent dictator which would solve many problems in political economy. What if a government sought reform but was in a situation where the polity was paralyzed by rent preservation? One common view is that the task of the government is persuasion, and that all it needs is to lay out its long term vision clearly for everyone to buy in to the reform process. Yet, if the conditions in the model hold, the polity may not want comprehensive reforms and too clear an articulation of the road may lead to a mobilization of the opposition.

Instead, the government may have to seize every opportunity it can, leaving unclear what its ultimate destination is. As we have seen, the right reforms (such as broadening access to education or land) can give political momentum to further reforms. If those initial reforms can be undertaken without much discussion of future steps – reform by stealth, so to speak – a government might have more success.

The right circumstances could also be a spur to reforms. Often, economic (especially fiscal) crises can break gridlock (see Binswanger and Deininger (1997)). In normal times, a constituency may be reluctant to place its rents on the negotiating table, for fear that only its rents will be reformed away. A grave economic crisis may make it credible that only one constituency’s rents will be insufficient to remedy the situation, and could create a more conducive environment for negotiation, where everyone has to give a little.

At the opposite extreme, rapid growth, especially through trade, could also create a conducive environment for reform by creating enough opportunities to go around.[21] In particular, the educated may be more willing to tolerate education for the uneducated when growth is rapid and more than enough new jobs are being created. Agglomeration economies would make them even more supportive. Similarly, an oligopolist, seeing the larger world market he could have access to if he became globally competitive through reform, may welcome an educated workforce, even if it eventually means more domestic competition. For example, Galor and Moav (2006) document that English industrialists supported universal education at the end of the 19th century as a way to increase their ability to compete with French and German companies.

5.3. Non economic reasons to promote education mass-education

Forces outside economics have played an important part in helping some countries overcome the natural incentives of interest groups. Perhaps the strongest force has been religion. For example, Protestant leaders believed strongly in the value of personal knowledge of the Scriptures, unmediated by the Church, and hence emphasized education. As early as 1524, Martin Luther sent a letter to German municipalities insisting it was their duty to provide schools and the duty of parents to educate their children. In 1647, Massachusetts passed the Old Deluder Satan Law requiring local authorities to set up compulsory elementary schools. The law was so-called because the preamble said the old deluder Satan kept men from knowledge of the Scriptures (Weiner, 1991).

Nationalism seems to have been a second factor. After the Revolution the French government tried to break the hold of the Catholic church on education by creating state-run primary schools, forcing religious schools to follow an official curriculum, and employing teachers as civil servants. It redoubled its efforts as a way to strengthen the army after being defeated by Germany in 1870. In Japan, the Tokugawa elite believed education would make the masses more moral and more obedient (see Dore (1965)). In fact, a high level of literacy on the eve of the Meiji Restoration facilitated the introduction of compulsory education by the state in 1872 (Weiner (1991)). The Japanese concern for education also made its way into its colonies, Korea and Taiwan, though the Korean emphasis on mass education may have been spurred in part as a way of building national consciousness against Japanese influence (Weiner (1991)).

---

[21] Policies such as pro-market reforms should lead to improved institutional outcomes such as rule of law. Johnson, Ostry, and Subramanian (2005) document an improvement in institutional outcomes as a result of growth spurts in poor countries with high initial education and a competitive external sector.

Communism has also been a strong force. Weiner (1991, p163) argues that while the rulers of imperial China regarded mass education as a political threat, the post-imperial regimes saw it as a way to bridge the differences between the elite and the masses, and of developing China as an industrial and military power (also see (Easterlin (1981)). More recently, the Communists may also have been more confident of their hold on power. The Chinese were not uninfluenced by Japan, whose success they saw as due to its emphasis on education. Thus again, national rivalry can help in breaking the hold of narrower domestic interest groups.

Finally, and briefly, successful land reforms also appear to have been undertaken under circumstances of political change. The rise of the gentry in Britain, the force behind the growing power of Parliament, accompanied the taming of the power of great lords and the Church by Henry VII and Henry VIII and the sale of their lands (see Tawney (1949), Rajan and Zingales (2003)). Similarly, the desire of the Allied occupiers to reduce the power of the Japanese landlords who backed the prior militaristic regime (see, for example, Nelson (1993)), or of Koreans to cut landlords who had been too cozy with Japanese occupiers down to size (see Jeon and Kim (2000)), led to successful land reforms in these countries.

5.4. External Pressure

Regional organizations like the European Union or organizations like the World Trade Organization (WTO) can promote reforms by offering the substantial benefits of membership only to those who reform enough to qualify. For instance, countries that desire membership in the European Union have to undertake a wide set of reforms to obtain the market access and transfers that accompany membership. Of course, to the extent that the underlying structure of society is still fundamentally unequal upon access and replete with rents, the pace of reform could slow considerably after membership. It might be beneficial then for the required reforms to not just mandate macroeconomic stability, but also more egalitarian access to factor endowments. In a similar vein, countries like China have accepted tough conditions for accession to the WTO, as much because they value the impetus this gives to the domestic reform process, as for the benefits of WTO accession itself.

Finally, consider external advice. As international organizations have increasingly realized, the problem in many countries is not so much identifying necessary reforms but instead obtaining political support for them. One extreme reaction is to throw up one's hands and blame the historic weight of institutions – that way lies paralysis. A second approach is to pressure a country into adopting reforms that do not have the underlying consensus, perhaps through the threat of withdrawing foreign assistance. As the international organizations have learnt, this approach will typically be met with subtle sabotage as domestic constituencies subvert the reforms. This is why the recent focus of international agencies on requiring country authorities to demonstrate ownership of reform programs is so important. This is not to say that the agencies are irrelevant. International agencies can have some impact at the margin, especially if they can strengthen the hand of an emerging reformist constituency in the government.

Conclusion

Any uni-dimensional view of economic development and the impediments to it is likely to be incomplete. The details in each country obviously differ, and any attempt at generalization is likely to be considered sweeping. Nevertheless, there is value in putting forward specific theories, and in building the case for them, not so much to exclude other theories, but to give economists more options in describing the impediments to growth in a specific instance. Broadly speaking, I have argued that a key impediment to development is that underdeveloped economies are divided into constituencies that fear the loss of the rents they already have, while being extremely skeptical about the path, benefits, and incidence, of reforms. Inequality in endowments and opportunities play a large role in stagnation, as well as in sustaining the policies that reproduce the inequality. Remedying these conditions is not an easy task for policy makers, which may explain why underdevelopment is so persistent.

References

Acemoglu, Daron, 2003, "Why Not a Political Coase Theorem? Social Conflict, Commitment and Politics", *Journal of Comparative Economics*, v.31, 620 - 652

Acemoglu D., S. Johnson, and J.A. Robinson, 2001, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91(5), 1369-1401.

Acemoglu D., S. Johnson, and J.A. Robinson, 2002, "Reversal of Fortune: Geography and Development in the Making of the Modern Income Distribution," *Quarterly Journal of Economics*, 117(4)1231-1294.

Acemoglu, Daron, Simon Johnson and James A. Robinson, 2004, "Institutions as the Fundamental Cause of Long-Run Growth" NBER Working Paper.

Acemoglu, Daron and James A. Robinson, 2006, Persistence of Power, Elites, and Institutions, MIT Working Paper.

Alesina A., and N. Fuchs-Schundeln, 2005, “Good Bye Lenin (or not?): The Effect of Communism on People’s Preferences”, unpublished, Harvard University, http://post.economics.harvard.edu/faculty/alesina/papers/goodbyelenin.pdf

Alesina, A., and D. Rodrik, 1994, “Distributive Politics and Economic Growth”, *The Quarterly Journal of Economics* , Vol. 109, No. 2 , pp. 465-490

Banerjee, A. and L. Iyer, 2005, “History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India”, *American Economic Review*

Bates R. H., 1983, *Essays on the Political Economy of Rural Africa*, Cambridge: Cambridge University Press.

Berg, Andy, Ostry, Jonathan, and Jeromin Zettelmeyer, “What makes Growth Sustained?”, IMF Working Papers.

Besley, Tim and Stephen Coates, "An Economic Model of Representative Democracy", *Quarterly Journal of Economics*, 108(1), 85-114, 1997.

Binswanger, Hans and Klaus Deininger, 1997, “Explaining Agricultural and Agrarian Policies in Developing Countries” *Journal of Economic Literature*, Vol. 35, No. 4 (Dec., 1997), pp. 1958-2005

Bourguignon F., and T. Verdier, 2000, “Oligarchy, Democracy, Inequality and Growth”, *Journal of Development Economics*, 62(2), 285-231.

Collier, Paul and Anke Hoeffler (2002), “On the incidence of civil war in Africa”, *Journal of Conflict Resolution*, 46(1), 13-28.

De Soto, Hernando, 1989, *The Other Path*

De Soto, Hernando, 2002, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, Basic Books.

Dixit, Avinash and John Londregan, “Ideology, Tactics, and Efficiency in Redistributive Politics”, *Quarterly Journal of Economics*, 113(2), May 1998, 497-529.

Dore R.P., 1965, *Education in Togukawa Japan* Berkeley: University of California Press.

Easterlin R., 1981, “Why Isn’t the Whole World Developed?”, *Journal of Economic History*, 41(1), 1-19.

Easterly W., and R. Levine, 2003, “Tropics, Germs and Crops: How Endowments Influence Economic Development” *Journal of Monetary Economics*, 50(1), 3-39.

Engerman, S., E. Mariscal, and K. Sokoloff, 2002, “The Evolution of Schooling Institutions in the Americas, 1800-1925”, UCLA Working Paper.

Engerman S.L., and K. L. Sokoloff, 1997, “ Factor Endowments, Institutions and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States” in

S. Haber editor, *How Latin America Fell Behind: Essays in the Economic Histories of Brazil and Mexico*, Stanford: Stanford University Press

Engerman S.L, and K.L. Sokoloff, 2002, “Factor Endowments, Inequality and Paths of Development Among New World Economies”, Economia, 3 (Fall), 41-109.

Engerman, S. and K. Sokoloff, 2003, “Institutional and Non-Institutional Explanations of Economic Differences”, NBER Working Paper 9989.

Engerman S.L, and K.L. Sokoloff, (2005), “Colonialism, Inequality, and Long Run paths of Development”, NBER Working Paper 11057.

Emerson, R., 1962, ``Power Dependence Relations," *American Sociological Review*, 27:31-41.

Fernandez, Raquel and Dani Rodrik, 1991, “Resistance to Reform: Status Quo Bias in the Presence of Individual- Specific Uncertainty”, *The American Economic Review* > Vol. 81, No. 5 (Dec., 1991), pp. 1146-1155.

Galor E., O. Moav, and D. Vollrath, 2006, “Land Inequality and the Emergence of Human Capital Promoting Institutions” Brown University working paper.

Galor E. and O. Moav, 2006, “Das Human Capital: A Theory of the Demise of the Class Structure”, Review of Economic Studies.

Glaeser E.L., R. La Porta, F. Lopez-de-Silanes and A. Shleifer, 2004, “Do Institutions Cause Growth ? ”, *Journal of Economic Growth*, 9(3), 271-303.

Glaeser E.L., G. Ponzetto, and A. Shleifer, 2005, “Why does Democracy need Education?”, mimeo, Harvard University.

Hoff, Karla, 1996, “Market Failures and the Distribution of Wealth: A Perspective from The Economics of Information”, *Politics and Society*, Vol 24, 4, 411-432

Hoff, Karla, 2003, “Paths of Institutional Development: A View from Economic History”, *World Bank Research Observer*, vol 18, no 2, 205-226.

Iyer, L., 2004, “The Long-Term Impact of Colonial Rule: Evidence from India”, working paper, Harvard University.

Jeon, Yoong-Deok, and Young-Yong Kim, 2000, “Land Reform, Income Distribution, and Agricultural Production in Korea”, *Economic Development and Cultural Change*, vol 48, 2, 253-268.

Johnson S., J. Ostry, and A. Subramanian, 2005, "Africa's Growth Prospects: Benchmarking the Constraints", IMF Working Paper.

Krueger A., 1974, “The Political Economy of a Rent-Seeking Society”, American Economic Review, 64(3), 291-303.

Mauro P., 1995, “Corruption and Growth”, *Quarterly Journal of Economics*, 110(3), 681-712.

Montesquieu, Charles, 1748, (1989), *The Spirit of the Laws,* Cambridge University Press.

Nelson, Gerald., 1993, "Agricultural Policy Reform in Eastern Europe: Discussion", *American Journal of Agricultural Economics*, vol 75, no 3, 857-859.

North, Douglass, and Robert Thomas (1973) *The Rise of the Western World: A New Economic History*, Cambridge University Press, Cambridge UK.

North D. C., 1981, *Structure and Change in Economic History*, New York: Norton.

North D.C, 1990, *Institutions, Institutional Change and Economic Performance*, Cambridge: Cambridge University Press.

North, D. and Weingast, B. (1989), "Constitutions and Commitment: Evolution of Institutions Governing Public Choice in Seventeenth Century England", *Journal of Economic History*, 49, 803-832.

Pal, Sarmistha and Sugata Ghosh, 2006, "Elite Dominance and Under-Investment in Mass Education: Disparity in the Social Development of the Indian States, 1960-92", Working Paper, Brunel University, UK.

Persson, Torsten and Guido Tabellini, 2002, *Political Economics: Explaining Economic Policy (Zeuthen Lectures)*, MIT press, Cambridge MA

Persson, Torsten and Guido Tabellini, 2005, *The Economic Effects of Constitutions*, Cambridge MA

Przeworski, Adam. 2004. "The Last Instance: Are Institutions the Primary Cause of Economic Development?" European Journal of Sociology 45(2): 165-188.

Rodrik, D. (1993), "The positive economics of policy reform", *American Economic Review* 83, 356-61.

Rodrik D., A. Subramanian and F. Trebbi, 2004, "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development", *Journal of Economic Growth*, 9(2), 131-165.

Rajan, R.G., and L. Zingales, 2000, "The Tyranny of Inequality:An Enquiry into the Adverse Consequences of Power Struggles", *Journal of Public Economics* 76 (3): 521-558 JUN 2000.

Rajan R.G.,and L. Zingales, 2003, *Saving Capitalism from the Capitalists*, Crown Business, New York.

Rajan R.G., and L. Zingales, 2004, "Creating Constituencies for Reform", Presentation at Oxford University (available from authors).

Salai-i-Martin, Xavier and Arvind Subramanian, 2003, "Addressing the Natural Resource Curse: An Illustration from Nigeria", NBER Working Paper, 9804.

Shleifer, A. and R. Vishny 1999, *The Grabbing Hand: Government Pathologies and their Cures.* Harvard University Press.

Skaperdas, S. (1992), Cooperation, Conflict, and Power in the Absence of Property Rights *The American Economic Review* > Vol. 82, No. 4 (Sep., 1992), pp. 720-739

Smith, Adam, 1776, *The Wealth of Nations*, (1976) University of Chicago Press..

Sussman, Nathan and Yishay Yafeh, 2005, "Constitutions and Commitment: Evidence on the Relation between Institutions and the Cost of Capital ", Working Paper, Hebrew University, Israel.

R.H. Tawney., 1949, "The Rise of the Gentry, 1558-1640" *The Economic History Review*, XI: 5

Vaughan M. and M.S. Archer, 1971, *Social Conflict and Educational Change in England and France, 1789-1848*, Cambridge: Cambridge University Press.

Wei, S. (1997), "Economic Globalization: Finance, Trade, and Policy Reforms", *Canadian Journal of Economics*, November 1997.

Weiner M., 1991, *The Child and the State in India: Child Labor and Education Policy in Comparative Perspective*, Princeton NJ: Princeton University Press.

World Economic Outlook, International Monetary Fund, September 2005.

Appendix

Proof of Lemma 1: We have shown $\frac{m^E}{l^E}=\frac{\alpha}{\beta}$. But by assumption $\frac{\alpha}{\beta}>\frac{\overline{e}}{\overline{u}}$. Therefore, $\frac{m^E}{l^E}>\frac{\overline{e}}{\overline{u}}$, and since all workers are used in both situations, it must be that $\overline{e}<m^E$ and $\overline{u}>l^E$. Given diminishing marginal productivity of both managerial and labor input, it must be that managers get a lower wage than in the status quo while laborers get a higher wage than in the status quo. As a result, managers are worse off while laborers are better off. It is easy to check that total production increases because more workers can now be deployed in the higher marginal productivity activity of management. The oligopolist's profit is $\theta(m)^\alpha(l)^\beta-\alpha m\theta(m)^{\alpha-1}(l)^\beta-\beta l\theta(m)^\alpha(l)^{\beta-1}=(1-\alpha-\beta)\theta(m)^\alpha(l)^\beta$. Substituting $l=k-m$ where k is the (constant) total number of workers, differentiating w.r.t. m, and collecting terms, we get the oligopolist's profits increasing in the number of managers (and hence education) if $(1-\alpha-\beta)\left[\alpha l-\beta m\right]\theta(m)^{\alpha-1}(l)^{\beta-1}>0$. But the first term in parentheses is positive because of diminishing returns to scale and the term in the square brackets is positive so long as the marginal manager is more productive than the marginal laborer (and zero when the profit maximizing point of equal productivity is reached). Hence, the oligopolist is better off with education than in the status quo.

Proof of Lemma 2:

(i) We can solve for m_o^P, the managers employed by the oligopolist, which is increasing in θ.

$$m_o^P=\left(\frac{\alpha}{1-\beta}\right)^{\frac{1-\beta}{1-(\alpha+\beta)}}\left(1-s\right)^{\frac{-\beta}{1-(\alpha+\beta)}}\quad\theta^{\frac{1}{1-(\alpha+\beta)}}\qquad(1.4)$$

The level of θ at which m_o^P equals $\overline{e}$ is the level beyond which all the educated stay employed with the oligopolist because their pay from doing so is higher than from starting their competing, but less efficient firms. Therefore

$$\theta^*=(1-s)^\beta\left(\frac{\alpha}{1-\beta}\right)^{\beta-1}(\overline{e})^{1-\alpha-\beta}\qquad(1.5)$$

(ii) The opportunities of the educated expand with pro-market reforms, so their wage must increase. The oligopolist loses workers and has to pay the remaining ones more, so he is worse off. An example (see later) establishes that the uneducated may be better or worse off depending on parameters.

Proof of Corollary 1:

(i) Given that m_o^P, the number of educated working for the oligopolist after pro-market reforms, is independent of $\overline{e}$, and given that each educated person working outside sets up his own firm, the number of firms set up is $\overline{e}-m_o^P$, which increases one for one with an increase in $\overline{e}$. (ii) We know from solving the equations in the text that

$$l_e^P = \frac{\overline{u}}{\overline{e} + \left(\frac{1-\alpha(1-s)-\beta}{1-\beta}\right)\theta^{\frac{1}{1-(\alpha+\beta)}}\left(\frac{\alpha}{1-\beta}\right)^{\frac{\alpha}{1-(\alpha+\beta)}}(1-s)^{\frac{\alpha-1}{1-(\alpha+\beta)}}} \quad (1.6)$$

Ceteris paribus, this decreases in $\overline{e}$. (iii) It is easily shown that the number of laborers that stay with the oligopolist after reform is $l_o^P = l_e^P \left(\frac{\alpha}{1-\beta}\right)^{\frac{\alpha}{1-(\alpha+\beta)}}(1-s)^{\frac{\alpha-1}{1-(\alpha+\beta)}} \quad \theta^{\frac{1}{1-(\alpha+\beta)}}$, which is decreasing in $\overline{e}$ because l_e^P is decreasing in $\overline{e}$. Given that the number of managers that work for the oligopolist is constant and the number of laborers who work for him decrease in $\overline{e}$, his profits, which decrease with an decrease in either, decrease. (iv) Under the status quo, the uneducated get $\theta\beta\,(\overline{e})^{\alpha}\,(\overline{u})^{\beta-1}$. With pro-market reform, they get $(1-s)\beta\,(l_e^P)^{\beta-1}$. Therefore, the difference in income they get between status quo and pro-market reform is $\theta\beta\,(\overline{e})^{\alpha}(\overline{u})^{\beta-1} - (1-s)\beta\,(\frac{\overline{u}}{\overline{e}+x})^{\beta-1}$, where we have substituted the value of l_e^P from (1.6) and x is $\left(\frac{1-\alpha(1-s)-\beta}{1-\beta}\right)\theta^{\frac{1}{1-(\alpha+\beta)}}\left(\frac{\alpha}{1-\beta}\right)^{\frac{\alpha}{1-(\alpha+\beta)}}(1-s)^{\frac{\alpha-1}{1-(\alpha+\beta)}}$. Differentiating w.r.t. $\overline{e}$, and simplifying, the difference in income becomes smaller if

$$\frac{\theta\alpha}{(1-s)(1-\beta)} < \frac{\overline{e}^{1-\alpha}}{(\overline{e}+x)^{\beta}} \qquad (1.7)$$

Given that $\theta < \theta^*$, this condition is satisfied if it is satisfied at $\theta = \theta^*$. Substituting $\theta = \theta^*$ on the LHS of (1.7) from (1.5), we get the sufficient condition as

$$\frac{\alpha(1-s)}{1-\beta}\left(\frac{1}{1-s}\right)^{\frac{1}{\beta}} < \left(\frac{\overline{e}}{\overline{e}+x}\right)$$

Since $\alpha < 1-\beta$ because of the assumed decreasing returns, the left hand side tends to a number less than 1 if s is small, while the right hand side tends towards 1 because $\overline{e}$ is assumed substantially larger than 1 (by assumption 2) and x is smaller than 1 when s is small. Thus the inequality will hold under the specified conditions.

(v) Following similar steps to (iv), differentiating the difference in incomes w.r.t. θ, simplifying, and substituting $\theta = \theta^*$, we get the necessary condition for the status quo to be more attractive with an increase in θ to be

$$\frac{(1-\beta)}{\alpha}\left(\frac{1}{1-s}\right)(1-\alpha(1-s)-\beta)^{\frac{1}{\beta}} < \left(\frac{\overline{e}+x}{\overline{e}}\right)$$

Since the right hand side is greater than 1, and since $\frac{(1-\beta)}{\alpha} \approx 1$ if $1-\alpha-\beta$ is small and $\frac{1}{1-s} \approx 1$ if s is small, the left hand side turns into a small number, and the inequality holds.

Proof of Lemma 3: (sketch)

(i) Follows lemma 2 (i). (ii) We have shown earlier that the uneducated worker prefers education to the status quo. Further pro-market reforms enhance his opportunities, and thus must increase his income. (iii) Similarly, relative to a state where only educational reforms have taken place, the educated worker prefers comprehensive reforms because his opportunities are enhanced. However, relative to a state where pro-market reforms have taken place, the educated worker only faces more competition if further educational reforms now take place (and loses the ability to employ uneducated workers), so he prefers to stop at pro-market reform. As we show with the example, in comparison to the status quo, his preference for comprehensive reforms is parameter specific. (iv) Finally, the oligopolist only faces more competition if pro-market reforms follow educational reforms, so he prefers to stop at educational reforms. If educational reforms follow pro-market reforms, however, the supply of educated labor increases. On the one hand, he benefits from the greater supply of fungible educated labor, on the other hand, even the formerly uneducated workers can open new firms.

Solving for the number of managers and laborers the oligopolist employs under comprehensive reforms, and inspecting, we see it is dependent only on the technological parameters, and not on $\overline{e}$ or $\overline{u}$.

$$l_o^C = \beta\theta^{\frac{1}{1-(\alpha+\beta)}}\left(\alpha+\beta\right)^{\frac{\alpha+\beta}{1-(\alpha+\beta)}}$$

$$m_o^C = \alpha\theta^{\frac{1}{1-(\alpha+\beta)}}\left(\alpha+\beta\right)^{\frac{\alpha+\beta}{1-(\alpha+\beta)}}$$

Furthermore, recall that under pro-market reforms only, the number of managers working for the oligopolist was a constant, while the number of laborers working for him increased in $\overline{u}$ and decreased in $\overline{e}$. Since the oligopolist's profits go up in the number of laborers he employs, it must be that for any (already assumed high by assumption 2) level of $\overline{e}$, there is a level of $\overline{u}$ beyond which he prefers only pro-market reform to comprehensive reform.

Turning to his preference with respect to the status quo, the oligopolist's income with the status quo is given by $\left(1-\alpha-\beta\right)\theta\left(\overline{e}\right)^{\alpha}\left(\overline{u}\right)^{\beta}$, while with comprehensive reforms it is $\left(1-\alpha-\beta\right)\theta\left(m_o^C\right)^{\alpha}\left(l_o^C\right)^{\beta}$. Therefore, their preference for comprehensive reforms over no reforms increases as $\left(m_o^C\right)^{\alpha}\left(l_o^C\right)^{\beta}-\left(\overline{e}\right)^{\alpha}\left(\overline{u}\right)^{\beta}$ increases. We know by from above that m_o^C and l_o^C increase in θ, while $\overline{e}$ and $\overline{u}$ are obviously constant in θ. Thus the oligopolist's preference for comprehensive reforms increase in θ. By contrast, m_o^C and l_o^C do not vary with $\overline{e}$ or $\overline{u}$ while $\left(\overline{e}\right)^{\alpha}\left(\overline{u}\right)^{\beta}$ increases. Hence the oligopolist's preference for comprehensive reforms relative to the status quo decreases in $\overline{e}$ and $\overline{u}$. Q.E.D.

Proof of Corollary 2.

(i) With education and competition reforms, the manager's (or laborer's) income is

$$\left(\frac{\alpha}{\alpha+\beta}\right)^{\alpha}\left(\frac{\beta}{\alpha+\beta}\right)^{\beta} \tag{1.8}$$

which is independent of θ and $\overline{e}$. By contrast, the educated manager's income with no reforms under the status quo is $\theta\alpha\,(\overline{e})^{\alpha-1}(\overline{u})^{\beta}$ which increases in θ and decreases in $\overline{e}$. Thus the educated's preference for the status quo increases in θ and decreases in $\overline{e}$.

Table 1: Preferences of agents in different regions

(High Discount Factor)

		Oligopolists	Educated	Unskilled
	Best	SQ	PMR	CR
Area A		PMR	SQ	E
		E	CR	SQ
	Worst	CR	E	PMR
		Oligopolists	**Educated**	**Unskilled**
	Best	SQ	PMR	CR
Area C		PMR	SQ	E
		E	CR	PMR
	Worst	CR	E	SQ
		Oligopolists	**Educated**	**Unskilled**
	Best	SQ	PMR	CR
Area B		PMR	CR	E
		E	E	PMR
	Worst	CR	SQ	SQ
		Oligopolists	**Educated**	**Unskilled**
	Best	SQ	PMR	CR
Area D		PMR	CR	E
		E	E	SQ
	Worst	CR	SQ	PMR

SQ	Status quo
PMR	Pro market reforms
E	Education reforms
CR	Comprehensive reforms

Table 2: Scores Based on Voting Game

	Strategy	Score	Winning strategy
	SQ	6	
Area A	PMR	7	SQ
	E	9	
	CR	8	
	PMR	6	
Area C	SQ	7	PMR
	E	9	
	CR	8	
	PMR	6	
Area B	SQ	9	PMR
	E	8	
	CR	7	
	SQ	8	
Area D	PMR	7	PMR
	E	8	
	CR	7	

Error! Objects cannot be created from editing field codes. Ratio of primary to tertiary is the ratio of public expenditure per student in primary education to public expenditure per student in tertiary education, obtained from World Development Indicators. Years of schooling in 2000 is the years of schooling of the total population aged over 25 in 2000. Source: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Index of democratic accountability is from the ICRG database, and goes from 1 to 6, with 6 being alternating democracies with checks and balances in place, and 1 being strict autocracies. European settlers is the percentage of population of European descent in 1900. Source: Acemoglu, et al. (2001). Primary enrollment in 1900 is the percentage of children from 5 to 14 enrolled in primary school from Benavot and Riddle (1988). Institutionalized democracy in 1900 is a 0-10 index from the Polity IV data set. Log settler mortality is the log of the mortality rate faced by European settlers at the time of colonization. Source: Acemoglu, et al. (2001). Population density in 1500 is the total population divided by total arable land in 1500 A.D. Source: McEvedy and Jones (1978) as cited in Acemoglu, et al. (2002).

Table 4

Years of schooling in 2000 is the years of schooling of the total population aged over 25 in 2000. Source: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Ratio of primary to tertiary is the ratio of public expenditure per student in primary education to public expenditure per student in tertiary education, obtained from World Development Indicators. European settlers is the percentage of population of European descent in 1900. Source: Acemoglu, et al. (2001). Log settler mortality is the log of the mortality rate faced by European settlers at the time of colonization. Source: Acemoglu, et al. (2001). Population density in 1500 is the total population divided by total arable land in 1500 A.D. Source: McEvedy and Jones (1978) as cited in Acemoglu, et al. (2002).

	Dependent Variable			
	(i)	(ii)	(iii)	(iv)
	Years of schooling in 2000	Years of schooling in 2000	Years of schooling in 2000	Log per capita income in 2002
Estimation	OLS	IV	IV	IV
	Standard errors in parentheses			
Constant	5.21*** (0.50)	2.49** (0.97)	1.23 (1.52)	6.76*** (0.40)
Ratio of Primary to tertiary education expenditures	4.46*** (0.95)	11.07*** (2.50)	13.55*** (3.77)	5.02*** (1.08)
Number of Observations	65	31	27	31
Adj R Sq	0.25			0.06
	First Stage regression for IV			
Fraction of European settlers in 1900		0.65*** (0.13)		
Log of settler mortality (AJR)			-0.08 (0.05)	-0.09** (0.04)
Log of population density in 1500 (AJR)			-0.07** (0.03)	-0.07** (0.03)
Number of Observations		31	27	31
Adj R Sq		0.44	0.31	0.38

Table 5

Years of schooling in 2000 is the years of schooling of the total population aged over 25 in 2000. Source: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Index of democratic accountability is from the ICRG database, and goes from 1 to 6, with 6 being alternating democracies with checks and balances in place, and 1 being strict autocracies. Primary enrollment in 1900 is the percentage of children from 5 to 14 enrolled in primary school from Benavot and Riddle (1988). Institutionalized democracy in 1900 is a 0-10 index from the Polity IV data set.

	Dependent Variable			
	(i)	(ii)	(iii)	(iv)
	Years of schooling in 2000	Years of schooling in 2000	Index of democratic accountability in 2002	Index of democratic accountability in 2002
Estimation	OLS	OLS	OLS	OLS
	Standard errors in parentheses			
Constant	4.68*** (0.33)	4.68*** (0.33)	3.74*** (0.20)	3.27*** (0.24)
Primary enrollment in 1900	0.07*** (0.01)	0.07*** (0.01)		0.03*** (0.01)
Institutionalized democracy in 1900		0.06 (0.08)	0.21*** (0.05)	0.06 (0.06)
Number of Observations	73	73	84	74
Adj R Sq	0.53	0.52	0.14	0.31

Figure 1: Preferences of Uneducated -- Status Quo vs Pro-market Reforms

This example is plot assuming $\alpha = 0.5$, $\beta = 0.3$, $\overline{u} = 100$, s=0.2.

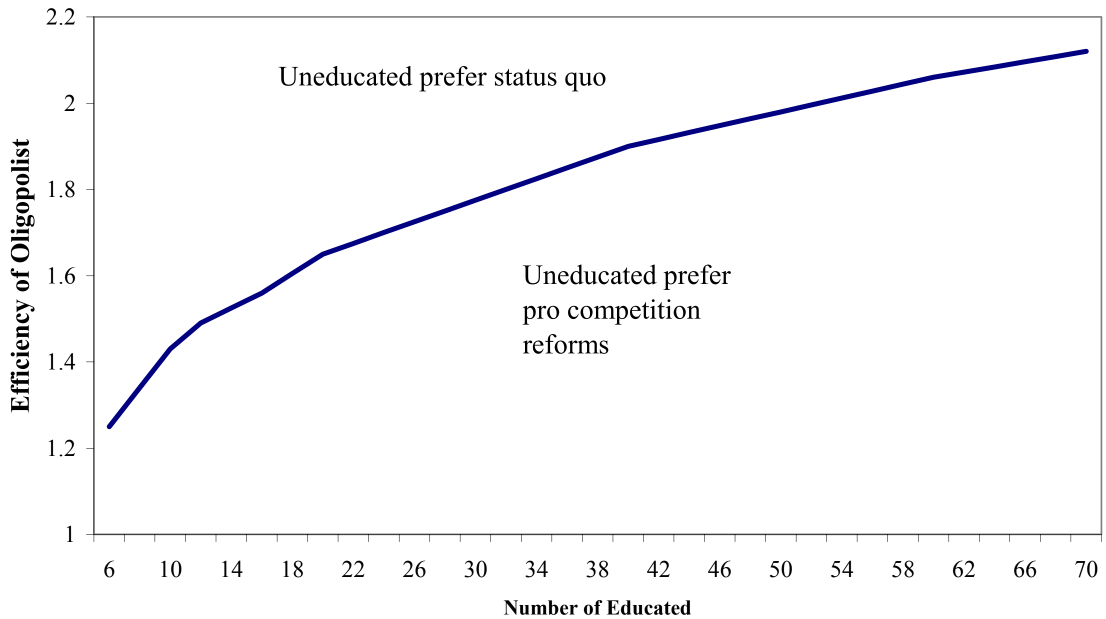


Figure 2: Preferences of Educated: Comprehensive Reforms vs Status Quo

This example is plot assuming $\alpha = 0.5$, $\beta = 0.3$, $\bar{u} = 100$, s=0.2.

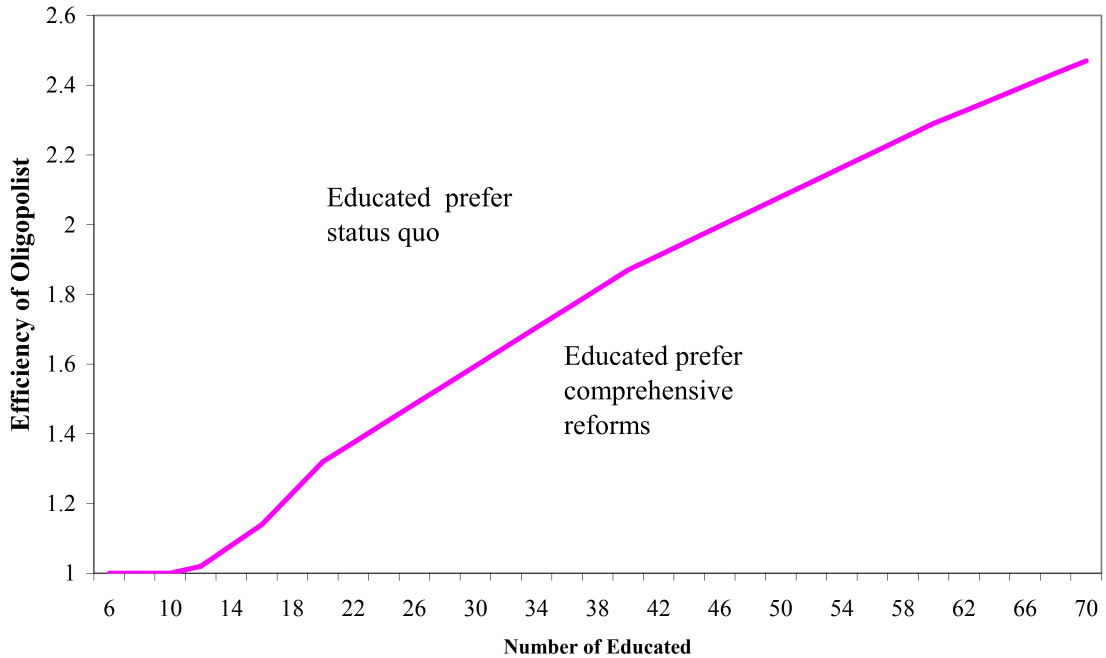


Figure 3: Reform Outcomes

This example is plot assuming $\alpha = 0.5$, $\beta = 0.3$, $\overline{u} = 100$, s=0.2.

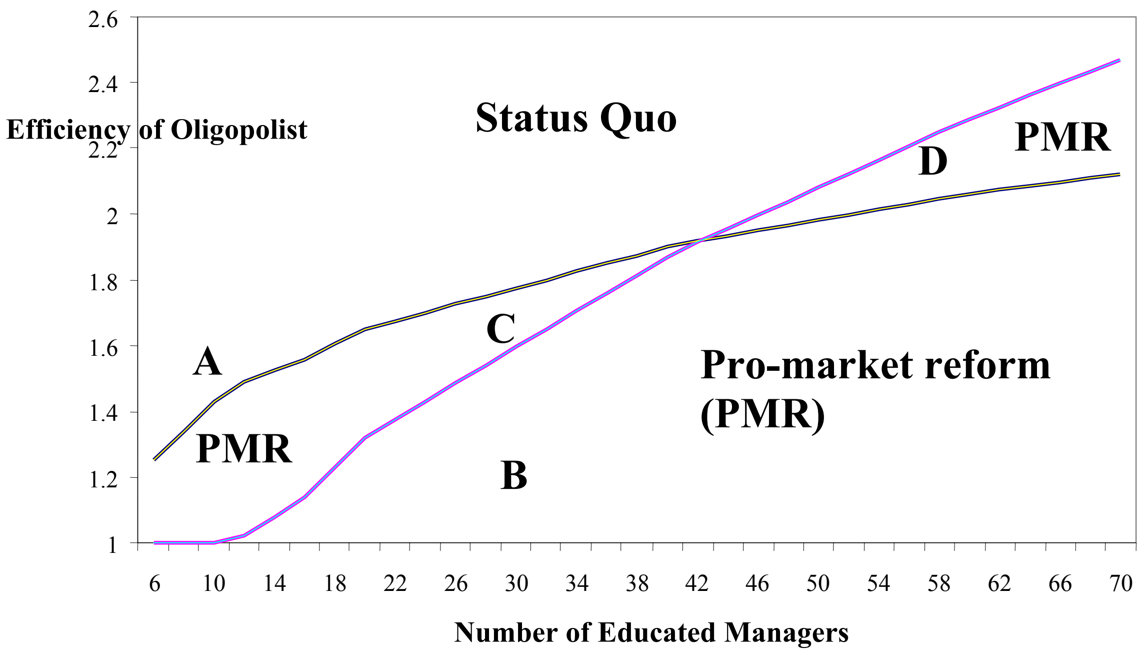


Figure 4

Ratio of Primary to Tertiary Expenditure per student vs Years of Schooling in 2000

Years of schooling in 2000 is the years of schooling of the total population aged over 25 in 2000. Source: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Ratio of primary to tertiary is the ratio of public expenditure per student in primary education to public expenditure per student in tertiary education, obtained from World Development Indicators.

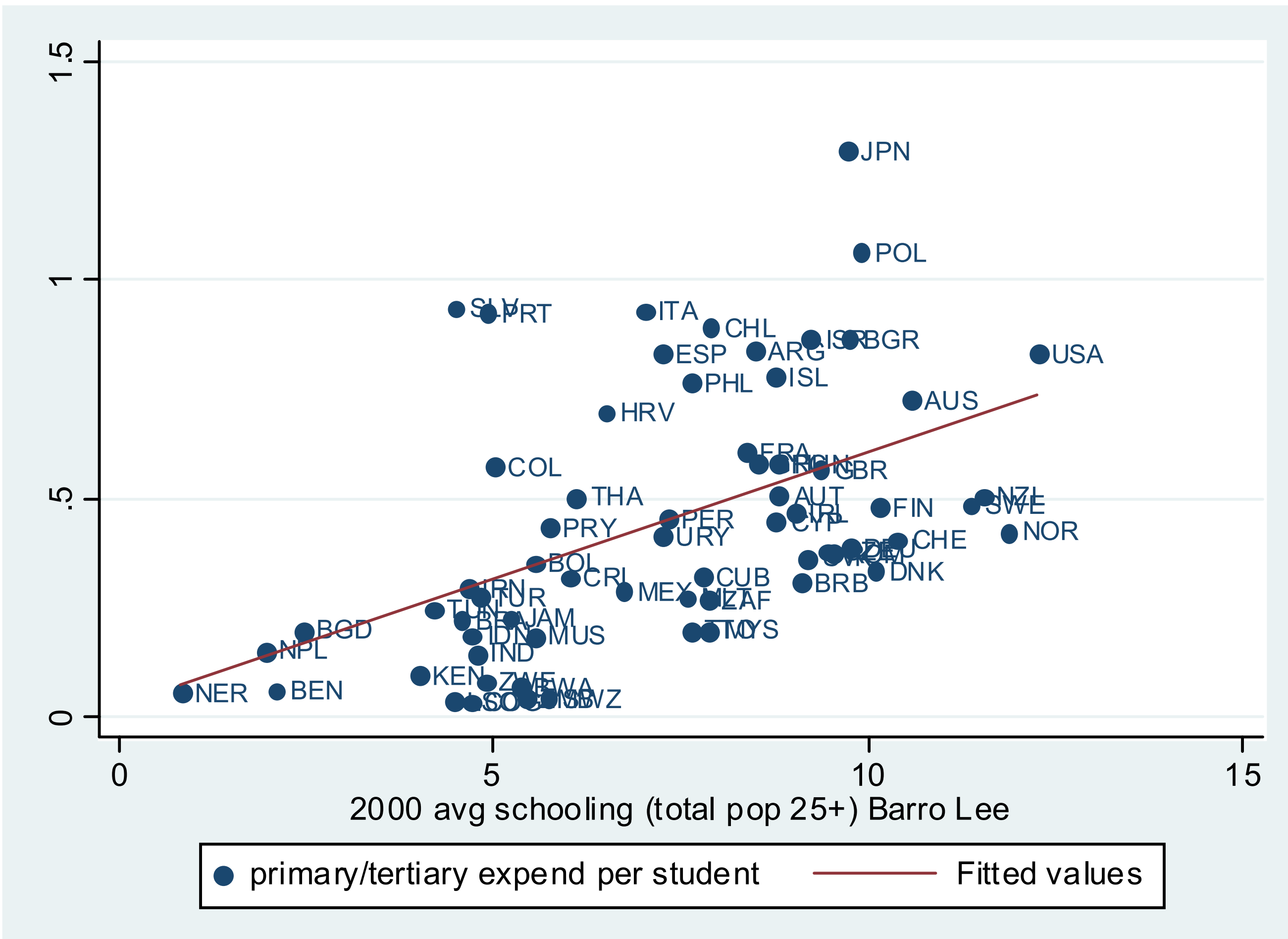
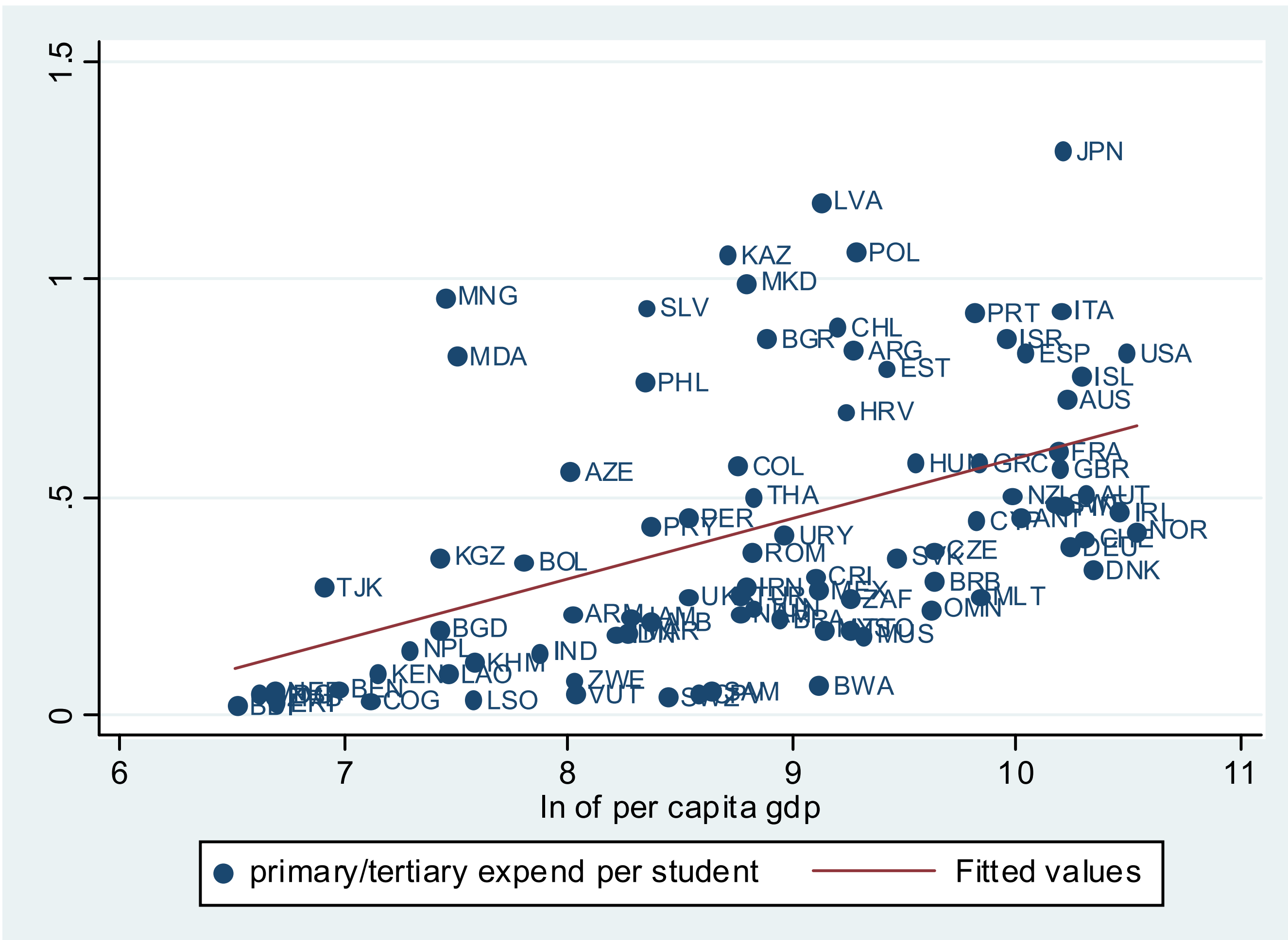


Figure 5

Ratio of Primary to Tertiary Expenditure per student vs Log per Capita GDP in 2002

Ratio of primary to tertiary is the ratio of public expenditure per student in primary education to public expenditure per student in tertiary education, obtained from World Development Indicators.



about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.org/wp) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html