

# Political Development and the Threat of Revolution

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## Abstract

Incumbent political leaders risk deposition by challengers within the existing political rules and by revolutionary threats. Building on Bueno de Mesquita et al's (2003) selectorate theory, the model here examines the policy responses of office seeking leaders to revolutionary threats. Whether leaders suppress public goods such as freedom of assembly and freedom of information to hinder the organizational ability of potential revolutionaries or appease potential revolutionaries by increasing the provision of public goods depends, in part, upon the sources of government revenues. Empirical tests show that governments with access to revenue sources that require few labor inputs by the citizens, such as natural resource rents or foreign aid, reduce the provision of public goods and increase the odds of increased authoritarianism in the face of revolutionary pressures. In contrast, without these sources of unearned revenues governments respond to revolutionary pressures by increasing the provision of public goods and democratizing.

Political leaders are not guardians of the state. Rather, as we see it, they are self interested actors who seek first to sustain themselves in power and second to maximize their discretion to pursue policy interests or personal aggrandizement. To survive in office they must, of course, devise effective strategies to thwart political threats. How they do so is the central topic investigated here.

Threats to political survival can arise from three distinct sources: rivals within the current political order; domestic mass movements that seek to revolutionize the extant political system by replacing it with new institutions of governance; and foreign enemies who seek to take control of national resources or policies. We focus here on threats from mass movements, or what we will refer to as revolutionary threats.<sup>1</sup> Naturally, self-interested leaders take actions in anticipation of political threats to diminish the risk that they will lose office and perhaps much more. Included among the actions leaders can take to forestall these threats are the reallocation of resources and the realignment of political interests. In the course of examining how anticipated revolutionary threats shape resource reallocations we also offer and test an explanation of what economists call the resource curse (Gelb 1988; Humphreys 2005; Jensen and Wantchekon 2005; Ross 1999; Sachs and Warner 1995, 2001) and we provide an account of domestic, endogenous shifts toward or away from democracy (Greif and Laitin 2004). Additionally, our results also help inform the contemporary debate on foreign aid (Easterly 2002, 2006; Sachs 2005).

Looked at from the leadership survival perspective, changes in the institutions of governance present a political puzzle of first-order importance. At first blush it seems that leaders, having come to power under a given set of institutional arrangements, would be

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<sup>1</sup> Bueno de Mesquita et al (2003) provide an explanation and empirical evidence regarding the other two sources of threats to incumbency.

reluctant to change in favor of institutions in which their own political fortunes are more uncertain (Bueno de Mesquita 2000). In particular, it is puzzling that any governments become more democratic. Democratic governance is inherently disadvantageous for political leaders. Of all known forms of government, democracy provides incumbents with the shortest expected tenure in office and, quite possibly, the fewest opportunities for personal aggrandizement (Lake and Baum 2001, Bueno de Mesquita et al 2003). Democracy fails on the two dimensions we believe are most important to political leaders: long-term survival and financial discretion. Yet it is easy enough to see that there are more democratic governments than in the past.

Acemoglu and Robinson (2001, 2005) suggest that democratization is a rational response to mass-movements or revolutionary threats to the existing order. They argue that redistributive policies can buy off the masses but only if the government credibly commits to such redistribution. Such a commitment, they argue, is made credible by turning political control over to the majority who are relatively poor and who are the prime beneficiaries of redistribution. That is, democratization ensures a credible on-going commitment to redistributive policies. As Barro (1991, 1997) has shown empirically, democratic electoral politics seem to produce redistributive policies that shift resources from the rich to the poor even if at the expense of reduced economic growth.

Although there is much to be said for the Acemoglu and Robinson account, it is not without limitations. Their conception of politics and political leadership is limited to setting tax rates and fiscal policy without much regard for variations in forms of governance beyond whether leaders must rely on the median voter. Especially striking is the fact that their leaders do not seem especially interested in using the organs of political

power for personal gain and so do not seem to attach substantial value to remaining in office whereas in the perspective we suggest, remaining in office is a top priority for leaders. In contrast to Acemoglu and Robinson, others contend that self-interested, wealth-maximizing politicians can succeed by becoming, in Olson's memorable term, stationary bandits (Olson 1993; McGuire and Olson 1996). In that model, as in others (Wintrobe 1990; Bates, Greif and Singh 2002; Haber et al 2003), leaders provide security for citizens in exchange for wealth transfers from the poor citizens to the rich leaders (via regressive taxation and rent-seeking opportunities). In support of these models is the fact that many autocracies continue to exist even after confronting revolutionary movements, civil wars, and other forms of insurrection. Furthermore, many governments shift from democracy to authoritarianism (Przeworski et al 2000; Przeworski and Limongi 1997; Mansfield and Snyder 2005) as well as shifting the other way around. The ability to move away from democracy – to autocratize – challenges the long-term credibility of a commitment to redistributive policies presumed to be the cornerstone of democratic transitions.

The literature apparently divides between models that explain the spread or deepening of authoritarianism and models that account for democratization. Here we offer a theoretical and empirical account intended to explain when leaders faced with internal threats choose increased democratization or increased authoritarianism as the optimal means to sustain themselves in power. Our starting place is the intersection of economic development, political institutions, and leadership survival.

## Selectorate Theory

The model of domestic politics we propose is an extension of the selectorate theory of Bueno de Mesquita et al (2003). Their theory suggests ways to address politics along two potentially continuous dimensions rather than in strictly categorical or taxonomic terms. They describe all political systems by the number of supporters to which a leader is beholden in order to retain power (the winning coalition,  $W$ ) and the size of the group from which these supporters can be drawn (the selectorate,  $S$ ). Before discussing the ways in which we extend their model, we summarize its main features.

Society is conceived of as  $N$  identical individuals of which  $S$  have an institutionalized say in the choice of leaders. In a democracy the selectorate ( $S$ ) generally approaches  $N$ . To maintain power the leader needs to maintain the support of  $W$  people, the winning coalition. For example, in a single-member district two-party electoral system, a winning coalition constitutes about 25% of the electorate; that is, half the votes in half the seats. In corrupt electoral systems, military juntas, or monarchies, leaders are beholden to a much smaller group of supporters, although the pool from which they are drawn ( $S$ ) can vary enormously.

Coalition size plays a fundamental role in influencing public policy. When  $W$  is small, leaders can provide their small number of essential backers with high levels of benefits using private goods. As coalition size increases, rewarding supporters through private goods become increasingly expensive and so leaders (and potential leaders) shift their policy provisions towards public goods oriented policies.

Domestic challengers succeed in coming to power within the existing institutional framework by offering at least some supporters of the incumbent sufficient benefits that they defect. Unfortunately for challengers, what they can promise to entice supporters of

the current incumbent is limited in two ways. First, implementation of their policy promise must be feasible in the sense that the policies that they propose can be financed by the economic activity induced by those policies. Second, challengers are fundamentally disadvantaged relative to incumbents in their ability to credibly promise a flow of private goods to individuals in the future as leaders typically adjust and shake up their support base once they are in office.

For members of the current coalition, defection is risky and potentially costly. While a challenger might offer (and even deliver) huge rewards now in an attempt to attract a selector's support and so come to power, once a challenger is in power he often reorganizes his coalition. Despite having been vital to the challenger's accession to power, a defector might be dumped from the new coalition and excluded from the future stream of private goods provided by the leadership. In contrast, a member of the incumbent winning coalition has much greater confidence in receiving a continual stream of private goods from an established leader who has already reorganized her coalition. This means that, in the limit, the incumbent can promise future private goods with certainty, while the challenger can only offer them probabilistically.<sup>2</sup> When coalition size is small and so private goods make up a large proportion of the benefits that a leader offers and when selectorate size is large so that any new leader has a wide choice of supporters for his coalition, then backers of the incumbent are extremely reluctant to defect to a challenger. This loyalty norm enables the incumbent to provide fewer rewards

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<sup>2</sup> It is worth noting that the selectorate theory does not require that coalition members are certain of future private rewards while defectors only expect the future flow probabilistically. The theory does require that the probability of a continued flow of private rewards is higher after an incumbent has had an adequate opportunity to make changes to the coalition than it is when the new incumbent first comes to power.

in the current period than the challenger offers and yet still maintain the support of the members of the winning coalition.<sup>3</sup>

Because political survival in large coalition systems requires that incumbents satisfy a large fraction of society, they choose policies that are close to those that maximize social welfare. In contrast, in small coalition systems, incumbents can more effectively enrich their supporters through private goods. Because this focus on private goods induces a strong loyalty norm, leaders can pursue expropriative policies, skimming off revenue for their own discretionary purposes. Such policies are far from those that maximize a utilitarian view of social welfare. Reducing expropriation and providing more publicly oriented policies would benefit society and encourage more economic activity. Still, when leaders only need a few supporters, a shift away from private goods reduces the benefits each coalition member receives, making it more likely that a rival politician will lure supporters from the incumbent with promises of better expected payoffs.

The main results from the selectorate theory, then, are that larger coalition systems (1) induce leaders to emphasize public goods over private rewards, (2) limit opportunities for discretionary spending (e.g., kleptocracy), (3) enhance the welfare of most citizens, and (4) lead to short terms in office. Smaller coalition systems (5) encourage an emphasis on private goods, (6) offer leaders great discretion over the use of government revenue, (7) often diminish or at least do not efficiently induce general welfare, and (8) lead to long terms in office.

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<sup>3</sup> Bueno de Mesquita et al (2003) use the difference between revenues and the amount a leader must spend to match the best possible offer a challenger can make as a metric for the ease of survival. This difference creates an indicator of leader discretion, identifying resources that need not be allocated in accordance with

## Extension of Selectorate Theory

Here we extend the selectorate approach informally. A formal treatment can be found in Smith (2006). Policy choices affect economic productivity. Specifically, we argue that high provisions of public goods improve the returns on economic effort. The ability and willingness of workers to participate in the economy is, in our model, tied to government policy. Additionally, we incorporate the threat of revolutionary movements that seek or claim to seek to replace the existing institutional framework. Certain public goods, such as government transparency, civil liberties, communication networks and freedom of information which we refer to as coordination goods (Bueno de Mesquita and Downs 2006) help revolutionaries organize and so increase the probability of a revolution being successful.

Leaders always face non-revolutionary domestic challenges. Political competition within the extant rules always provides a binding constraint on the policy choices of leaders. This means that to survive in office, leaders must ensure that they offer their supporters sufficient rewards that they prefer not to defect to a rival politician. Whether public goods oriented policies or private rewards best enable leaders to fulfill this goal depends, as shown in the selectorate theory, upon the institutional rules.

“Revolutionary” threats do not always exist but always have the potential to emerge. The salience of revolutionary threats and the most effective way for leaders to deal with them depends upon political, social and economic conditions. The analysis of these relationships forms the core of our theoretical arguments and empirical tests. The threat of revolution may or may not be a binding constraint that requires the attention of

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the demands of the winning coalition but rather are supplied in accordance with the preferences of the incumbent.

survival-oriented leaders. When it is a binding constraint – that is, the leader’s policy decisions must take into account the threat of losing power to a revolutionary movement above and beyond the standard threat from a challenger operating within the existing political framework – leaders must adjust their resource allocation and, as we will see, in doing so they face reallocation-induced endogenous pressure to change political institutions.

Greif and Laitin (2004) conceptualize endogenous institutional change within a repeated game. They argue that over time some parameters in the game, which they term quasi-parameters, change such that the players rationally play differently as the game progresses through time. We offer a theory of economic and political development that, like theirs, seeks to explain institutional change endogenously. We depart from Greif and Laitin’s approach, however, in that they treat the evolution of quasi parameters as random while we explicitly tie together how policy choices today shape the parameters of the game tomorrow. That is, the evolution of quasi-parameters in the theory we suggest is a function of current policy choices. We consider how political, social and economic conditions shape the survival game leaders play over time. Leaders’ policies feed back into the economic development story by shaping economic activities and the accumulation of public goods within society.

Whether leaders choose public goods oriented policies that foster economic growth and benefit all of society or focus on the provision of private rewards for their supporters depends upon which policies best enhance their prospects for political survival. These survival prospects depend upon the interaction of political institutions and the availability of government revenues. While the selectorate theory focuses on revenues

derived from taxation, we add a second potential source of government revenue; namely revenue derived without requiring economic inputs from the average citizen. Such revenue comes from natural resource rents or foreign aid rather than from taxing labor. We call these sources of revenue, *free resources*, for reasons explained below.

To gain leverage on the problem of endogenous political change, we characterize the institutional preferences for each political actor. That is, we ask how political, social and economic factors interact to shape policy and political survival for any given level of societal public goods and level of *free resources*. We treat both natural resources such as oil or precious metals and foreign aid as *free resources*. They both contribute to government revenues, but are free in the sense that they do not require economic effort by the citizens. Generating resources through taxation is constrained by each citizen's choice of how hard to work in response to the tax rate and the level of public goods provision within society. *Free resources* are not constrained by these factors. Indeed, the term *free resources* is loaded with irony – which we emphasize by putting the term in italics – because although these revenues do not require the citizens' labor to produce them, they liberate governments from the need to generate policies that elicit economic activity from the citizens. This, in turn, diminishes the government's accountability.

As we shall show, the nature of political competition profoundly affects the consequences from relaxing the need for the citizens' labor to generate revenue. Within a large coalition, democratic system, *free resources* finance the provision of public goods and thus increase economic productivity and social welfare. In contrast, in a small coalition system, *free resources* have much smaller positive consequences and potentially large negative consequence for social welfare and the economy.

From an economic perspective, government revenues that can be had without taxing the citizenry should improve economic activity since these revenues can finance an increased level of public goods provision to improve productivity. It seems intuitively obvious that adding resources to society will improve welfare. Unfortunately, we know empirically that this often is not the case. The resource curse literature shows that the discovery of readily exploitable natural resources often leads to economic decline (Gelb 1988; Humphreys 2005; Jensen and Wantchekon 2005; Ross 1999; Sachs and Warner 1995, 2001). While a variety of economic explanations – often to do with the natural resource sector crowding out other exports or inflating the exchange rate – have been offered (see Ross 1999 and Sachs and Warner 2001 for surveys), the fact that the curse seems to apply more strongly in non-democratic societies (Sachs and Warner 2001) suggests a political explanation.

Although not normally considered in the same context as the resource curse, we believe that foreign aid fits much the same pattern. Foreign aid, with a few notable exceptions such as the Marshall plan, has done little to promote economic development (Boone 1996; Easterly 2002). Yet aid is a source of revenue generated outside the tax structure of the society that could be used to purchase bundles of productivity-promoting public goods. Why it fails to do so can be explained, we believe, with a theory that also explains the resource curse and, as a consequence, endogenous institution change.

While political institutions are a central determinant of policy choice, existing stock of societal goods and the level of *free resources* within the economy also influence policy. Leaders use *free resources* differently depending upon political institutions. In large coalition systems *free resources* fund the provision of public goods. Unfortunately,

as the number of supporters to whom a leader is beholden contracts, the *free resources* increasingly find their way into the discretionary funds of the leader and as private goods for supporters. The reasons for these patterns are straightforward. In large coalition systems an increase in *free resources* enables challengers to feasibly offer greater rewards to attract supporters by offering a combination of more public goods and lower taxation. The lack of focus on private goods means that the incumbent's supporters risk little in terms of jeopardizing their future stream of private goods by defecting to the challenger, so the loyalty norm is weak. Responding to this increased spending pressure from the challenger who seeks defectors from the existing winning coalition, the incumbent must also increase the value of what she offers supporters if she wishes to retain office. Thus, in large coalition systems *free resources* are a societal boon as they result in a combination of lower taxation and higher policy provisions which increase both social welfare and economic activity.

The positive effects of *free resources* are severely muted in small coalition systems. As is true in large coalition systems, an increase in *free resources* enables challengers to improve what they can offer to potential supporters. However, the focus on private goods in such systems means that the incumbent's supporters are wary of defecting to any challenger who might subsequently exclude them from future coalitions. This induces a high loyalty norm such that although *free resources* improve what the challenger can offer potential supporters, the incumbent does not have to match these improvements one-to-one and can thus skim off much of the extra resources for discretionary purposes. Further, what additional benefits the incumbent does provide are mainly in the form of private rather than public goods.

From this perspective, it is small wonder that many of the world's kleptocratic dictators amass great fortunes while their countries are plunged into seemingly insurmountable debt. At the time of his removal from office, Mobutu Sese Seko of Zaire (for whom the word "kleptocrat" was coined) was estimated to have personal wealth of about \$10 billion, equal to around 75 percent of Zaire's national debt. Numerous other leaders who depend on a small coalition have similarly accumulated huge personal wealth and huge national debts. As we shall see, in the presence of a revolutionary threat, *free resources* in small coalition polities not only limit social welfare, they can lead to an actual curse that significantly reduces the already scant provision of public goods.

### **A Political Theory of Policy Provision**

Public goods oriented policies promote economic growth. The level of public goods within society depends both upon immediate government supply of these goods and the residual stock of these goods that have accumulated due to policy choices in the past. The total of such goods affects the productivity of workers. Put simply, healthy, educated and informed worker are more productive than sickly, ignorant and isolated workers (Glaeser et al 2004). Public health, education, freedom of information and communication networks all allow citizens to be more productive and receive higher economic returns from their labor. For instance, freedom of information and a reliable communications network allow farmers to know market prices, enabling them to efficiently get their goods to the best available market. Public goods improve the returns from working. This improves economic activity in two ways. First, public goods produce a direct improvement in productivity such that for each unit of effort exerted by workers

more is produced. Second, this increased production encourages citizens to work harder since they are more willing to forsake a unit of leisure if they receive more for it.

Tax rates also affect the decision of citizens to work (McGuire and Olson 1996; Olson 1993). When governments tax at a high rate, the citizens keep only a small fraction of what they produce. By lowering the effective returns on economic activity, taxation diminishes economic activity. Leaders can best promote economic activity through policies that lead to high accumulations of public goods within society and low taxes. Of course leaders need to finance the provision of public policy and this places a constraint on the extent to which they can simultaneously provide public goods and reduce taxes. While this tradeoff between taxation that reduces the incentives to work and productivity-improving public goods that taxation can finance shapes the frontier of economic productivity, the imperatives of political survival determine how far a leader's policies are from these economic ideals.

### **Selectorate Politics and Revolutionary Threats**

As we have noted, maintaining the support of members of one's winning coalition is always a binding constraint for leaders who want to remain in power and this constraint implies resource allocation decisions that support survival-oriented policies. But this may not be the only binding constraint a leader faces. To guarantee survival, leaders also need to ensure that the citizens do not rebel. This latter criterion is not always a binding constraint on government policy. If the expected value of revolting is sufficiently low to dissuade prospective revolutionaries, then change in leadership is only feasible within the existing institutional arrangements and we are essentially within the world examined by

the selectorate theory. But if the expected utility of revolution exceeds the expected utility of living within the existing framework then incumbent leaders must devise policies to offset this revolutionary threat. In that case, there is an imperative to solve the revolutionary threat as well as the political threat that arises within the existing rules. Thus, there are two cases of interest: (1) politics in the absence of a credible revolutionary threat; and (2) politics in the presence of such a revolutionary threat. We examine both cases.

Revolutionary movements offer disgruntled citizens the chance to reshape the political institutions of government. To attract the massive support base required for a revolution to succeed, potential revolutionaries promote inclusive, large coalition institutions such as democracy. Of course once they succeed in deposing the regime and coming to power the institutional preferences of revolutionaries shift. Thus, while mass political movements – such as those led by Washington, Robespierre, Lenin, Mao, Nehru, Kenyatta, Castro, and Mandela -- start off promoting democratic ideals, their end results frequently – but not always -- are far from democratic. Thus, revolution offers citizens a risky prospect of changing their nation's institutions and consequently the types of policies provided. In addition to being risky, revolutions are also costly and bloody. Whether citizens are willing to pay these costs depends upon the benefits they expect to accrue under the new institutions relative to the benefits they currently enjoy and on the probability of success. Calculations about the value and the likelihood of success of a revolution afford leaders two possible courses of action to curb revolutionary threats.

Certain public goods, which we referred to earlier as coordination goods, help revolutionaries organize. Many citizens might be willing to participate in anti-

government activities such as demonstrations, strikes or revolution. However, if they do not know these events are taking place or they can not get to the scene of action then they can not participate despite their willingness to do so. Civil liberties, freedom of information and communications networks make it easier to organize. In contrast, other public goods, such as public health, have a smaller impact on the likely success of anti-incumbent political movements, including especially revolutionary movements. Among all public goods, the suppression of coordination goods in particular provides leaders a way to diminish revolutionary threats by reducing the probability that would-be rebels can mobilize enough people and resources to topple the existing political order.

While the suppression of coordination goods diminishes the prospects of revolutionary success, the provision of public goods in general diminishes the incentives to revolt. To see this more clearly, we consider the process by which revolutionary threats influence policy provisions. First, we examine the conditions under which leaders are likely to face a revolutionary threat. Second, we examine how conditions influence the policy responses a leader undertakes. Political, economic and social conditions combine to influence when revolutionary threats become a binding constraint on a leader's policy choice. When the threat of revolution is binding, leaders need to shift policies from those that best solve the internal political problem or risk being deposed.

Citizens rebel when they are unhappy with their lot relative to what they hope to obtain via revolution. That hope depends on the policy changes they anticipate following a successful revolution and on what they believe is the probability of success of such a revolution. Leaders in large coalition systems supply citizens with high levels of public goods. Citizens in such systems have little reason to rebel. In contrast, as coalition size

becomes smaller, leaders supply fewer public goods. This reduces the average citizen's welfare and, therefore, increases the desire for revolutionary change. For citizens in small coalition systems, an increase in *free resources* – whether it be oil or gold in the ground or external foreign assistance – supports policies that increase the desirability of revolutionary change. Through such a process the citizens hope to obtain the benefits that *free resources* finance in large, but not in small coalition systems.

Of course, an increased desire does not inherently lead to revolution; there must also be sufficient confidence in success to make it worthwhile to risk the associated costs. The probability of revolutionary success depends upon the ability of revolutionaries to coordinate, which in turn depends upon the stock and flow of coordination goods. The combination of desire for revolutionary change, which depends upon political institutions and *free resources*, and the probability of success, which depends upon societal levels of coordination goods, determines whether revolutionary threats act as a binding constraint on policy choice. The citizens are mostly likely to rebel in a small coalition system which is rich in *free resources* and has high levels of coordination goods. After all, educated, informed and interconnected citizens are more likely to succeed if they rebel than are uneducated, ignorant and isolated citizens. Of course, the size of accumulated stocks of coordination goods – such as the ease of assembly, the free flow of information, transparent governance, civil liberties -- depends upon past policies. Since the stock of these coordination goods increases the risk – from the incumbent's perspective – of leadership deposition, they are rarely substantial in small-coalition societies that create significant policy incentives for revolution. Indeed, small-coalition leaders routinely

suppress coordination goods, thereby improving their survival prospects (Bueno de Mesquita and Downs 2006).

Once the revolutionary constraint binds, leaders can ameliorate the threat in two ways. First, they can make the people better off by supplying more public goods. This reduces the desire for revolutionary change among citizens as argued by Acemoglu and Robinson (2000, 2001, 2005). Second, leaders can reduce the probability that any revolutionary movement will succeed by suppressing further the level of coordination goods within society. Indeed, if the incumbent regime can suppress coordination goods while improving the provision of other public goods that facilitate economic growth, then they can use both prongs of the strategies we discuss to enhance their survival. That is, they can reduce the incentive through better public goods provision such as health care, housing and basic education while decreasing the probability of revolutionary success by simultaneously cracking down on citizen access to coordination goods. This seems to be what the Chinese leadership has done so effectively since the late 1970s or what Hosni Mubarak has done in Egypt and Castro in Cuba.

We now explore the social, economic and political conditions which sort out the relative attractiveness of increased goods provision or increased coordination goods suppression. In particular, we show that high levels of *free resources* encourage leaders to deal with revolutionary threats by suppressing public goods, especially coordination goods while the absence of these resources gives leaders more impetus to improve social welfare. To explain this logic it is useful to consider a simple scenario that takes into account the fact that the world is a noisy place and that leaders can not be precise about the impact of their policies. Suppose, for example, that a small coalition leader

underestimates how quickly her policies will lead to an accumulation of coordination goods, such that she is faced by a revolutionary threat. The leader must now either produce more benefits for the citizens by providing more public goods or reduce the supply of coordination goods. While either of these responses helps her deal with the revolutionary threat, she must enact either response while still maintaining the support of her current coalition members so as to prevent her political demise within the existing institutional structure (such as through coups or elections among the ruling elite). Both possible responses to revolutionary threats have unpleasant implications for leaders who want to keep their jobs.

First, suppose leaders deal with revolutionary threats by suppressing coordination goods, as might be illustrated by the actions of Robert Mugabe of Zimbabwe who used bulldozers to destroy local markets and urban centers and forced tens of thousands of people into rural settings.<sup>4</sup> While such actions reduced the ability of citizens to organize in opposition to the government, they also have drastic economic repercussions. As coordination goods are suppressed the returns on economic productivity are reduced and so citizens do less work. This has potentially damaging consequences for political leaders as it contracts the tax base and hence the revenues that the leader needs in order to continue paying off her coalition. The need to provide more private goods from a contracting tax based places real strain on a leader's ability to survive. For instance, recent reports suggest that in Zimbabwe Mugabe is finding it increasingly difficult to feed the army.<sup>5</sup>

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<sup>4</sup> See BBC News at <http://news.bbc.co.uk/2/hi/africa/4620977.stm>. Accessed May 31, 2006.

<sup>5</sup> The BBC has been questioning the loyalty of Zimbabwe's army at least since 2002 because the Mugabe government has not been able to reliably pay its soldiers. See <http://news.bbc.co.uk/1/low/world/africa/1754063.stm>, accessed on May 31, 2006. See also

While suppressing coordination goods helps leaders contain revolutionary threats, it requires increased spending on private goods from a decreasing tax base. Since *free resources* are relatively insensitive to the level of public goods, leaders with a high proportion of their revenues from *free resources* can suppress coordination goods without dramatically harming their ability to provide the private goods that maintain the loyalty of their coalition members. *Free resources* make the suppression of coordination goods an attractive response for leaders facing revolutionary threats.

These arguments provide a political explanation for the empirical regularities known as the resource curse. In large coalition systems *free resources* help finance public goods provisions which improve economic and social conditions. In small coalition systems, *free resources* predominately end up enriching political leaders rather than promoting the interests of society. Further, high levels of *free resources* make revolution more attractive which increases the probability that revolutionary threats become a binding constraint on leader behavior and increase the likelihood that leaders will respond to such threats with the suppression of coordination goods.

If a leader chooses to respond to the revolutionary threat by suppressing coordination goods and increasing spending on private goods, but does not have a consequential amount of *free resources*, then the leader faces an institutional quandary. Prior to the revolutionary threat becoming a binding constraint, the quantity of private goods provided by the incumbent reflected the equilibrium amount needed to prevent an internal challenger from inducing defection by members of the existing winning coalition. That is, the private goods allocation was just sufficient to address the internal

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<http://www.newzimbabwe.com/pages/army9.13265.html> for a report on revolts within the army over failure to receive pay. Accessed May 31, 2006.

challenger constraint, leaving the maximum amount possible under the existing institutional constraints for the discretionary use of the incumbent. But this means that the new allocation of added private goods to strengthen the incumbent's hand in the face of a potential revolutionary threat is out of alignment with the smaller quantity of private goods (and larger quantity of public goods) required for keeping the existing coalition loyal. The incumbent can choose to over-compensate the coalition by retaining it as is but this runs counter to the incumbent's own incentive to maximize discretionary resources. What can the incumbent do?

We know according to the selectorate theory that internal political competition is such that leaders always want to contract coalition size. However in general the other sectors of society oppose such moves. In a small coalition, private goods-rich environment, a further contraction in coalition size can improve the welfare of those selectors who are retained in the coalition, but no coalition member wants to support institutional reforms that lead to their exclusion. The citizens outside of the coalition always oppose such institutional changes. In general, leaders can not find sufficient support for further contractions in coalition size. However, opposition to such reforms is weakened by revolutionary threats and the suppression of coordination goods.

Without a contraction in coalition size, the suppression of coordination goods and the consequential need to increase private goods provisions from a contracting tax base threatens the incumbent's tenure. This threat to the leader's incumbency shifts the politician's focus on the size of the coalition. Under the conditions of a revolutionary threat and a small coalition, contracting the coalition further shifts from being something the leader would like to do to something the leader needs to do to survive in office. The

leader therefore becomes more willing to exert extra effort and resources to achieve institutional change. Suppression in the face of a revolutionary threat also alters the ability and incentives of others in society to oppose the incumbent. The suppression of coordination goods weakens the ability of the citizens to oppose any contraction of coalition size. The revolutionary threat jeopardizes the continuation of the institutions through which coalition members are privileged. While normally they would not be willing to risk any coalition contraction that could exclude them, when confronted with the prospect of the whole system being swept away and losing, perhaps forever, their prospect of gaining special privileges, their objections are more muted.

Instead of making it hard for revolutionaries to coordinate, however, leaders can also tackle revolutionary threats by improving the welfare of citizens through increased public goods, thereby removing their desire to rebel. Increasing the provision of public goods is an attractive response to revolutionary threats in that it increases economic activity and hence swells tax revenues. However, once leaders embark on this course of action it becomes hard for them to turn back. Increased supplies of public goods, while improving the welfare of the citizens, make it easier for revolutionaries to organize in the future. As the prospects of revolutionary success grow the citizens demand still more public goods to be bought off. Such a course of liberalizations creates inconsistencies in the policies of leaders, inconsistencies they can resolve by changing the institutional arrangements, expanding the size of their coalition to be in alignment with the added provision of public goods. That is, improving the provision of public goods in response to a credible revolutionary threat, especially including offering more coordination goods, provides an impetus for democratization. This may well explain, for instance, why the

British, without suffering military defeat on the ground, gradually conceded the demands of the Indian National Congress, and of Mohandas Gandhi in particular, surrendering control over India and leaving a more democratic polity in their wake.

Once a small coalition leader buys off potential revolutionaries through an increased provision of public goods, she faces two constituencies each of which is most effectively bought off with different types of policy. To survive internal political competition the leader must enrich her coalition. This is best done through private goods. To survive the revolutionary threat the leader needs to buy off the citizens with public goods. These competing demands put pressure on leader survival and unless the economy responds quickly enough to the growth in public goods it can become impossible for the leader to keep both groups happy. Democratization offers a solution to this problem because as the coalition gets larger, its members – like all citizens – are primarily bought off through public goods provision. Both the threat from internal political competition and the threat from revolutionaries are resolved by increasing public goods accompanied by expanding coalition size, thereby satiating the demands both of the members of the coalition and those outside the coalition. The democratization solution, then, is relatively attractive for leaders who lack *free resources* and face a binding revolutionary threat. For leaders who have sufficient *free resources*, increasing authoritarianism is more attractive than democratization to solve the revolutionary threat. Since foreign aid is a *free resource*, much as oil is, democratization is likely to be hampered by foreign aid receipts in small coalition systems.

When an incumbent does not face a credible revolutionary threat, changing resource allocations makes little sense. In such situations, only internal political

challenges represent a binding constraint. Leaders survive by properly allocating resources to meet the demands of their coalition members, whether for public or private goods. Because their allocations are part of their equilibrium survival strategy, in the absence of a revolutionary threat the leader's best chance for political survival, absent an exogenous shock, is to continue doing what was done in the past. Therefore, whether there are abundant *free resources* or not, the prior allocation policy will persist. Of course, that policy is likely to look different depending on the size of the required winning coalition, the magnitude of the selectorate pool, and the availability of *free resources*, but whatever the equilibrium allocations are they are expected to continue as long as there is neither a credible revolutionary threat nor a significant exogenous shock.

The theory provides a number of testable implications. In the empirical tests that following we focus on how *free resources* interact with political institutions to shape coordination goods provision and endogenous institutional change depending on whether the incumbent faces a credible revolutionary threat. We specifically test the following hypotheses:

- (1) When facing a credible threat of revolution, future coordination goods provision decreases as the availability of *free resources* increases in small coalition systems but not in large coalition systems;
- (2) When not facing a credible threat of revolution, coordination goods provision remains unchanged as a function of the availability of *free resources* regardless of coalition size.

- (3) When facing a credible threat of revolution, the degree of democracy in the future decreases as the availability of *free resources* increases in small coalition systems but not in large coalition systems
- (4) When not facing a credible threat of revolution, the degree of future democracy remains unchanged from current degree of democracy as a function of the availability of *free resources* regardless of coalition size.

### Empirical Tests

Our tests require data on political institutions, *free resources*, coordination goods provision, and the threat of revolution, as well as relevant control variables.<sup>6</sup> To measure institutions we utilize Bueno de Mesquita et al's (2003) five point measure of winning coalition size (W) and, as a robustness check, Polity IV's 21 point Democracy-Autocracy index. Each of these is normalized to vary between 0 and 1, with 1 representing the most democratic countries and 0 the most autocratic. The estimate of winning coalition size is constructed as done by Bueno de Mesquita et al (2003). They rely on components from the Polity data so that they use the variables *REGTYPE* (regime type), *XRCOMP* (the competitiveness of executive recruitment), *XROPEN* (the openness of executive recruitment), and *PARCOMP* (competitiveness of participation) to create an index. They add one point to the index for each of the following conditions: if the *REGTYPE* is non-military, if *XRCOMP* is greater than or equal to 2 (meaning the chief executive is not chosen by heredity or in rigged, unopposed elections), if *XROPEN* is greater than 2 and if *PARCOMP* equal 5 (indicating the presence of a competitive party system). This variable

is normalized between 0 and 1 by dividing by 4. See Bueno de Mesquita et al (2003) for details and justification of this variable.

*Free resources* are evaluated with two distinct indicators. One, called Oil, assesses oil exports as a percentage of GDP. It is computed by multiplying the World Bank's World Development Indicator's (WDI) variable for fuel exports (WBWDI\_FuelExps) by the WDI variable that calculates merchandise exports in current \$US, with the product divided by the WDI estimate for each country-year of GDP in current \$US. These data cover most countries between 1962 and 2003. We replicated our results using Macarten Humphreys' (2005) oil production estimates. As the results are unaltered we only report the results here based on the World Bank oil data.

In addition to Oil as a standard view of *free resources*, we also develop a dummy variable, called Aid, which is coded 1 for country-years in which foreign aid receipts represented at least 3 percent of the recipient country's GDP as reported by the World Bank. This variable is available between 1960 and 2003. Since the variable is based on the World Bank indicator of aid as a percentage of GDP one might wonder why we do not simply use that variable. The reason is that the quantity of aid receipts is endogenous to political survival considerations and donor interests (McKinley and Little 1977, 1978; Alesina and Dollar 2000; Bueno de Mesquita and Smith 2006). The exact amount of aid received, then, reflects an equilibrium level so that there is no reason to believe that more or less aid, given that aid is a significant component of a government's revenue, matters in terms of optimal responses to internal threats. The right amount varies from place to place and time to time. What does matter, for our theoretical purposes, is whether a

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<sup>6</sup> All our data and statistical outputs are available at XXXXX.

government has access to this particular *free resource*, a factor adequately estimated with a dummy variable based on a meaningful threshold.

We define a variable called Coordination that assesses coordination goods provision. This is a composite index made up of four components intended to reflect respectively personal political freedom, access to information through the media, freedom of assembly, and transparency of government. To construct Coordination we sum the standardized (mean 0, standard deviation 1) value of the component variables and divide by 4. The components are: (1) each country's Freedom House Civil Liberties score each year from 1972-1999 to indicate personal political freedom<sup>7</sup>; (2) the logarithm of the number of radios (+1) per 1,000 population for each country each year from 1950-1999, derived from Arthur Banks's (2001) Cross-National Time Series data and intended to assess access to media information; (3) the logarithm of Bank's measure of the number of general strikes (+1) involving more than one employer and at least 1,000 striking workers for each year between 1950 and 1999 for each country, used as an indicator of freedom of assembly<sup>8</sup>; and (4) a dummy variable intended to assess government transparency and coded as 1 when government tax revenue is reported and coded as zero when it is missing data for each country each year between 1950 and 2000, as reported in the Penn World Tables (variable cg).

The credibility of a revolutionary threat is estimated by calculating the change in crucial domestic political circumstances in each country over five year periods ending in

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<sup>7</sup> We reverse Freedom House's scale so that higher values mean more civil liberties and lower values mean fewer such liberties.

<sup>8</sup> Clearly societies that experience general strikes must permit some level of free assembly. Otherwise it would not be possible to amass at least 1,000 strikers. As our analyses will focus on non-democratic governments, failure to have general strikes is more likely to reflect suppression of assembly than an absence of grievances against government or business.

the year of observation. We define a variable called Mass. It is made up of the change in values on five standardized (mean=0, standard deviation=1) variables drawn from Arthur Banks's Cross-National time Series data. The components are: (1) the change in the number of anti-government demonstrations between  $t_0$  and  $t-5$ ; the change in the number of Riots ( $t_0 - t-5$ ); (3) the change in the number of general strikes ( $t_0 - t-5$ ); (4) the change in the number of assassinations or attempted assassinations of high level government officials ( $t_0 - t-5$ ); and (5) the change in the number of revolutions during the preceding five years ( $t_0 - t-5$ ). These standardized change variables are summed and the resultant index is divided by 5. When Mass is positive it indicates an increase in the number of relevant threats over the previous five year period and when it is negative it indicates a decline in the threats to the regime from mass movements or from revolutionaries. We believe that leaders are more likely to view themselves as facing a credible revolutionary threat when Mass is positive, meaning the number of threatening events is higher now than it was five years earlier and are not facing a credible threat when Mass is negative. It is worth noting that the median score for Mass is -0.00004 and the mean is +0.00102.

Because we expect different responses to *free resources* in more democratic polities than in less democratic polities, we also construct interaction terms called  $W*Oil$  and  $W*Aid$  to capture the effects of these *free resources* on coordination goods development and democratization or autocratization when a country is more democratic to begin with.

All of our analyses include controls for the logarithm of per capita income and the logarithm of total population (both derived from WDI variables). We also control for the

year. The year control is intended to correct for any secular trend in institutional reform or in the provision of coordination goods. The population control corrects for any scaling effects across countries while the per capita income variable corrects for wealth effects.

We focus attention on three dependent variables,  $W(t+5)$ , Democracy-Autocracy( $t+5$ ) and Coordination( $t+5$ ).<sup>9</sup> In each case we also include the lagged dependent variable in our analyses so that we can see the marginal effects of the variables of theoretical interest after controlling for the baseline level of the relevant dependent variable. As our variable labeling is intended to convey, each dependent variable is measured as its value five years later than the year of observation for the independent variables. In each regression analysis or ordered probit analysis (for  $W(t+5)$ ), we compute the results when  $Mass > 0$  and  $Mass < 0$ . We report the analyses under the restriction that  $W(t_0) < 1$  (or Democracy-Autocracy  $< 1$ ). Mature democracies ( $W=1$ , Democracy – Autocracy = 1) provide an ample bundle of coordination goods so that there is relatively little variance across such polities in this respect. Similarly there is almost no institutional variation within these systems. There is however substantial variation in the provision or suppression of the bundle of coordination goods among governments that are not fully democratic. The inclusion of the fully democratic observations does not substantially alter the analyses. Our models, then, are specified as follows:

Dependent Variable( $t+5$ ) =  $a + b_1$  Dependent Variable( $t_0$ ) +  $b_2$  Oil +  $b_3$   $W * Oil$  +  $b_4$  Aid +  $b_5$   $W * Aid$  +  $b_6$   $\ln(\text{GDP per capita})$  +  $b_7$   $\ln(\text{Population})$  +  $b_8$  Year +  $e$  if  $W < 1$  and  $Mass$  either greater than 0 or less than 0.

## The Provision of Public Goods and Coordination Goods

Table 1 shows how political institutions and *free resources* effect the provision of coordination goods as a function of whether a government faces a credible revolutionary threat or not. We expect a significant reduction in coordination goods below their baseline provision when the country is less democratic, has access to *free resources*, and faces a credible threat ( $Mass > 0$ ). We do not expect a comparable effect for the more democratic of these countries; rather we anticipate that *free resources* do no harm to the provision of coordination goods in such societies even in the face of a credible revolutionary threat. In the absence of a credible threat ( $Mass < 0$ ), we expect policy shifts and institutional reforms to be muted. The bottom of Table 1 reports the relevant tests and strongly supports the first hypothesis. Whether institutions are measured according to W (column 1) or according to the Polity Index (column 3), less democratic countries with *free resources*, when facing a credible revolutionary threat, reduce coordination goods over a five year period so that they drop below their baseline level. Aid and Oil significantly reduce the provision of such goods. But if the government is already fairly democratic or reliant on a large coalition, then the baseline provision of coordination goods persists despite the revolutionary threat.

Table 1 about here

Columns 2 and 4 of Table 1 replicate the tests but for governments that were not facing a revolutionary threat. According to the second hypothesis, we expect no significant impact on coordination goods provision as a consequence of *free resources* in this situation regardless of the institutional arrangements. The relevant tests are

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<sup>9</sup> Comparable results for Polity's Democracy-Autocracy( $t+5$ ) can be found at our web site at xxx. Because of space constraints we do not report these results in the body of the text but we do note that they are

reported at the bottom of Table 1 and again provide clear support for the hypothesis. The combined effect of *free resources* in the absence of a credible revolutionary threat is to leave coordination goods provision unaltered from the country's baseline five years earlier. This is true whether the country's government is extremely autocratic or is fairly democratic. All of the results in Table 1 remain consistent if we include full fledged democracies in the analyses.

It is also worth noting the individual effects of Oil and Foreign Aid on the suppression of coordination goods when leaders confront a credible revolutionary threat. This is important especially because no one can control who has oil or similar resources, but donors can control who receives foreign assistance.<sup>10</sup> The Aid coefficient, like the Oil coefficient, in columns 1 and 3 of Table 1 are negative and, based on one-tailed tests of significance (as are appropriate given that we have predicted the direction of effect), are not likely to be due to chance. For autocrats facing a mass-based threat to their hold on power, foreign aid acts to facilitate the suppression of the prospective rebellion by suppressing freedom of assembly, freedom of communication, and so forth; that is, by supporting the suppression of coordination goods.

In large coalition systems, *free resources* do not have the detrimental effects on the provision of coordination goods that they have in small coalition systems. The effect of oil revenues in the largest coalition systems is given by the sum of the coefficients for the Oil and  $W \cdot \text{Oil}$  (or Democracy-Autocracy \* Oil) variables. These effects are statistically indistinguishable from zero, suggesting that in large coalition systems oil revenues have no detrimental impact on the provision of coordination goods. The same is

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substantively no different from those for  $W(t+5)$ .

true for the effect of foreign aid in more democratic polities. Thus, aid protects coordination goods in fairly democratic countries even when these countries face a significant revolutionary threat, but aid undermines coordination goods and, therefore, freedom, when given to less democratic polities facing significant threats. Places like Mozambique and Nicaragua, for instance, with Democracy scores of 0.75 and 0.80 respectively in the late 1990s, when facing a credible revolutionary threat, improved their civil liberties and political rights. Egypt (Democracy = 0.35 in the early to mid-1990s and then 0.20 since 1999), in contrast, reduced basic political rights and civil liberties under otherwise comparable conditions. Each was a foreign aid recipient who behaved in a manner consistent with the theoretical predictions and the statistical results.

Table 2 examines our third and fourth hypotheses. These are concerned with endogenous changes in political institutions. Recall that we expect parallel results to those found when examining the provision or suppression of coordination goods. As is evident from Table 2, the hypotheses regarding endogenous institution change are supported by the evidence. When governments have *free resources* and they face a credible threat of active mass opposition ( $\text{Mass} > 0$ ) they diminish the degree of democracy; that is, they autocratize over the ensuing five years. They do not alter the institutions of government when they are not facing a credible revolutionary threat ( $\text{Mass} < 0$ ). Foreign aid, like oil in the ground, makes leaders more likely to concentrate power in their hands when they face a growing risk of revolution or mass opposition. That is just what happened in Tanzania during its election in 2000, in Chad in 2005 when the law was changed to allow the incumbent to have a third term, or Turkmenistan where the

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<sup>10</sup> We replicated the analyses substituting a measure for economic reliance on ores instead of or in addition to oil. We find comparable results.

President had himself declared President for Life in 1999. Conversely, countries that faced a similar threat but were not reliant on large amounts of foreign assistance or oil, such as Peru and Bulgaria, became more democratic.

Table 2 about here

Just how big are the effects of oil and foreign aid receipts on declines in democracy when leaders confront a revolutionary threat? For governments that require a large winning coalition or, in other words, are democratic, there are no adverse effects. But for governments that do not require a large, inclusive coalition, the effects are dramatic. A one standard deviation increase in the economy's reliance on oil exports is equivalent to a decline of 6.6 percent on the Polity scale. The effect of shifting, so that foreign aid becomes at least 3 percent of GDP under these conditions, further decreases democracy by another notch (4.1 percent) on the Polity scale. The two effects combined are equivalent to a shift down in democracy by two positions on the Polity Democracy-Autocracy scale, or about a ten percent loss.

We can think about the substantive effect in another, perhaps more telling and dramatic way, through an out of sample test which examines institutional change after 1999, the last year for which we have data. In particular, we examine whether the presence of a revolutionary threat, measured as  $Mass > 0$ , affects the evolution of political institution in nations with abundant free resources (again defined as having foreign aid in excess of 3% of GDP or oil at more than one standard deviation above the 1999 mean).

In 1999 twenty-six countries meet the oil or aid criteria and had a growing threat, while 28 met the criteria and had a declining threat. In all cases, of course, the democracy score in 1999 was less than 1. The mean democracy score for the set of oil-producing or

aid receiving countries facing a growing threat is 0.45. For those facing a declining threat it is 0.50. In both cases, the countries include polities in Africa, Latin America, the Middle East, and a smattering from other continents.<sup>11</sup>

Using Wikipedia, the online encyclopedia, we assessed how the governance structure of each country that meets the above criteria has changed since 1999, the last year for which we have data on the threat of revolution or a mass movement. Although the coding is judgmental, the criteria we applied are straightforward. We judged governance to have declined if a government's constitution was altered during or after 1999 to allow the incumbent to succeed himself or herself; if previously permitted political competition was made illegal or was denied access it formerly had to the media; or if in other ways the government was changed to strengthen the power of the incumbent executive at the expense of the citizens, the opposition, the legislature, and the courts. If the system liberalized to permit more competition for control of the government, then we considered governance to improve. If the sorts of changes just described did not occur then we judged that basic governance remained unaltered. Note that we did not judge governments by whether they were or were not relatively democratic in 1999, but rather by whether they became more or less democratic or autocratic between 1999 and roughly 2004.

Table 3 summarizes our assessment based on current information about the politics of each country as reported by Wikipedia. Chi-squared for the table is 13.07. That

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<sup>11</sup> The set of countries facing a growing threat in 1999 and meeting the other criteria are (in order of their country code) Colombia, Albania, Macedonia, Armenia, Benin, Mauritius, Guinea, Ghana, Togo, Central African Republic, Chad, Uganda, Tanzania, Angola, Zambia, Malawi, Namibia, the Malagasy Republic, Jordan, Kuwait, Qatar, Oman, Turkmenistan, Kyrgyz Republic, Bhutan, and Laos. Those meeting the criteria but having a declining risk of revolution are Honduras, Nicaragua, Bolivia, Moldova, Georgia, Azerbaijan, Gambia, Mali, Senegal, Niger, Burkina Faso, Liberia, Cameroon, Nigeria, Gabon, Congo,

is significant at the 0.001 level. In this out-of-sample test, the expectations of the theory are supported. Those who experienced a significant revolutionary threat in 1999 and had economies that relied heavily on oil exports or received foreign aid were much more likely to experience a decline in the quality of governance than those who otherwise were comparable but did not face such a threat.

Table 3 about here

### Conclusions

We provided and tested a theory about how initial social, economic, and political conditions in terms of the stock of coordination goods, economic reliance on free sources such as oil and foreign aid, and political institutions shape future policy choices. In the course of developing the theory, we proposed an explanation for changes in the ease with which citizens can organize and coordinate among themselves and we offered an endogenous account for political decisions to democratize or further autocratize societies. The statistical evidence supports the theory's predictions. Our results, therefore, may have significance not only from the perspective of social science inquiry but also from the perspective of selecting foreign policies to influence the prospects of spreading freedom and democracy elsewhere.

This project was motivated by a desire to understand the implications of Western nation's development policies for developing nations. The theory suggests that plans, such as the Millennium challenge (<http://www.unmillenniumproject.org/>; Sachs 2005), to increase development assistance are unlikely to help and stand a substantial chance of

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Burundi, Rwanda, Djibouti, Eritrea, Mozambique, Zimbabwe, Comoros, Algeria, Saudi Arabia, the Tajik Republic, Nepal, and Cambodia.

retarding democratization. Increasing the winning coalition size in developing nations offers the best long term prospects for improving their economic and social welfare since the nature of political competition in such systems encourages leaders who want to survive in office to produce policies with these goals in mind. Foreign aid often impedes that objective.

Foreign aid is a *free resource*. In small coalition systems *free resources* shift the nature of political competition. First, leaders capture most of the benefits that *free resources* provide, such that even in the best of circumstances providing *free resources* is an inefficient way to improve social welfare. Second, *free resources* reduce a leader's dependence on tax revenues and so remove the need for leaders to enact policies that encourage economic activity. Third, *free resources* increase the potential gains from revolutionary change, thereby encouraging revolutionary movements to which leaders, as a result of being less dependent on tax revenues, are likely to respond with the suppression of coordination goods rather than the promotion of public-goods oriented policies or democratization. At best foreign aid is an inefficient means through which to improve welfare in developing countries. At worst foreign aid increases the suppression of coordination goods which induces a decline in economic activity and social welfare and retards democratization. While foreign aid provides leaders with the resources to promote social welfare, it provides them with the political incentive to do just the opposite.

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Table 1: The Impact of Institutions, *Free Resources* and Wealth on the Provision of Coordination Goods in Five Years: Dependent Variable = Coordination (t+5)

	<b>Credible Revolutionary Threat: Mass&gt;0 W&lt;1</b>	<b>Incredible Revolutionary Threat: Mass&lt;0 W&lt;1</b>	<b>Credible Revolutionary Threat: Mass&gt;0, Democracy- Autocracy&lt;1</b>	<b>Incredible Revolutionary Threat: Mass&lt;0, Democracy- Autocracy&lt;1</b>
Coordination Goods(t0)	0.495 (0.030) 0.000	0.489 (0.066) 0.000	0.395 (0.034) 0.000	0.376 (0.072) 0.000
Winning Coalition, W or Polity Democracy- Autocracy	-0.089 (0.080) 0.267	-0.175 (0.130) 0.179	0.239 (0.061) 0.000	0.078 (0.100) 0.432
OIL (exports as % of GDP)	-0.009 (0.002) 0.000	-0.012 (0.004) 0.002	-0.006 (0.001) 0.000	-0.011 (0.003) 0.000
W*OIL	0.012 (0.003) 0.002	0.010 (0.009) 0.288	0.006 (0.002) 0.017	0.011 (0.006) 0.061
AID (% of GDP)	-0.105 (0.061) 0.084	-0.002 (0.105) 0.984	-0.082 (0.047) 0.081	-0.063 (0.087) 0.472
W*AID	0.124 (0.110) 0.259	0.009 (0.178) 0.960	0.133 (0.087) 0.125	0.121 (0.136) 0.375
Ln(GDP) per capita	0.041 (0.016) 0.012	0.092 (0.026) 0.001	0.047 (0.015) 0.002	0.086 (0.025) 0.001
Ln(Population)	0.017 (0.011) 0.123	0.039 (0.018) 0.033	0.013 (0.011) 0.216	0.030 (0.017) 0.090
Year	-0.002 (0.002) 0.231	0.000 (0.004) 0.946	-0.006 (0.002) 0.008	-0.003 (0.004) 0.482
Constant	4.781 (4.163) 0.251	-1.301 (7.199) 0.857	10.743 (4.153) 0.010	4.383 (7.146) 0.540
N, F, R-Squared	848, 59.56, 0.39	345, 14.82, 0.27	861, 73.64, 0.44	362, 17.47, 0.31
p( <i>Free Resources</i> ) = 0	F = 3.51, p = 0.061	F = 0.02, p = 0.895	F = 3.51, p = 0.061	F = 0.71, p = 0.400
p( <i>Free Resources</i> + Interactions) = 0	F = 0.09, p = 0.764	F = 0.00, p = 0.964	F = 0.56, p = 0.455	F = 0.39, p = 0.532

Cell entries are Coefficient (Standard Error) and probability (2-tailed).

Table 2: The Impact of *Free resources*, Wealth and Policy Provision on Institutional Change:

Dependent Variable: W(t+5) or Democracy-Autocracy(t+5)

	<b>Credible Revolutionary Threat: Mass&gt;0 W&lt;1 Ordered Logit</b>	<b>Incredible Revolutionary Threat: Mass&lt;0 W&lt;1 Ordered Logit</b>	<b>Credible Revolutionary Threat: Mass&gt;0, Democracy- Autocracy&lt;1</b>	<b>Incredible Revolutionary Threat: Mass&lt;0, Democracy- Autocracy&lt;1</b>
Winning Coalition W(t0)	2.413 (0.186) 0.000	2.090 (0.264) 0.000		
Polity Democracy- Autocracy			0.677 (0.023) 0.000	0.653 (0.035) 0.000
OIL (exports as % of GDP)	-0.032 (0.005) 0.000	-0.011 (0.008) 0.188	-0.004 (0.001) 0.000	-0.004 (0.001) 0.001
W*OIL	0.046 (0.010) 0.000	0.004 (0.020) 0.828	0.006 (0.001) 0.000	0.003 (0.002) 0.184
AID (% of GDP)	-0.237 (0.145) 0.102	-0.027 (0.227) 0.906	-0.041 (0.020) 0.047	-0.019 (0.035) 0.589
W*AID	0.319 (0.264) 0.226	0.035 (0.388) 0.927	0.057 (0.038) 0.132	0.023 (0.535) 0.670
Ln(GDP) per capita	0.221 (0.038) 0.000	0.323 (0.055) 0.000	0.023 (0.006) 0.000	0.049 (0.009) 0.000
Ln(Population)	0.089 (0.026) 0.001	0.058 (0.036) 0.113	0.015 (0.004) 0.001	0.011 (0.006) 0.101
Year	0.029 (0.003) 0.000	0.028 (0.005) 0.000	0.006 (0.001) 0.000	0.005 (0.001) 0.000
Constant	NA	NA	-11.158 (1.142) 0.000	-10.140 (1.650) 0.000
N, X <sup>2</sup> , Pseudo R <sup>2</sup> or N, F, R <sup>2</sup>	1297, 737.68, 0.20	606, 264.01, 0.17	1287, 355.58, 0.69	620, 139.72, 0.65
p( <i>Free Resources</i> ) = 0	X <sup>2</sup> = 3.41, p = 0.065	X <sup>2</sup> = 0.03, p = 0.871	F = 4.78, p = 0.029	F = 0.42, p = 0.518
p( <i>Free Resources</i> + Interactions) = 0	X <sup>2</sup> = 0.31, p = 0.575	X <sup>2</sup> = 0.00, p = 0.992	F = 0.36, p = 0.548	F = 0.07, p = 0.794

Cell entries are Coefficient (Standard Error) and probability (2-tailed).

Table 3: Changes in Governance, *Free Resources*, and Revolutionary Threats

	Governance Improved	Governance Unchanged	Governance Declined
Growing Revolutionary Threat (Mass > 0)	1	11	14
Declining Revolutionary Threat (Mass < 0)*	10	13	4

\* One country, Gambia, experienced a meaningful improvement in its degree of democracy in 2000 followed by a meaningful decline in 2003. It is not included in the table as it was unclear how it should be classified.