Coup Traps: Why does Africa have so many Coups d'Etat?

Paul Collier and Anke Hoeffler,

Preliminary Draft: August 2005

Centre for the Study of African Economies,
Department of Economics,
University of Oxford

Abstract

In Africa coup plots are by far the most common challenge to the continuity of regimes. In this paper we investigate proneness to coups by drawing on our previous work on proneness to civil war. The most striking aspect of our results is the similarity in the causes of coups and civil wars. Standard indicators of grievance such as political repression and economic inequality do not feature as significant influences. A common core of economic factors underpins proneness to coups and civil wars: low income and a lack of growth. Both are also subject to 'traps' – once a coup or civil war has occurred, further events are much more likely. We have attempted to investigate whether policies that favor the military reduce the risk of coups, but have found that if anything, their effect is perverse: high military spending may even increase the risk of a coup.

1. Introduction

In Africa coups remain common. Since 2000 there have been successful coups in the Central African Republic and Togo, and failed coups in Sao Tome, Principe and Equatorial Guinea. The successful coup in Cote d'Ívoire in 1998 began a cycle of political instability that has ruined a country once seen as the jewel of Africa. The economic consequences for Cote d'Ívoire are not unique: such political instability has commonly been costly (Fosu, 2001).

In this paper we investigate proneness to coups. In Section 2 we develop a theory of the coup d'état drawing on our previous work on proneness to rebellion (Collier and Hoeffler, 2004). Coups have obvious similarities and differences to rebellions: both attempt to capture the state by force, and indeed, sometimes a coup that fails to oust the government evolves into a rebellion. However, the mode of organization and recruitment to a coup is clearly very different from the classic creation of a rebel army. In particular, we argue that while the incentives for staging a coup are likely to be similar to those for a rebellion, the key difference is in the barriers to feasibility. The incentives for a violent challenge to the state are some combination of 'greed and grievance' – the capture of resources, or the rectification of wrongs. The barriers to feasibility faced by a rebellion are largely material: a rebellion needs to acquire armaments and to finance thousands of soldiers. A coup faces no such difficulties and so overall, the barriers to a coup are likely to be lower than those to a rebellion. However, a coup faces a different barrier: the loyalty of the army, achieved either by a sense that a challenge is illegitimate, or by co-opting the military into the benefits of power. Normally this sense of loyalty is the effective barrier to a coup. The key argument of Section 2 is that should a coup nevertheless occur, the new regime in the process destroys the basis for its own legitimacy. Since a coup legitimizes further coups, if legitimacy is the key barrier then we should observe 'coup traps': societies can collapse into political black holes of repeated regime change generated from within the army.

In Section 3 we use a unique comprehensive data set on African coups, reports of coup attempts that fail, and reports of coup plots that abort before they reach the stage of an actual attempt (McGowan, 2003). We use these data to compare the causes of proneness to rebellion with the causes of proneness to coups. For this we use the full range of explanatory variables previously developed for explaining rebellion, but also develop a new range of variables appropriate for the specific incentives faced by the government army. In the process we test for coup traps.

2. A Theory of Coups

A coup d'état is a violent challenge to the state, analogous to a rebellion. A useful starting point is thus to hypothesis that the two phenomena have similar causal structures. The incentives for violent change of regime are now commonly thought of as in part reflecting greed and partly grievance. While the incentives for rebellions and coups are at least broadly similar, the restraints on them are radically different. We consider in turn the two incentives of greed and grievance and then turn to the restraints.

Greed: resource rents and aid

The greed motivation for rebellion reflects the reality of the large rents to sovereignty: leaders and their supporters invariably do well if they capture the government. For example, when the Sudanese People's Liberation Army becomes the government of Southern Sudan in mid-2005 it will receive $1bn per year in oil revenues, plus an aid inflow - the UN is currently appealing for $2.5bn. In the context of Africa the two most important sources of the rents to sovereignty are indeed those from natural resources and foreign aid. When we turn to empirical testing we must allow for an important difference in the degree of endogeneity of these two sources of rents. In particular, aid is a donor choice and so may be reflected by the risks of a coup or a rebellion. It will therefore be necessary to instrument for aid in order to eliminate this endogeneity.

Although both resource rents and aid are important rents to sovereignty, in principle each might affect the risks of rebellion and coups differently. Most rebellions last for many years and only rarely end in rebel capture of the state. Usually, aid is not provided to rebel groups unless and until they succeed in capturing the state. In contrast, natural resource rents can be acquired by rebel groups even if they never succeed in capturing the state. Resource rents merely require the partial control of some pertinent territory. For example, both UNITA in Angola and the RUF in Sierra Leone benefited from large resource rents from diamonds even though they never succeeded in capturing the state. Hence, the realistic prospect for rebellion is that the leaders gain partial control of resource rents, whereas for coups the circumstances in which the leaders gain control of resource rents are also those in which they gain control of the aid inflows.

Hence, to the extent that state capture is important, we expect that:

$$R^{coup} \quad \underset{+}{\text{(Aid,}} \ \underset{+}{\text{Resources)}} \tag{1a}$$

$$R^{rebellion} \quad \underset{0}{\text{(Aid,}} \ \underset{+}{\text{Resources).}} \tag{1b}$$

Grievance: National, Sectional and Military Concerns

The other likely incentive for a violent challenge to the state is grievance against it. The potential range of such grievances is wide. In our work on the causes of rebellion we considered economic, political and social sources of grievance. The economic grievances were proxied by the level, growth and distribution of per capita income, although the first two are also readily interpretable in other ways. The political sources of grievance were proxied by the extent of political rights. The social sources of grievance were proxied by ethnic and religious diversity. How might such grievances affect proneness to rebellion and to coups differentially?

From the perspective of grievance the key difference between a rebellion and a coup is that the army is part of the state, and indeed in Africa usually a core part of the state. While there will be exceptions, this suggests that grievances based on the exclusion of some section of society from power and its fruits are more likely to motivate rebellion than a coup: those excluded from the benefits of power are unlikely to be included in the army. Indeed, to the extent that the government is pursuing policies of sectional redistribution, these are likely to favor the group that is dominant in the army, so that the very policies that might increase the risk of rebellion might be expected to reduce the risk of a coup.

To the extent that it is motivated by grievance, the army is therefore likely either to be representing national public good concerns, or at the other extreme, concerns about its own welfare such as military pay. The national public good concerns are less likely to motivate rebellion since they face the standard free-rider problem. Issues that are only of concern to the military itself are evidently unlikely to motivate rebellion.

Specifically, to the extent that grievance is important, we might thus expect:

$$R^{coup} \quad \underset{-?}{\text{(Sectional grievance}}, \underset{+}{\text{national grievance}}, \underset{+}{\text{army grievance)}} \qquad (2a)$$

$$R^{rebellion} \quad \underset{+}{\text{(Sectional grievance}}, \underset{+?}{\text{national grievance}}, \underset{0}{\text{army grievance)}}. \qquad (2b)$$

Restraints: deterrence, legitimacy and cooption

The feasibility of rebellion is determined by radically different considerations from that of a coup. A rebellion requires the creation of a private army, which will usually need to

be sustained financially for several years. A coup needs no such financial resources since the coup leaders use the government's own army.

As discussed above, one likely source of finance for a rebel group during the rebellion is resource rents. Hence, to the extent that finance is the key constraint on mounting a violent challenge to the state, we would expect:

$$R^{coup} \quad \text{(Resources)} \qquad (3a)$$
$$0$$

$$R^{rebellion} \quad \text{(Resources)}. \qquad (3b)$$
$$+$$

Potentially, rebellion is deterred by government military spending. The perception of such a deterrence effect is indeed one influence upon military budgets: spending rises in response to the risk of rebellion (Collier and Hoeffler, 2005). However, this deterrence effect can be offset by an inadvertent signal: high government military spending indicates that the government is planning to rule by repression rather than by inclusion and this can provoke rebellion. We find that in the frequently fragile situation of post-conflict were typically a rebel military organization is gradually dissolving and so is atypically concerned about government intentions, high government military spending is actually counterproductive, significantly increasing the risk of further conflict; and that even outside that context there is no significant deterrence effect (Collier and Hoeffler, 2005a).

While the effect of military spending on the risk of rebellion is thus ambiguous, the most likely effect of military spending on the risk of coups is to reduce it. This could work in two ways. Higher military spending might permit better conditions of service and so co-opt the military into the elite: we defer consideration of this effect until a fuller discussion of cooption. The effect on which we wish to focus at present is still within the broad category of deterrence. A standard technique of dictators is to protect themselves from their own military by constructing parallel military organizations: for example, the secret

police and the presidential guard are given a military capability matching both each other and that of the army, so that no one organization is sure of being able to win if it launches a coup (Luttwak, 1968). An enlarged military budget enables such a system of military duplication. Hence, to the extent that military spending matters, we might expect:

$$R^{coup} \quad \text{(Military spending)} \qquad \text{(4a)}$$
$$\quad -$$

$$R^{rebellion} \quad \text{(Military spending).} \qquad \text{(4b)}$$
$$\quad ?+$$

Finally, we turn to the restraint of legitimacy and loyalty. It is virtually impossible for a government to defend itself from rebellion through inculcating a sense of its legitimacy. This is because recruits to rebellion can come from any part of society. Even in the developed democracies there are pockets of society who see the use of violence against the state as legitimate: Breton separatists in France, the far-left in Italy, the far-right in the USA. However, a government can credibly aspire to building a sense of its legitimacy within its own military. It can screen applicants so as to recruit those predisposed to loyalty. It can promote those that demonstrate the most loyalty. It can reward the army for its loyalty, and it can provide soldiers with selective information that reinforces loyalty.

One source of legitimacy is recognition that the government has come to power through means that the society accepts. Internationally, democratic elections are seen as the key means of legitimizing the accession to power. A regime may also be seen as legitimate if it has won a civil war since this also reflects a degree of popular support. A third source of legitimacy is time: if the regime has been in place a long time many people will come to see it as part of the natural order.

The type of government with the least claim to legitimacy is evidently one that has itself recently come to power through a coup. It faces the internal contradiction that in claiming

that the means by which it came to power were legitimate, it thereby legitimizes an equivalent attempt to replace it. Nor has it acquired the loyalty of tradition. This creates the possibility for a 'coup trap'. Consider a society in which greed and grievance favor a coup, but where the risk of a coup is restrained by legitimacy. Let the restraint provided by loyalty be probabilistic: that is, the risk is reduced but not eliminated. We would then predict that if a coup occurs, the risk of further coups rises sharply. The existence of coup traps thus becomes a test of the importance of legitimacy.

Finally, a regime on coming to power, whether through a rebellion or a coup, must find some narrative of its own legitimacy beyond the illegitimacy of the previous regime. Militarily successful rebellions are able to appeal to their military victory as direct evidence of some popular support. However, successful coups lack this ability. It may be easier to assert coup legitimacy in the context of a controlled media, where regime change merely has to be announced on the state radio, rather than in the context of media freedom, where a coup is likely to be criticized.

Hence, we would expect:

$$R^{coup} \quad \text{(Regime origin legitimate, Regime duration, press freedom)} \qquad \text{(5a)}$$
$$\qquad\qquad\qquad\quad - \qquad\quad - \qquad\qquad\quad -$$

$$R^{rebellion} \quad \text{(Regime origin legitimate, regime duration, press freedom)} \qquad \text{(5b)}$$
$$\qquad\qquad\qquad\quad 0 \qquad\quad 0 \qquad\qquad\quad 0$$

Loyalty can be achieved through cooption instead of through legitimacy. Just as the most evident candidate for a grievance on the part of the army is its own material conditions, the most obvious way of reducing the risk of a coup is to co-opt the military by favoring it relative to the rest of the population. The government is thus likely to set pay levels which reflect the risk of a coup: where there is a high risk of a coup for other reasons – for example, other grievances or the capture of the state being unusually valuable – the

government can try to offset this risk by high pay. We thus expect to find an inter-dependence between military conditions and coup risk:

$$R^{coup} \quad \text{(Military conditions)} \qquad \text{(6a)}$$
$$-$$

$$R^{rebellion} \ \text{(Military conditions).} \qquad \text{(6b)}$$
$$0$$

$$\text{Military conditions } (R^{coup}, R^{rebellion}) \qquad \text{(6c)}$$
$$+ \qquad 0$$

Finally, because of the two forms of challenge to the state coups are much cheaper than rebellions, we would expect a higher frequency of coups. Hence:

$$R^{coup} > R^{rebellion} \qquad (7)$$

3. Empirical Analysis

Data and its Organization

The coup data for this analysis was collected by Patrick McGowan (McGowan, 2003) who kindly made the original text files available to us. Using published sources this gives a comprehensive coverage of reported coup plots that got no further than plotting, of coup attempts that failed, and of successful coups in Africa during the period 1956 to 2001. Due to restrictions on economic data we are only considering coups from 1960

onwards. There were 145 plots that proceeded no further than the plot stage, 109 coup attempts that failed, and 82 successful coups.[1]

Our first task was to code this data into machine-readable form. We assumed, reasonably enough, that all actual attempted coups, successful or not, had been plotted. Thus, our coding classified all three types of event as plots, some of which led on to coup attempts, while in turn some of these attempts were successful.

The more problematic task was to organize the data in a way suitable for statistical analysis. Plots, attempts and coups are rare events, but when they occur they tend to bunch together. In two cases there were five such events in the same country in a single year.[2] Our data have the characteristics of ordered data as well as count data. No one statistical approach appears to be ideal for this type of event and we adopt four slightly different approaches, each of which has different disadvantages. One approach is an annualized probit analysis. For each year during which any of these three types of event happened - a plot, an attempt or a coup - we simply code an event. The disadvantage of this approach is that it discards events when there is more than one event in the same year. The second approach is a Poisson regression model which is often used for such count data. Here the dependent variable is the number of events in a year. This has the advantage of making some use of all events, but still misses the details of sequence. Thus, in a year with multiple events, characteristics such as the time since the previous event can only take the value of the average of all events in the year. The third approach is to use an ordered probit which takes the inherent order from plot, attempt and coup into account. Our forth approach is of our own devising and therefore likely to be subject to errors of analysis of which we are currently unaware. Since the maximum number of events in any year is five, we organize the data such that each year is divided into five equal periods of 73 days. Each period may or may not have one event. To the extent possible, events are then dated correctly within their appropriate period. In rare cases, two

[1] In the published article McGowan reports a slightly lower number but since this is an ongoing data collection effort we used all of the plots, attempts and coups that were listed in the data description files, sent to us after the publication date.

[2] Burkina Faso experienced three plots, one attempt and one coup in 1983 and there were five attempted coups in Togo in 1991.

events fall in the same 73 day period. Since we do not allow for multiple events within a period, we notionally shift the date of the event to the nearest event-free period within the same year. The alternative to this slight misrepresentation of the data would be to greatly increase the number of periods into which a year is divided. In turn, this would compound the problem of rare events, since the same number of events would be distributed over far more observations.

With these four slightly different statistical approaches we investigate the three linked phenomena of plots, attempts and successful coups. We begin with an analysis of the causes of plots, defined to include all plots, whether or not they lead on to an attempt or even to a successful coup. One rationale for starting here is statistical: this gives us the maximum number of observations. Our analysis is also evidently constrained by the need for observations on explanatory variables. However, we are able to get complete data on 254 plot events. The other reason for starting with the plot data is that there is a natural temporal ordering from plots to coup attempts and from attempts to success. Hence, starting from an analysis of plots, we can proceed to analyze what determines which plots continue to attempts and then what determines which attempts continue to successful coups. However, in analyzing plots a note of caution is in order. Inevitably, the only source of information on those plots that are foiled before they become attempts is the regime itself. There are likely to be instances in which the claim of plotting is a mere subterfuge by which the regime justifies removal of potential enemies. Hence, our observations of those plots that do not lead on to attempts may have substantial measurement errors in both directions – some of our observed plots may be imaginary, while some actual plots will inevitably have been missed. However, if for example, repressive regimes are particularly prone to the invention of coup plots, this should show up as distinctive explanations for plots in comparison to attempts.

Results

Table 1, column 1 presents our core regression. It uses our 73-day period as the basic unit of observation and so maximizes the utilization of the plot data. As we will show, it is our

core regression also in the sense that no additional variable is significant. The core regression has five explanatory variables, all significant. Like O'Kane (1981) we find that economic variables are significant and robust in a number of different specifications. These are per capita income and its growth rate, both lagged by one year in order to reduce problems of endogeneity, 'ethnic dominance', the time since the most recent previous plot, and finally, the time since Independence. At the mean of these variables, the average country faces a risk of a plot in any 73-day period of 2.17%, so that the risk during a year is 10.4%. Consistent with (7), this is radically higher than the risk of a rebellion which is around 14% over a five-year period.

Holding other variables at their mean value, if per capita income is doubled, the risk is reduced by 14.3%. If the growth rate is raised by four percentage points the risk is reduced by 7.5%. We define ethnic dominance as a situation in which the largest ethno-linguistic group in the society has between 45% and 90% of the population. Some 41% of the countries in our sample are characterized by ethnic dominance. Thus defined, countries without ethnic dominance have a 12.9% lower risk of a plot than those with ethnic dominance. If the time elapsed since the most recent plot is doubled, the risk of a further plot is reduced by 62.7%. Finally, in the first year of Independence, the risk is raised by 3.7%.

Around this base we have tried a number of variants. Among the factors that have no significant effect on the risk of a coup are the degree of democratization or political repression, (column 2), the degree of income inequality (column 3), the extent of natural resource, primary commodity, or oil income (column 4), the extent of religious and ethnic fractionalization other than ethnic dominance (column 5), and the geographic dispersion of the population (column 6).

As robustness checks to the core result we switch from the 73-day period of observation to annual observation, first using probit formulation to see whether there is at least one plot during the year, secondly using a Poisson formulation with the dependent variable as the number of plots during the year and thirdly using an ordered Probit. All of these

approaches have the advantage of being standard, but they each sacrifice information compared with our initial method. The results are shown in Table 2. The time since the previous plot remains significant, but the other variables lose significance although they do not change sign. The results are thus consistent with what might be expected if the only difference between the methods were the loss of information.

In Table 3 we turn to the analysis of attempts and coups. We first repeat the core regression with the changed dependent variable (columns 1 and 2). The signs of all variables remain the same, but variables other than per capita income and the time since the previous event lose significance. Since this loss of significance is consistent with the reduction in sample size, we investigate whether there are any significant differences in the determination of the three types of event: as between plots and attempts (column 3), and between attempts and coups (column 4). There is only one significant difference between those coup plots that fail to mature into attempts and those that do. Low per capita income makes it significantly more likely that a plot with mature into an attempt. Similarly, there is only one significant difference between failed coup attempts and successful attempts. Again, low per capita income makes it more likely that a coup attempt will be successful. These results suggest that the problem of imaginary plots used by repressive regimes is not sufficient to contaminate the results. Because the number of attempts and of successful coups is considerably smaller than the number of plots, the significance levels of the variables are lower. However, it seems reasonable to regard the core results for plots as capturing the basic causal story, with the qualification that it underplays the importance of low income.

We now attempt to extend the analysis to the effects of military spending. We investigate whether the size of the military, and military pay and conditions, affect the risk of a coup. Both of these encounter evident problems of potential endogeneity. As discussed in Section 2, the standard response to coup risk is supposedly to have a sufficiently large military establishment to permit division into several rival components, so that no one group of commanders can be sure of success. More prosaically, in response to coup risk political leaders may simply raise the pay and conditions of the military.

We first analyze the size of the military. We proxy this by the share of military spending in GDP. Consistent data on military spending are limited. Since our analysis is inherently constrained by the number of plots, it is important to preserve sample size to the extent possible. We therefore combine the two SIPRI data sets on military spending, recognizing that the two data sources are not entirely consistent.

When military spending is introduced directly into our core regression it is insignificant (Table 4, column 1). However, this may be due to endogeneity. We have recently developed a regression of military spending on global data for developing countries (Collier and Hoeffler, 2005). We find that military spending is well explained by a few variables such as previous participation in an international war, and the military spending of neighbors. At the present stage in our analysis we simply use the predicted level of military spending generated by this regression for each period and country in Africa. We should add a note of caution here: the resulting variable is a generated regressor, and we have not yet had time to correct the standard errors of our results. With this important qualification, the results are reported in Table 4, column 2. So instrumented, military spending is now positive and significant: a large military actually appears to *increase* the risk of a coup plot. This is not necessarily implausible: in a large military there are simply more potential groups that might harbor resentments or ambitions.

Next, we attempt to investigate the effect of military conditions. We do not have direct data on military pay. However, for a limited number of countries we do have the number of military personnel, and so the best that we can do is to use as a proxy the level of military spending relative to the number of personnel. We measure this in dollars per 'soldier' per year. This measure is subject to very evident weaknesses. If a government spends heavily on military capital equipment, such as planes, this will show up in our data as high spending per soldier and so appear to indicate a high salary. The best we can hope for is that when the military budget per soldier is large, personnel are able to extract some salary advantage.

When our proxy for military conditions is added directly into the core regression it is insignificant (Table 4, column 3). However, this again may reflect endogeneity. We therefore attempt to instrument for military conditions using an IV approach. We apply the two stage probit least squares procedure as suggested by Keshk (2003). For this we need variables which are likely to affect the current level of military conditions but do not directly affect the current risk of a coup plot. We investigated three such possible variables. The first is the colonial origin of the country. Specifically, Francophone countries tended to have much higher public sector pay levels and this might be reflected in military pay. The second is the cumulative experience of inflation since independence, excluding current inflation. The idea here is that high past inflation may have loosened up inherited pay structures. The third is the cumulative number of years, excluding the present, that the government has been military: perhaps indicating that such previous regimes have favored military salaries. The instrumentation regression is reported in Appendix 1. So instrumented, when our proxy for military conditions is added to our core regression it is insignificant, and indeed positive. To the extent that we can tell, better military conditions do not reduce the risk of a coup plot. While this is a counter-intuitive result, there are perhaps reasons why better military conditions would not reduce risk. The intuitive approach rests on the importance of grievance: bad conditions provide a reason to participate in a coup plot that we can appreciate and even sympathize with. However, better military conditions may also elevate the status of the military in society and give commanders aspirations for a wider role. Or better conditions may help to make ordinary soldiers more cohesive and subject to the discipline of commanders, and so be more reliable followers of their commanders' aspirations. We should stress that this result is work-in-progress and that we hope to get more robust results in due course.

Interpretation

We now consider the results in terms of the theory discussed in Section 2. The most striking aspect of our results is surely the overall similarity between the factors that make a country prone to coups and those that make it prone to rebellion. All of the components of our core regression, with the exception of time since Independence which in any case

has a very small effect, are also components of our core regression of rebellion. There is, in effect, a common core of factors inducing violent, illegitimate challenges to a regime.

The second striking feature is that this common core is predominantly economic rather than political or social conditions. Both the level and the growth rate of per capita income powerfully affect the risk of a coup. This provides us with a rather straightforward explanation as to why Africa has been far more subject to coups than other regions: it has had a markedly worse economic performance. This is reinforced by the only social characteristic of importance – ethnic dominance. Because Africa has so much more ethnic diversity than other regions, it is actually less characterized by ethnic dominance than other regions. Hence, ethnic composition does not provide a satisfactory account of why Africa has been coup-prone.

The fourth of the core explanatory variables, the time since the most recent coup, gives rise to a strong coup trap. This, rather than a pure time trend, is the key temporal dimension of the story. If a country can for whatever reason avoid a coup plot, it gradually becomes much easier to avoid them. By contrast, some countries are highly coup-prone, not because of a fixed effect, but because they never break out of the high risk environment which prevails in the recent aftermath of a plot. The risk of rebellion has the same feature. Happily, there is a favorable pure time trend, albeit small. This may reflect domestic change, such as the gradual consolidation of regime power following Independence, or the influence of international standards, since coups have clearly become much less common elsewhere in the world.

Three variables are significant in explaining the risk of rebellion, but not the risk of coup plots. The first of these is natural resource or primary commodity exports. One possible explanation for this difference, as discussed in Section 2 equations 3 and 3a, is that, regardless of their motive, rebellions need a source of finance whereas coups do not. Predation of commodity exports is a standard source of rebel finance. The fact that natural resource rents, or indeed oil, have no significant effect on coup risk suggests that consideration for coup leaders or is offset by other factors. To investigate this further we

test hypothesis (1a) that, if greed is the key motivation, aid should be significant in increasing proneness to coups. In Table 4, column 5 we include lagged aid as a percentage of GDP. It has a negative sign and is significant at the ten percent level. However, because aid is likely to be endogenous we instrument it. Following Tavares (2003) we have already developed good instruments for aid in our previous work (Collier and Hoeffler, 2005). Our instruments for aid received include the aid provided by the largest five bilateral donors and their geographic, political and cultural distance from the recipients. As with military conditions, we use a two stage Probit least squares methodology (Keshk, 2003). Aid so instrumented is insignificant, consistent with the absence of an effect from natural resource rents. When aid is entered without being instrumented it is significantly negative. This difference suggests that aid is indeed endogenous: donors successfully reduce aid in coup-prone times, but this does directly add to the risk of a coup. Indirectly, a reduction in aid might nevertheless increase the risk of a coup through its effect on the growth rate.

The second factor significant for rebellions but not for coups is the geographic dispersion of the population. Again this is readily explicable in terms of the differential effects of population dispersion on the feasibility of rebellions and coups. Rebellions need space in which to hide from the government military, whether this is mountains or simply areas that are remote. Such geographic aids to rebellion are likely to be irrelevant for coup plots.

The third factor significant for rebellion but not for coups is social fractionalization. Controlling for ethnic dominance, the more fragmented is a society by ethnic and religious differences the *less* likely it is to have a rebellion. In previous work we have suggested that that this may be because it becomes harder to achieve the minimum scale of rebellion needed for survival as the society becomes more fractionalized. For whatever reason, this does not seem to matter for the risk of coup plots. Perhaps this is because typically, African armies are recruited selectively rather than being representative of the composition of the society, so that social fractionalization in the nation does not carry over into social fractionalization in the army.

What do these results imply for distinguishing between greed, grievance and feasibility? Why should low income and low growth so consistently make countries prone to violent illegitimate challenge, whether through rebellion or through coup plots? These two economic variables can be interpreted in multiple ways. If we want to gloss them in terms of 'greed', low income and slow growth can be interpreted as proxies for a lack of opportunities other than those provided by controlling the state. The lack of significance of natural resource rents and aid as explanatory variables argues against a greed-based interpretation, but it might be that in societies that are both poor and stagnant, the rents to sovereignty of even the most impoverished state are massively attractive relative to other opportunities. The dream of being president may be relatively more alluring in the Central African Republic than in the USA. The economic variables can also be interpreted as grounds for national grievance since they translate into mass poverty and hopelessness. The problem with such a grievance-based interpretation is the lack of significance for the more straightforward proxies for grievance: political repression and inequality. Low income and slow growth can also be interpreted as proxying a weak state and so contributing to the feasibility of challenging the regime. This is the interpretation put on the economic factors contributing to civil war risk by Fearon and Laitin (2003). Our result that low income makes it more likely that plots turn into attempts, and that attempts turn into successful coups, is perhaps most readily interpreted in these terms, as indicating the importance of state weakness. In effect, plots happen where the state is not sufficiently effective to be able to prevent them.

The strength of coup traps is consistent with the importance of legitimacy acquired over time. However, if legitimacy is the explanation, the lack of any effect from democratization suggests that domestic sources of legitimacy are rather different from international sources.

4. Conclusion and Policy Implications

In popular liberal opinion coups are generally seen as a curse, since they emanate from the army, whereas rebellions are frequently seen as heroic. This paper has attempted to investigate whether such a distinction seems justified by differences in their causes.

In Africa coup plots are by far the most common challenge to the continuity of regimes. This may reflect the evident fact that the typical coup is a lot less damaging to the society than the typical civil war, and a lot less costly for its perpetrators. Nevertheless, the most striking aspect of our results is the similarity in the causes of coups and rebellions. In neither do standard indicators of grievance such as political repression and economic inequality feature as significant influences. A common core of economic factors underpins proneness to coups and rebellions: low income and a lack of growth. Both are also subject to 'traps' – once a coup or rebellion has occurred, further events are much more likely. We have attempted to investigate whether policies that favor the military reduce the risk of coups, but have found that if anything, their effect is perverse: high military spending may even increase the risk of a coup.

What are the policy implications of our analysis? It is now commonplace to ascribe Africa's economic problems at least in part to its poor governance. The prevalence of coups, and the policy distortions introduced by the fear of coups are surely a part of this poor governance. Yet we have found evidence for reversing popular causality: poor governance, at least as proxied by coup risk, has its foundations in poor economic performance. On our evidence, Africa looks more likely to be saved from the menace of coups if it could achieve economic growth than by further political reform. The evident limited appeal of economic reform for most African governments may reflect a failure to appreciate the importance of good economic performance for their own security.

References

Barro, R. J. ed. 1997. *Determinants of Economic Growth.* Cambridge, MA: MIT Press.

Barrett, D. B., ed. 1982. *World Christian Encyclopedia.* Oxford: Oxford University Press.

Collier, Paul and Anke Hoeffler. 2004 Greed and Grievance in Civil Wars. *Oxford Economic Papers* 56: 663-595.

----- and -----. 2005. Unintended Consequences: Does Aid Promote Arms Races? Mimeo.

----- and -----. 2005a. Military Expenditure in Post-Conflict Societies. *Economics of Governance*, forthcoming.

Fosu, A. 2001 Political instability and economic growth in developing economies: some specification empirics. *Economics Letters*, Volume 70(2): 289-294.

Fearon, J. and D. Laitin. 2003. Ethnicity, Insurgency, and Civil War. American Political Science Review 97(1): 75- 90.

Hamilton, K. and M. Clemens. 1998. Genuine Saving Rates in Developing Countries, Worldbank, Washington D.C. available on http://lnweb18.worldbank.org/ESSD/envext.nsf/44ByDocName/GreenAccountingAdjustedNetSavings

Jaggers, K. and T. R. Gurr. 1995. 'Tracking Democracy's Third Wave with the Polity III Data'. *Journal of Peace Research* 32:469-482.

Keshk, O. M. G. 2003. CDSIMEQ: A Program to Implement Two-stage Probit Least Squares. *Stata Journal*, 3(2), 157-167.

Luttwak, Edward. 1968. Coup D'Etat: A Practical Handbook. London: Penguin Press.

Mauro, P. 1995. 'Corruption and Growth'. *The Quarterly Journal of Economics* 110:681-712.

McGowan, Patrick J. 2003. African military coups d'etat, 1956-2001: frequency, trends and distribution. *Journal of Modern African Studies* 41(3): 339-370.

O'Kane, Rosemary H.T. 1981. A Probabilistic Approach to the Causes of Coups d'Etat. *British Journal of Political Science* 11 (3): 287-308.

Tavares, J. 2003. Does Foreign Aid Corrupt? *Economics Letters* **79**: 99-106.

Tables

Table 1: Determinants of Plots

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Per capita	-0.102	-0.099	-0.084	-0.115	-0.097	-0.078
income t-1	(0.010)**	(0.031)**	(0.082)*	(0.010)**	(0.018)**	(0.076)*
Growth t-1	-0.012	-0.027	-0.002	-0.011	-0.012	-0.013
	(0.023)**	(0.003)***	(0.695)	(0.044)**	(0.026)**	(0.018)**
Ethnic	0.146	0.181	0.116	0.131	0.153	0.158
dominance	(0.015)**	(0.005)***	(0.140)	(0.046)**	(0.012)**	(0.009)***
Time since last	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001	-0.0001
plot	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Years since	-0.000	-0.000	0.003	-0.000	-0.000	-0.000
Independence	(0.065)*	(0.203)	(0.037)**	(0.071)*	(0.061)*	(0.074)*
Polity t-1		0.000				
		(0.940)				
Geographic						0.018
Concentration						(0.913)
Social					0.000	
Fractionalization					(0.290)	
Natural				0.001		
Resource Rents				(0.711)		
Income			0.003			
Inequality			(0.475)			
Observations	6970	5835	4640	6000	6970	6780
No of events	254					

Notes: Probit estimation. Robust p values in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2: Determinants of Plots (Annual Data)

	(1)	*(2)*	*(3)*
	Probit	Poisson	Ordered Probit
Per capita	-0.078	-0.100	-0.106
income t-1	(0.249)	(0.350)	(0.110)
Growth t-1	-0.013	-0.016	-0.009
	(0.179)	(0.202)	(0.287)
Ethnic	0.133	0.260	0.096
dominance	(0.148)	(0.062)*	(0.274)
Time since last	-0.0003	-0.001	-0.0003
plot	(0.000)***	(0.000)***	(0.000)***
Years since Independence	-0.000	-0.001	-0.000
	(0.164)	(0.211)	(0.167)
Observations	1394	1394	1394
No of events	196	196	196

Notes: p values in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3: Coup Attempts and Coups d'Etat

	(1)	*(2)*	*(3)*	*(4)*
	Attempt	Coup	Plots/Attempts	Attempts/Coups
Per capita income t-1	-0.179	-0.235	-0.266	-0.522
	(0.000)***	(0.001)***	(0.051)*	(0.033)**
Growth t-1	-0.009	-0.009	0.005	0.012
	(0.160)	(0.421)	(0.789)	(0.684)
Ethnic dominance	0.076	0.126	-0.241	0.378
	(0.303)	(0.196)	(0.145)	(0.101)
Time since last event	-0.000	-0.000	0.000	0.000
	(0.000)***	(0.002)***	(0.556)	(0.005)***
Years since Independence	-0.000	-0.004	0.000	-0.011
	(0.153)	(0.314)	(0.860)	(0.310)
Observations	6970	6970	254	144
No of events	144	61	144	61

Notes: Probit estimation. Robust p values in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: Military Expenditure, Military Conditions and Aid

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
	Probit	Includes generated regressor	Probit	2 stage Probit Least Square	Probit	2 stage Probit Least Square
Per capita	-0.101	-0.100	0.169	-0.522	-0.142	-0.133
income t-1	(0.037)**	(0.069)*	(0.253)	(0.296)	(0.002)***	(0.017)**
Growth t-1	-0.020	-0.027	-0.018	0.004	-0.023	-0.022
	(0.007)***	(0.006)***	(0.545)	(0.938)	(0.011)**	(0.019)**
Ethnic	0.232	0.131	0.146	0.220	0.182	0.182
dominance	(0.001)***	(0.075)*	(0.599)	(0.478)	(0.005)***	(0.006)***
Time since last	-0.0001	-0.0001	-0.00003	-0.0001	-0.0001	-0.0001
plot	(0.000)***	(0.000)***	(0.394)	(0.112)	(0.000)***	(0.000)***
Years since	-0.000	-0.000	0.000	-0.001	-0.0004	-0.0004
Independence	(0.049)**	(0.053)*	(0.918)	(0.297)	(0.065)*	(0.108)
Military	-0.006	0.237				
Expenditure	(0.652)	(0.045)**				
Military			-0.000	0.00006		
Conditions			(0.115)	(0.296)		
Aid					-0.005	-0.002
					(0.075)*	(0.629)
Observations	5560	4630	775	775	5330	5330

Notes: p values in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

Appendix Tables

A1: Descriptive Statistics

Variable	*Mean*	*Std. Dev.*	*Min*	*Max*	*Obs*
Plot	.0318	.176	0	1	10560
Attempt	.0181	.133	0	1	10560
Coup	.0078	.088	0	1	10560
Per capita income (const US$)	821.46	1204.92	49.32	8502.14	8300
Per capita income growth (%)	.580	4.744	-44.5781	31.67	7360
Ethnic dominance (dummy, 45-90% of pop.)	.4	.490	0	1	9675
Time since last plot (days)	3170.64	3339.11	0	15997	10560
Time since Independence (years)	52.741	224.05	0	1602	10320
Polity (index)	-3.889	5.730	-10	10	7505
Income Inequality (Gini coefficient)	48.24	10.23	28.9	70.66	6600
Aid (% of GDP)	11.071	11.387	.0005	95.20	7455
Military Expenditure (% of GDP)	2.913	3.455	.03	37.5	6805

Table A2: Instrumenting Military Conditions and Aid: First Stage Regressions

	(1)	*(2)*
	Military Conditons	Aid
Per capita income t-1	8380.34	-4.168
	(0.000)***	(0.000)***
Growth t-1	-386.5	-0.080
	(0.000)***	(0.007)***
Ethnic dominance	-1440.54	1.136
	(0.000)***	(0.000)***
Time since last plot	0.553	0.0003
	(0.000)***	(0.000)***
Years since independence	5.192	-0.0001
	(0.000)***	(0.856)
Cumulated inflation	0.101	
	(0.000)***	
Ex-French colony	5269.74	
	(0.000)***	
Cumulated military leadership	210.500	
	(0.000)***	
French Aid x language		-0.567
		(0.000)***
French Aid x religion		-0.332
		(0.001)***
French Aid x distance		13179.1
		(0.000)***
French Aid x pol. similarity		-0.297
		(0.000)***
UK Aid x language		-1.084
		(0.000)***
UK Aid x distance		2877.463
		(0.000)***
US Aid x distance		-1203.441
		(0.000)***
Japanese x distance		5994.791
		(0.000)***
German Aid x religion		0.659
		(0.000)***
German Aid x distance		-4146.222
		(0.000)***
Adj R2	0.81	0.54
Observations	775	5330

Notes: First stage regression results, p values p values in parentheses,
* significant at 10%; ** significant at 5%; *** significant at 1%.

Data Sources:

Coups d'Etat, attempted coups and plots
Source: McGowan, 2003.

Economic growth
Using WDI 2003 data for GDP per capita we calculated the annual growth rates.

GDP per capita
We measure GDP per capita annually. Data are measured in constant 1995 US dollars and the data source is WDI 2003.

Natural Resource Rents
Using data from the World Bank's adjusted savings project we calculated the rents for each commodity by subtracting the cost from the commodity price. We then multiplied the rents per unit by the amount extracted and summed across the different commodities. We then calculated the share of rents in GDP. Since the rents are provided in current US dollars we used the WDI 2003 GDP in current dollars to calculate this share. Natural resources for which rent data were available are: oil, gas, coal, lignite, bauxite, copper, iron, lead, nickel, phosphate, tin, zinc, silver and gold. The data are are described in Hamilton and Clemens (1998) and available from:
http://lnweb18.worldbank.org/ESSD/envext.nsf/44ByDocName/GreenAccountingAdjustedNetSavings

Polity
'Polity' is the combined score of democracy and autocracy and ranges from –10 (least democratic) to +10 (most democratic). The data are described in Jaggers and Gurr (1995). Source: http://www.cidcm.umd.edu/polity/index.html.

Geographic Dispersion of the Population
We constructed a dispersion index of the population on a country by country basis. Based on population data for 400km^2 cells we generated a Gini coefficient of population dispersion for each country. A value of 0 indicates that the population is evenly distributed across the country and a value of 1 indicates that the total population is concentrated in one area. Data is available for 1990 and 1995. For years prior to 1990 we used the 1990 data. We would like to thank Uwe Deichman of the World Bank's Geographic Information System Unit for generating this data. He used the following data sources: Center for International Earth Science Information Network (CIESIN), Columbia University; International Food Policy Research Institute (IFPRI); and World Resources Institute (WRI). 2000. Gridded Population of the World (GPW), Version 2. Palisades, NY: IESIN, Columbia University. Available at
http://sedac.ciesin.org/plue/gpw.

Ethnolinguistic and religious fractionalization
We proxy social fractionalization in a combined measure of ethnic and religious fractionalization. Ethnic fractionalization is measured by the ethno-linguistic fractionalization index. It measures the probability that two randomly drawn individuals

from a given country do not speak the same language. Data are only available for 1960. In the economics literature this measure was first used by Mauro (1995). Using data from Barrett (1982) on religious affiliations we constructed an analogous religious fractionalization index. Following Barro (1997) we aggregated the various religious affiliations into nine categories: Catholic, Protestant, Muslim, Jew, Hindu, Buddhist, Eastern Religions (other than Buddhist), Indigenous Religions and no religious affiliation.

The fractionalization indices range from zero to 100. A value of zero indicates that the society is completely homogenous whereas a value of 100 would characterize a completely heterogeneous society.

We calculated our social fractionalization index as the product of the ethno-linguistic fractionalization and the religious fractionalization index plus the ethno-linguistic or the religious fractionalization index, whichever is the greater. By adding either index we avoid classifying a country as homogenous (a value of zero) if the country is ethnically homogenous but religiously divers, or vice versa.