Explaining African Military Coups d'Etat, 1960-1982

THOMAS H. JOHNSON
ROBERT O. SLATER
The Orkand Corporation

PAT MCGOWAN
Arizona State University

The purpose of this article is to contribute to the theoretical understanding of African military coups d'etat. We begin by replicating a well-known model (Jackman, 1978) that purports to identify the structural determinants of coups d'etat within the states of Sub-Saharan Black Africa. When the research problem is changed slightly to focus exclusively on military coups, we find major weaknesses in the original Jackman model. We then extend and refine this model and thereby account in a theoretically meaningful fashion for 91% of the variation in military coups within 35 Black African states from 1960 through 1982. Our major substantive findings indicate that Black African states with relatively dynamic economies whose societies were not very socially mobilized before independence and which have maintained or restored some degree of political participation and political pluralism have experienced fewer military coups, attempted coups, and coup plots than have states with the opposite set of characteristics.

Who is to guard the guards themselves? (Juvenal, circa 60 AD; cited in Welch & Smith, 1974, p. 1)

Clubs become trumps when no rule of trump is established. (Thomas Hobbes, cited in Zimmerman, 1979a, p. 406)

The class that bears the lance or holds the musket regularly forces its rule upon the class that handles the spade or pushes the shuttle. (Gaetano Mosca, cited in Welch & Smith, 1974, p. 8)

In this country there are, in the end, only two parties, the civilians and the soldiers. (then President of Nigeria, Shehu Shagari, 1979, cited in Time, January 16, 1984, p. 25)

Harold Lasswell (1965, p. 3) has described political science as “the study of changes in the shape and composition of the value patterns of society.” In a famous earlier essay he wrote that to study politics one must focus on the exercise of influence and the influential who exist within societies and who shape societal value patterns by their determination of who gets what, when and how (Lasswell, 1936).

The involvement of the military in determining who gets what, when and how in Africa south of the Sahara is all too apparent when one considers the rash of military interventions into government and politics in these very weak states (Jackson & Rosberg, 1982) since they gained independence.

Our recently collected data indicate that from 1960 through 1982, of the 45 majority-ruled states of Sub-Saharan Africa 25 (55%) have experienced 52 successful military coups d'etat. There were also 56 attempted coups and 102 reported coup plots. In sum, 38 of the 45 countries (84%) saw some form of military intervention between the beginning of 1960 and the end of 1982. The African military coup d'etat has accomplished the transfer of power and influence from one set of influentials to another much more frequently than have elections and other forms of constitutionally sanctioned regime change. For better or worse, the study of national politics in Black Africa is rapidly being reduced to the study of military intervention and military rule.

Coups d'etat, their causes, and their consequences have long been of intense interest to both

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Explaining African Military Coups d'Etat

An ability to explain the conditions that prompt coups and perhaps thereby to predict their occurrence would greatly contribute to our understanding of the dominant mode of governmental change in Black Africa. Explaining military coups is not an easy task, however, because they are clearly the result of a complex mix of historical, political, personal, economic, military, social, ethnic, and cultural factors. There is no single, easily identified variable that can be used to explain or to predict the likelihood that African militaries will seize state power (Zimmerman, 1979a, b), because these states manifest divergent historical experiences, cultural patterns, and political economies, and this diversity is increasing each year.

Given the present state of our knowledge and theories, it is not surprising that point predictions that a coup will occur in a given country within a given time are infrequent and dubious. Paradoxically, our admitted inability to predict the occurrence of specific coups has led some scholars also to argue that coups cannot be explained systematically. For example, Zolberg (1968a) has argued forcefully that coups in Africa are a random phenomenon unrelated to structural characteristics of African societies and their international settings. Coups may occur anywhere at anytime, and according to Zolberg the best that scholarship can do is to reconstruct what happened and why on a case-by-case basis after the fact. Similarly, Decalo (1976) sees coups to be related only to one common factor, the idiosyncratic personal rivalries and interests of the coup makers and their opponents. Without knowledge of these personal networks of friendship and enmity, coups cannot be explained, much less predicted, for like Zolberg, Decalo sees them to be unrelated to structural phenomena.

The research reported in this article adopted an alternative approach. We focused on the identification of the internal and external structural conditions and trends that in combination will permit us to explain theoretically military interventions in the states of Sub-Saharan Africa during the period 1960-1982. We address the problem of prediction beyond the end of 1982 elsewhere (Slater, Johnson, & McGowan, unpublished).

Replication

We are not alone in believing that coups d'état are systematically related to societal characteristics and the international settings of societies. Our review of the literature led us to conclude that the most successful published systematic study of the African coup d'état was Robert W. Jackman's (1978) article, "The Predictability of Coups d'Etat: A Model with African Data." Our first step, then, was to attempt to replicate Jackman's results with our new, expanded data set.

In order to measure as reliably and validly as possible the incidence of coups d'état for 30 Black African states from 1960 through 1975, Jackman (1978, p. 1264-1265) followed the earlier research of Morrison et al. (1972, p. 128) and gave each state the sum of one point for each reported coup plot, three points for each attempted coup, and five points for each successful coup (see Table 2 for his cases and his resulting index scores). His final index ranged from zero for The Gambia to 46 for Benin (ex-Dahomey). The mean value of his index was 13.97, with a standard deviation of 12.29, and it was therefore slightly positively skewed.

Jackman used six different news chronologies to collect his data and elsewhere discusses their usefulness as sources of information on African coups and associated elite instability events (Jackman & Boyd, 1979). The reliability of his index, which includes "all" reported coup-related events whether or not military elements were involved, was demonstrated by correlating it with Morrison et al.'s (1972, p. 128) earlier independent index of elite instability. The resulting $r$ was .95, an excellent level of reliability. This index, then, became Jackman's dependent variable.

As Table 1 (Col. 1) shows, Jackman's statistical model was quite robust. With only four substantive independent variables and three interaction terms he was able to explain 84% of the variation...
in coups d'etat across 29 Black African states from 1960 through 1975. Even more important, however, Jackman's model is strongly grounded theoretically.

Basing his argument on Deutsch (1961), Jackman (pp. 1262-1263) posited that early, rapid social mobilization of African societies should have a destabilizing effect on their post-independence governments, and his results (Table 1, Col. 1) confirm the Deutsch-Jackman hypothesis. Jackman (p. 1263) also reasoned that cultural pluralism could conceivably have three effects on the incidence of coups in tropical Africa. First, ethnically fragmented societies are inherently unstable (Rabushka & Shepsle, 1972, among others). Second, cultural pluralism may interact with other factors, such as social mobilization, to create nonadditive effects on instability. Finally, cultural pluralism may be seen as analogous to political pluralism, thereby promoting stability as long as no single ethnic group is proportionately dominant within society (Coleman, 1960, p. 368).

Jackman's results indicate that a dominant ethnic group (the opposite of cultural pluralism) increases instability in African states, and that ethnic dominance interacts with multipartyism (party dominance) to increase instability further.

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Table 1. Regressions of Coups d'Etat, 1960 to 1975, on Mobilization, Pluralism, Party Dominance and Turnout

<table>
<thead>
<tr>
<th>Variables</th>
<th>Jackman's 1978 Result&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Our First Replication&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Our Second Replication&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social mobilization (M)</td>
<td>.227 (.073)</td>
<td>22.729 (7.287)</td>
<td>25.330 (6.641)</td>
</tr>
<tr>
<td>Ethnic dominance&lt;sup&gt;c&lt;/sup&gt; (C)</td>
<td>27.666 (7.142)</td>
<td>27.666 (7.142)</td>
<td>30.382 (6.425)</td>
</tr>
<tr>
<td>Party dominance (D)</td>
<td>-.202 (.091)</td>
<td>-20.218 (9.088)</td>
<td>-15.470 (7.316)</td>
</tr>
<tr>
<td>Turnout&lt;sup&gt;d&lt;/sup&gt; (P)</td>
<td>-23.047 (7.838)</td>
<td>-23.047 (7.838)</td>
<td>-20.789 (7.379)</td>
</tr>
<tr>
<td>D*P</td>
<td>.186 (.111)</td>
<td>18.643 (11.161)</td>
<td>15.760 (10.629)</td>
</tr>
<tr>
<td>C*D</td>
<td>-.317 (.104)</td>
<td>-31.702 (10.437)</td>
<td>-34.963 (9.725)</td>
</tr>
<tr>
<td>Constant</td>
<td>19.129 (7.326)</td>
<td>19.129 (7.326)</td>
<td>14.732 (5.738)</td>
</tr>
</tbody>
</table>

| N                        | 29                                | 29                               | 30                                |
| R²                       | .843                              | .843                             | .837                              |
| R²<sup>e</sup>           | .791                              | .800<sup>e</sup>                 | .794<sup>e</sup>                  |
| F                        | not reported                      | 16.12                            | 16.16                            |
| p of F                   | not reported                      | .0001                            | .0001                            |

<sup>a</sup>Ethiopia excluded.

<sup>b</sup>Ethiopia included.

<sup>c</sup>A binary variable equals 1 when the largest ethnic group constitutes at least 44% of the population, and zero otherwise.

<sup>d</sup>A binary variable that equals 1 when turnout in the last election before independence was more than 20% of the population, and zero otherwise.

<sup>e</sup>Our formula for calculating $\bar{R}^2$ is taken from Pindyck and Rubinfeld (1981, p. 80). $\bar{R}^2 = 1 - (1 - R^2) (N - 1/N - k)$, where $k$ is the number of independent variables. Main table entries are the parameter estimates, and numbers below them are their standard errors. Source for the first column is Jackman (1978, Table 3). Other columns calculated by SAS PROC SYSREG, release 79.6.
and, combined with electoral turnout, it reduces the otherwise-stabilizing effect of turnout. Thus, in terms of its independent additive impact and nonadditive interactions with pre-independence political factors, ethnic dominance (or its opposite, cultural pluralism) is the single most important variable in Jackman's model.

Jackman also considered two expressly political variables, multipartyism and mass political participation. The theoretical literature reviewed by Jackman (pp. 1263-1264) offered conflicting hypotheses about the impact of these political factors on coups d'etat and other forms of political instability. Some, like Huntington (1968), see a multiplicity of political parties as destabilizing, particularly in the presence of high levels of social or political mobilization. Others, like Deutsch (1961), see the democratic pluralism of a multiparty political system as stabilizing because of the reduced scope for action such systems provide for small, conspiratorial groups of coup makers.

As Table 1 shows, Jackman found that party dominance was stabilizing, thereby supporting Huntington's hypotheses that multipartyism was destabilizing on its own and in interaction with a dominant ethnic group. Electoral turnout (political mobilization) was found to be highly stabilizing on its own. In interaction with a dominant ethnic group, its stabilizing effect is weakened and in interaction with party dominance, high turnout limits the destabilizing effects of multipartyism.

In our view, the theoretical plausibility of Jackman's model and the very strong statistical evidence in support of the theory (we report here only his most general statistical result) represent a considerable achievement in cross-national research. Under the assumption that the structural factors identified by Jackman were still operative, we decided to apply his model to our more recent and expanded data set on military coups in the majority-ruled states of Sub-Saharan Africa.

Direct Replication

First, we attempted to replicate Jackman's study exactly in order to confirm the reliability of his results. Professor Jackman kindly made available to us his coup index scores (reported in Table 2), and we independently collected data on his four explanatory variables from the same source he used, the *Black Africa Handbook* (Morrison et al., 1972). We then calculated the second regression reported in Table 1. Our results agreed with Jackman's exactly, which is not always the case in comparative research.

Indirect Replication

Our next theory-building step was to apply his model to our own measure of African military instability events. In our applied research (Orkand Corp., 1983), we attempted to be as comprehensive as possible and collected instances of military interventions in government and politics for all 45 currently independent, majority-ruled states of Africa south of the Sahara (the 1982 membership of the Organization of African Unity, excluding Morocco, Algeria, Tunisia, Libya, and Egypt, and also excluding minority-ruled Namibia and the Republic of South Africa).

Our Total Military Involvement Score (TMIS) was constructed exactly as were the Morrison et al. (1972) and Jackman (1978) indexes except that we included coups, attempted coups, and reported coup plots only if elements of the state's military, security, or police forces played a role in the event. We did this because our theoretical focus is on the military coup d'etat in Black Africa and not on general elite instability as studied by Morrison and Jackman. The time period covered was also as inclusive as possible, January 1, 1960 through December 31, 1982. Our events were collected from four primary sources: *Index to the New York Times, 1960—*; *Keesing's Contemporary Archives, 1960—*; *Africa Research Bulletin, 1964—*; and Morrison et al., *Black Africa: A Comparative Handbook*. The Foreign Broadcast Information Service, 1960-1982, was also used to confirm or disconfirm coup plots when only one of our primary sources reported

4Jackman omitted decimal points from his percentage measures of social mobilization and party dominance, whereas we did not, which accounts for the different placement of the decimal points for the regression coefficients of these two variables in our two regressions. Second, our formula for calculating $R^2$ corrected for degrees of freedom (from Pindyck & Rubinfeld, 1981, p. 80) produced a slightly larger result than Jackman's formula.

5Jackman includes Ethiopia in several of his regressions but excludes this case from his final analyses because it was then an ancient kingdom without political parties. Although we find this reasoning acceptable, we were interested to see if the inclusion of Ethiopia in the analysis would make any difference, and so we did the third regression reported in Table 1. We found that adding Ethiopia to the analysis does not make much difference at all, although the statistical evidence suggests that it is something of an outlier.

The only coup d'etat that occurred before 1960 in one of our 45 states was the 1958 coup in the Sudan.
such plots. Table 2 presents the results of this measurement exercise as well as Jackman’s index scores for his 30 cases. 7

When we compare our TMIS index to Jackman’s 29 cases and 1960-1975 time period, we find that TMIS has a mean value of 10.55 and a standard deviation of 10.08. Thus, TMIS records less instability than Jackman’s and is equally positively skewed. Since our theoretical concerns are somewhat more narrow than Jackman’s and our index excludes entirely civilian coup-related events, it should record lower scores, and it is reassuring that it does.

The validity of TMIS can be tested by relating it to Jackman’s index and his independent variables (Table 3); our indexes should be strongly and positively correlated, but not perfectly so, inasmuch as they measure slightly different aspects of coup d’etat. With a correlation coefficient of .911, they do correlate as expected. The validity of the TMIS can be assessed by examining the pattern of its correlations with Jackman’s independent variables in comparison to the same correlations with Jackman’s index. (The notion here is predictive validity (Gurr, 1972), and the correlations should be similar since by far the greatest amount of coup behavior has involved the military.) The pattern of correlations is strikingly similar for both indexes, which indicates both the reliability and validity of the TMIS index.

We then applied Jackman’s model to TMIS to explore the hypothesis that the structural factors he identified are operative when the focus is entirely on military coups d’etat and when new data permit the examination of more African states and a longer time period. First, we repeated Jackman’s result, and we report in Table 4, Col. 2, our first regression with TMIS in which the countries and time period are identical to Jackman’s.

Our initial results were most encouraging in that the signs of all variables are identical to Jackman’s and most coefficients are more than twice their standard errors. Social mobilization is not quite significant at the .05 level, but its coefficient is 1.5 times as large as its standard error and the sign is correct. Party dominance and its interaction term with turnout, $D*P$, are clearly not significantly different from zero. (Note that in Jackman’s original analysis $D*P$ was also not twice its standard error.) Moreover, the total regression is highly significant, and it accounts for over three-quarters of the variance in TMIS, 1960-1975.

This highly positive result suggested that Jackman’s original model might well be useful when applied to our larger set of cases and longer time period (see Table 2). Because a number of Sub-Saharan states have become independent only recently—eight have achieved independence in 1975 or after—we decided to limit our analysis to all states independent since the end of 1970. Several arguments support this decision. First,

The resulting Spearman rank order and Pearson product moment correlation coefficients among the five indexes for our 35 states were:

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<tbody>
<tr>
<td>A</td>
<td>1.00</td>
<td>.94</td>
<td>.97</td>
<td>.93</td>
<td>.63</td>
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<tr>
<td>B</td>
<td>.98</td>
<td>1.00</td>
<td>.92</td>
<td>.99</td>
<td>.83</td>
</tr>
<tr>
<td>C</td>
<td>.96</td>
<td>.98</td>
<td>1.00</td>
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<td>D</td>
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<td>.97</td>
<td>.97</td>
<td>.95</td>
<td>.95</td>
<td>1.00</td>
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</table>

The Spearman rank order coefficients below the diagonal show that the differently weighted, with or without plots, indexes $A$, $B$, $C$, and $D$ are so highly intercorrelated as to be indistinguishable. The rank order of the multiplicative index, $E$, is also highly correlated with the various additive indexes, but when treated as interval data above the diagonal $E$’s correlations decline. This results from the effect on $r$ of sharply varying intervals created by multiplying events for states with high levels of military involvement, e.g., for Ghana TMIS 1960-1982 = 48, $E = 22,000$ and for Uganda TMIS 1960-1982 = 37, $E = 3,888$, but for Liberia TMIS 1960-1982 = 12 and $E = 7$. We conclude that the alternative additive weighting schemes with plots included or not have nothing to offer over TMIS and that multiplicative schemes without some arbitrary transformation will produce an unacceptable degree of positive skewness in the index.
### Table 2. Rank Order of 45 Sub-Saharan African States by Their Total Military Involvement Score (TMIS), 1960-1982

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Total Military Involvement Score</th>
<th>Coups N</th>
<th>Attempted Coups N</th>
<th>Plots N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ghana</td>
<td>32</td>
<td>48</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Benin</td>
<td>46</td>
<td>42</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Uganda</td>
<td>22</td>
<td>37</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Congo</td>
<td>31</td>
<td>33</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>C.A.R.</td>
<td>7</td>
<td>26</td>
<td>3</td>
<td>3</td>
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<tr>
<td>6</td>
<td>Sudan</td>
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<tr>
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<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>42</td>
<td>Lesotho</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>42</td>
<td>Mauritius</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>42</td>
<td>Swaziland</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

| Total | 52 | 56 | 102 |

---

*a Countries excluded from our model estimations.

*b These data were made available by Professor Jackman, for which we thank him. No number indicates that the country was not included in Jackman’s (1978) study.

*c Where states have the same TMIS, they have been ranked on the basis of the number of successful coups they have experienced.
Table 3. Validation of the Total Military Intervention Index, 1960 to 1975 (N=29)*

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Jackman’s Coup Index, 1960-1975</th>
<th>TMIS 1960-1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social mobilization (M)</td>
<td>.413 (.026)</td>
<td>.277 (.146)</td>
</tr>
<tr>
<td>Ethnic dominance (C)</td>
<td>.378 (.053)</td>
<td>.345 (.087)</td>
</tr>
<tr>
<td>Party dominance (D)</td>
<td>-.612 (.000)</td>
<td>-.578 (.001)</td>
</tr>
<tr>
<td>Turnout (P)</td>
<td>-.365 (.052)</td>
<td>-.440 (.017)</td>
</tr>
<tr>
<td>D*P</td>
<td>-.369 (.049)</td>
<td>-.448 (.015)</td>
</tr>
<tr>
<td>C*D</td>
<td>.091 (.639)</td>
<td>.038 (.847)</td>
</tr>
<tr>
<td>C*P</td>
<td>.082 (.674)</td>
<td>.004 (.982)</td>
</tr>
</tbody>
</table>

Correlation of Jackman’s Index with TMIS, r = .911, f = .0001

*Ethiopia is excluded. Entries are zero order Pearson product moment correlation coefficients. In parentheses are their associated probabilities in a two-tailed test of significance. Calculated by SAS PROC CORR, release 79.6.


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Social mobilization (M)</td>
<td>.277 (.073)</td>
<td>10.416 (6.862)</td>
<td>-2.010 (7.973)</td>
</tr>
<tr>
<td>Ethnic dominance (C)</td>
<td>27.666 (7.142)</td>
<td>27.519 (6.726)</td>
<td>19.388 (11.445)</td>
</tr>
<tr>
<td>Party dominance (D)</td>
<td>-.202 (.091)</td>
<td>-9.703 (8.557)</td>
<td>-15.409 (13.027)</td>
</tr>
<tr>
<td>Turnout (P)</td>
<td>-23.047 (7.838)</td>
<td>-17.895 (7.380)</td>
<td>-29.366 (12.316)</td>
</tr>
<tr>
<td>D*P</td>
<td>.186 (.111)</td>
<td>10.942 (10.510)</td>
<td>26.625 (17.540)</td>
</tr>
<tr>
<td>C*D</td>
<td>-.317 (.104)</td>
<td>-35.766 (9.828)</td>
<td>-25.064 (17.166)</td>
</tr>
<tr>
<td>C*P</td>
<td>11.380 (4.529)</td>
<td>9.942 (4.264)</td>
<td>4.176 (7.808)</td>
</tr>
</tbody>
</table>

| N | 29 | 29 | 35 |
| R² | .843 | .793 | .426 |
| R² | .791 | .736 | .303 |
| F | not reported | 11.51 | 2.86 |
| p of F | not reported | .0001 | .0229 |

*Ethiopia is excluded.

bSee Table 2 for a list of the countries included. Entries are the parameter estimates and below them in parentheses, their standard errors. Calculated by SAS PROC SYSREG, release 79.6.
whenever possible, all relevant states should be included in an analysis (Jackman omitted Botswana and Lesotho from his study without offering any justification). Second, time must pass before the cumulative impact of coup-facilitating conditions takes effect, a point stressed by O’Kane (1981, pp. 294-295) and Zolberg (1968a, p. 78). By selecting the end of 1970 as a cutoff point, at least 11 years of independent statehood apply to all of our cases. Third, African independence was achieved in two waves, the first from 1956 (Sudan) through 1968 (Equatorial Guinea, Mauritius, and Swaziland) when 36 states became independent, and a second wave from 1974 (Guinea-Bissau) through 1980 (Zimbabwe), when nine more states were decolonized. Thus, any year between 1969 and 1973 would produce the same partitioning of our cases.

Instead of 36 states independent before the end of 1970, we were able to study only 35, because little relevant data other than our TMIS measure were available for Equatorial Guinea (estimated 1976 population, 310,000). Although we can partition our time period in any way we desire because our coup events were collected on a daily basis, we are concerned with identifying the most general possible structural factors related to military coups in tropical Africa and therefore initially worked with our entire 1960-1982 time period. (See the Technical Note for more discussion of these design issues.) Our data set therefore adds seven years to Jackman’s (1976-1982) and six Sub-Saharan African states (Botswana, Ethiopia, Lesotho, Madagascar, Mauritius, and Swaziland).

When we tried to fit Jackman’s model to our expanded data set (Table 4, Col. 3), problems immediately became evident. Among Jackman’s seven variables, only electoral turnout remains significant, and the entire regression accounts for only 43% of the variance, and only 30% when degrees of freedom are considered. It would appear that although Jackman’s results were satisfactory for his cases and time period, they suffer a nearly complete breakdown when applied just to military coups for six more African states and seven more years.

**Misspecification or Multicollinearity?**

There are four possible reasons for the failure of Jackman’s model to work in this instance. First, statistical problems such as multicollinearity may be a problem both in his original analysis and in our extension. Second, changes since 1975 may cause his model no longer to be appropriate. If this is the case, Jackman cannot be faulted, because structural changes during years subsequent to his research are not a valid basis for criticism of his findings. Third, the model may have broken down because of the inclusion of six new cases that Jackman could have studied but did not. Data on his independent variables were available from Morrison et al. (1972) for Botswana, Ethiopia, and Lesotho, yet he did not include these states in his final analysis. We do not know why he did not include Madagascar (independent in 1960), Mauritius (1968), and Swaziland (1968) except that they were not included in his principal source of secondary data (Morrison et al., 1972). If such a change in the cases examined is the source of the poorness of fit shown in Table 4, then the external validity of Jackman’s original results would be open to serious criticism. Fourth, some form of interaction among statistical problems, time period, and number of cases may be operative.

Given that both Jackman and ourselves have estimated cross-sectional statistical models, problems of autocorrelation cannot arise, but problems of multicollinearity may. Jackman (1978, p. 1269) offers evidence in the form of six bivariate correlations among his four substantive independent variables that multicollinearity “is not a problem with this model.” This is wrong in at least two respects. First, the term multicollinearity “is used to denote the presence of linear relationships (or near linear relationships) among explanatory variables” (Koutsoyiannis, 1973, p. 225). Clearly, six bivariate correlations among only four explanatory variables cannot demonstrate that all possible combinations of Jackman’s seven independent variables are not collinear for his data set. Second, given that three of Jackman’s explanatory variables are interaction terms where one explanatory variable is multiplied by another, it should not be surprising that when all seven of Jackman’s independent variables are examined for our cases and time period, as in Table 5, evidence of multicollinearity is rather strong.

The bivariate correlations we observe among the seven explanatory variables in Jackman’s model as applied to our data suggest that multicollinearity may well be a problem in that the interaction terms are in some cases highly correlated with one of their components or with each other. Following Farrar and Glauber (1967, as described by Koutsoyiannis, 1973, pp. 234-241), we have regressed each explanatory variable against all other such variables in the lower part of Table 5. Computing Farrar and Glauber’s $F$ test for the location of multicollinearity indicates that only social mobilization is *not* collinear with the other

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*Jackman included Ethiopia in some of his preliminary regressions, but did not include it in his final analyses.*
Table 5. Evaluation of Multicollinearity (N=35)\(^a\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>(C)</th>
<th>(D)</th>
<th>(P)</th>
<th>(D*P)</th>
<th>(C*D)</th>
<th>(C*P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social mobilization ((M))</td>
<td>0.023</td>
<td>-0.264</td>
<td>0.156</td>
<td>0.043</td>
<td>-0.090</td>
<td>0.166</td>
</tr>
<tr>
<td>Ethnic dominance ((C))</td>
<td>0.224</td>
<td>0.067</td>
<td>0.128</td>
<td>0.906</td>
<td>0.265</td>
<td></td>
</tr>
<tr>
<td>Party dominance ((D))</td>
<td>0.284</td>
<td>0.488</td>
<td>0.500</td>
<td>0.292</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnout ((P))</td>
<td>0.930</td>
<td>0.148</td>
<td>0.285</td>
<td>0.651</td>
<td>0.658</td>
<td></td>
</tr>
<tr>
<td>(D*P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C*D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(C*P)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)See Table 2 for list of countries.

**explanatory variables.** It would appear, then, that multicollinearity might well be a problem in fitting Jackman's model to our expanded data set.

What are the possible consequences of multicollinearity? Unfortunately, there is no firm agreement in the literature to answer this question (Koutsoyiannis, 1973, pp. 226-230; Pindyck & Rubinfeld, 1981, pp. 87-90). It would appear that although there are exceptions, such as estimated Cobb-Douglas production functions in economic research, in general, multicollinearity will increase the standard error of each regression coefficient associated with a collinear explanatory variable while at the same time the estimated coefficients remain unbiased. Multicollinearity therefore can make it difficult to determine the independent impact of collinear variables in a multiple regression. As a consequence of these inflated standard errors, theoretically important explanatory variables may appear to be insignificant and hence may be dropped from the equation, thereby introducing the theoretically far more serious problem of misspecification bias (Tufte, 1974, pp. 148-155).

Following the discussions in Pyndyck and Rubinfeld (1981, pp. 89-90) and Tufte (1974, p. 152), we did a stepwise multiple regression of this equation to see if either the estimated parameters or their standard errors changed sharply as the second through seventh explanatory variables were added to the equation. They did not. Therefore, although standard tests do suggest the presence of multicollinearity, this is not the reason for the low \(R^2\) and the large standard errors of most variables in the last regression in Table 4, where Jackman's model is estimated for our 35 cases and 23 years. Rather, it would appear that the problem arises from our different samples, in terms of cases, time, or both.

Such an inference is supported when we examine the plot of the residuals from the last regression in Table 4 against the observed values of TMIS for 1960-1982. The plot shows a heteroscedastic pattern in which African states with low values of TMIS tend to have negative residuals (more military intervention predicted than observed) and in which states with high scores on TMIS have quite large positive residuals (considerably less predicted intervention by the military than that actually recorded). Rather than applying Weighted Least Squares or some other technique to correct for the inefficiency introduced in the estimated parameters and predicted TMIS scores caused by the presence of a heteroscedastic error term, the plot strongly suggests that the poor fit we see in Table 4 is the consequence of misspecification, specifically omitted variables (Koutsoyiannis, 1973, pp. 175-189). In other words, by adding seven years of time, six
new African states, or both, Jackman’s model no longer suffices, and once we are certain of the source of this breakdown, we will have to extend his model if we are to explain theoretically Black African military coups between 1960 and 1982.

Table 6 explores the possibilities. The first regression repeats the second regression of Table 4, which exactly replicated Jackman’s (1978) analysis, except that TMIS is the dependent variable and not his coup index. It will be recalled that this result was quite positive and led us to believe that we would be able to use most if not all of Jackman’s model in our own explanatory efforts.

The second regression in Table 6 retains Jackman’s 1960-1975 time period, but increases the number of African states examined from 29 to 35. The third regression holds constant Jackman’s 29 cases, but varies time to include all 23 years (1960-1982). If time is the problem and something has changed in the structure of forces causing coups in Sub-Saharan Africa since Jackman collected his data, then the third regression should fit the data less well than the second, in which time is constant but the sample of countries varies.

Unfortunately for the external validity of Jackman’s model, this is not the case. The second regression is the poorest fitting of the three, explaining only 50% of the variance when degrees of freedom are considered and in which only ethnic dominance, turnout, and the $C*D$ interaction term are significant. To be sure, the third regression does not fit that well either, but it does explain somewhat more variance and four of its explanatory variables are highly significant, while turnout is very nearly twice its standard error.

It would appear, then, that Jackman’s well-known model breaks down when it is evaluated against our new data primarily because we have included six African states not studied by Jackman. That increasing a cross-national sam-

---

### Table 6. Regressions of Total Military Intervention on Mobilization, Pluralism, Party Dominance, and Turnout

<table>
<thead>
<tr>
<th>Variables</th>
<th>TMIS 1960-1975(^a)</th>
<th>TMIS 1960-1975(^b)</th>
<th>TMIS 1960-1982(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social mobilization ($M$)</td>
<td>10.416 (6.862)</td>
<td>-5.093 (5.436)</td>
<td>27.850 (10.477)</td>
</tr>
<tr>
<td>Ethnic dominance ($C$)</td>
<td>27.519 (6.726)</td>
<td>21.763 (7.804)</td>
<td>27.949 (10.270)</td>
</tr>
<tr>
<td>Party dominance ($D$)</td>
<td>-9.703 (8.557)</td>
<td>-17.556 (8.882)</td>
<td>-0.076 (13.066)</td>
</tr>
<tr>
<td>Turnout ($P$)</td>
<td>-17.895 (7.380)</td>
<td>-22.153 (8.398)</td>
<td>-22.073 (11.269)</td>
</tr>
<tr>
<td>$D*P$</td>
<td>10.942 (10.510)</td>
<td>22.027 (11.959)</td>
<td>11.140 (16.048)</td>
</tr>
<tr>
<td>$C*D$</td>
<td>-35.766 (9.828)</td>
<td>-26.810 (11.704)</td>
<td>-36.786 (15.007)</td>
</tr>
<tr>
<td>$C*P$</td>
<td>9.942 (4.264)</td>
<td>2.026 (5.324)</td>
<td>14.438 (6.512)</td>
</tr>
<tr>
<td>Constant</td>
<td>14.768 (6.898)</td>
<td>24.290 (5.873)</td>
<td>8.674 (10.543)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$N$</th>
<th>29</th>
<th>35</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>.793</td>
<td>.590</td>
<td>.675</td>
</tr>
<tr>
<td>$\bar{R^2}$</td>
<td>.736</td>
<td>.502</td>
<td>.586</td>
</tr>
<tr>
<td>F</td>
<td>11.51</td>
<td>5.56</td>
<td>6.23</td>
</tr>
<tr>
<td>p of F</td>
<td>.0001</td>
<td>.0005</td>
<td>.0005</td>
</tr>
</tbody>
</table>

\(^a\)Ethiopia is excluded.  
\(^b\)See Table 2 for a list of countries. Calculated by SAS PROC SYSREG, release 79.6.
people by just over 20% has such serious consequences is a most troubling finding. Countless studies published in the last two decades by sociologists and political scientists work with samples of cases, often in the same article, that vary considerably more than 20%. The stability and external validity of the findings they have reported seem to us to be questionable unless replicated as we have done in this article.

Our earlier point about residual plots indicating missing variables and the poor fit of the third regression in Table 6 suggest that a change in sample is not the only cause of the breakdown in the Jackman model; something may have changed in tropical Africa after Jackman's cutoff date, perhaps post-1973 economic deterioration caused by vastly increased energy prices and weaker demand for Black Africa's exports. A number of states, particularly the Central African Republic, Ghana, Liberia, Mauritania, Uganda, and Upper Volta experienced considerable military intervention in politics between the beginning of 1976 and the end of 1982. These states have large positive residuals when Jackman's model is used to predict their 1960-1982 TMIS scores, indicating that whatever forces were at work to produce these post-1975 interventions, they are not included in Jackman's model.

**Extension**

Jackman's model of African coups is a rather mainstream one, based as it is on notions of modernization and political development produced by American theorists in the 1950s and 1960s. (For an excellent recent critique of this literature, see Higcott, 1983.) These concepts, as modified to apply to Sub-Saharan Africa and with the addition of the key notion of cultural pluralism and its relationship to political instability, worked well for him, but as we have seen, did not work well for us. In general we have no theoretical problems with what Jackman included in his model, but rather with what he may have left out.

It is in this direction that our own explanatory model specification and estimation efforts turned. Specifically, Jackman did not consider two kinds of dynamics which we hypothesize should influence the location and frequency of African coups d'etat: The role and organization of African militaries, and political economy in which economic trends and patterns are seen as affecting political behavior.

**Organizational Factors Affecting Military Intervention**

Theorists who stress organizational factors as causes of military intervention argue that although such structural factors as cultural pluralism, social mobilization, and mass political participation may be important, they should not be considered at the expense or exclusion of variables internal to the armed forces themselves. In particular, the works of Bienen (1968, 1971), Decalo (1976), Gutteridge (1969), Welch (1970), Welch and Smith (1974), and Zolberg (1968a, b) argue that factors specific to African military organizations encourage or inhibit interventions in politics. Nordlinger's (1977, pp. 64-76) synthesis of this literature emphasizes defense of the military's collective corporate interests—particularly military budgets, organizational autonomy, and survival in competition with other government entities such as mass parties—and the failures of poorly institutionalized civilian governments to rule effectively and to promote economic growth (1977, pp. 85-91). Zolberg (1968a, b) has argued persuasively that when civilian governments shift away from political pluralism and democracy toward authoritarianism and repression, the political centrality of the military as the principal agent of repression rises, and its motivation to intervene openly on its own grows.

Although space considerations preclude a full discussion of the numerous, specifically military factors that have been suggested in the literature as affecting the chances of military intervention, these factors can for the most part be subsumed under two general categories, the military's role in society and its cohesion as an autonomous organization. The likelihood of intervention increases when the military's role in society is not professional; when civilian and military institutions, values, and roles are conflated and when defense against external threat is not the military's primary role (Huntington, 1957; Welch & Smith, 1974, p. 41). In such situations the propensity to intervene is further augmented if the military is among the "stronger" institutions in a society (as in its share of central government expenditure) and when its nationalism is overly zealous (Austin, 1966). The presence of high military cohesion increases the probability of coups, particularly when military leadership is sociologically distinct from civilian elites. A lack of cohesion scores considerably above zero for these states. The other two states added to the analysis, Ethiopia and Madagascar, both score above the mean value of TMIS in both the 16- and 23-year periods. Jackman's model predicts less TMIS for these two states than they have actually experienced. All six additional states are outliers when Jackman's model is applied to our 35 country data set.
facilitates more coups after the military's first intervention takes place (Welch & Smith, 1974, pp. 14-15).

In Black Africa military cohesion is problematic because of the acute cultural pluralism of most African states. This pluralism has a number of theoretical implications. First, as suggested above, the lack of cohesion caused by cultural pluralism can inhibit the military from carrying out coordinated political interventions, if that pluralism is reflected in the military itself. Second, lacking cohesion, actions as drastic as military coups can possibly cause the military's own disintegration by turning its ethically differentiated members against one another as apparently happened in Uganda after the 1971 Amin coup. Third, to the extent that recruitment to the intervention takes place (Welch & Smith, 1974, pp. 14-15).

Political Economy and Military Intervention

A second possible approach ignored by Jackman is that of political economy in which economic trends and patterns are seen as affecting political behavior such as coups d'état. All Sub-Saharan African states are economically underdeveloped, and therefore all African governments claim that economic development is one of the major objectives against which their performance in office can be assessed, both locally and internationally. One does not have to be a vulgar Marxist to recognize that a stagnating economy in conjunction with rising unemployment and underemployment, recurrent balance-of-payments crises, and flagrant corruption create an environment in which military coups can become highly probable events. That there may be a relationship between economic performance and military intervention has been recognized for some time in the study of African politics. Nelkin (1967, p. 231) in her early study of the mid-1960s African coups concluded that "the issues which best account for the ease of military access to power, relate to economic circumstances and their social consequences." Welch and Smith (1974, p. 26) in their subsequent survey of the literature propose that "the likelihood of military intervention rises with a perceived deterioration of economic conditions, especially if accompanied by a belief that the government cannot resolve, or is responsible for, this deterioration." In such circumstances the military coup offers some actors an apparently swift and cheap way to reverse unfavorable economic trends (O'Kane, 1981, p. 293-294).

In the face of economic deterioration, the military may be motivated to act for at least two reasons. First, the military itself can have its position threatened by worsening economic conditions. Cuts in military budgets necessitated by 'austerity' programs are seldom welcome and can directly impact upon the military's lifestyle, size, equipment, and training programs. Second, if economic downturns result in social dislocation in the form of labor unrest and strikes, heightened class antagonisms, and anomic violence, this can be perceived by the military as threatening the national interest and thus prompt them to act to save the situation (Welch & Smith, 1974, p. 67). A further interesting variant of the political economy approach ignored by Jackman is the notion of economic dependency in the context of core-periphery relations within the international political economy. Contemporary approaches to comparative politics (Chilcote, 1981, 1982) now stress that states are members of a larger world system that is hierarchically organized and that in the periphery of this system (Africa), dependent economic development is often associated with weak states subject to praetorianism.

O'Kane (1981, pp. 289-293) sees the internationally determined price fluctuations of primary product commodity exports (what one of us has elsewhere called "market dependency," McGowan & Smith, 1978) as highly conducive to coups in countries that are poor and overly dependent on the export of a few such commodities. Since the onset of energy price increases and worldwide economic stagnation in 1973, the non-petroleum exporting African states have struggled to survive economically. By 1983 the U.S. State Department noted that "Africa is the only area in the world where national growth rates are often negative and where per capita food production is declining" (Bureau of Public Affairs, 1983, p. 1). After nearly ten years of economic crisis it is entirely plausible to reason that economic deterioration and dependence in Black Africa has been a major force behind the military interventions of the 1970s and 1980s.

Empirical Results of Model Extension

Based upon this reasoning, we examined a number of alternative sub-models focusing on theories of political development and social change (as used by Jackman), characteristics of African military establishments, domestic and in-

ternational economic performance, competition over increasingly scarce resources given Black Africa's current economic problems, and international economic dependency. In general, none of these sub-models accounted well for TMIS 1960-1982 on its own, but each did contain variables theoretically related to coups. (For more detail see McGowan, Johnson & Slater, unpublished.) Combining the results of our sub-model analyses permitted us to specify and to estimate the regressions reported in Table 7.12

The first regression in Table 7 includes ten explanatory variables from five theoretical traditions in the study of military involvement in African politics: characteristics of the military itself, political development and the lack thereof, social mobilization, national political economy, and international economic dependence. Each variable is highly significant, and overall the regression accounts for 91% of the variance in TMIS 1960-1982, or 87% when degrees of freedom are considered.

We find that two features of the military lead to coups and the associated events of plots and coup attempts: military cohesion and the political centrality of the military. When other factors are equal, African states whose militaries are large and ethnically homogeneous experience more military involvement in politics than states with smaller, culturally plural militaries, as predicted by Welch and Smith (1974, pp. 14-15). We find that, as Zolberg (1968a, b) argued, in African states where the military was relatively central because of its role in repression and because of its claim on state revenue, the military subsequently has become involved in politics. (Very little of TMIS 1960-1982 occurs before 1966.) Although the strength of our regression analysis refutes arguments that African coups d'etat are the result of unpredictable personal and idiosyncratic features of African military influentials (Decalo, 1976), our results do suggest strongly that variables specific to African military establishments must be considered in any search for the structural determinants of military interventions in African politics.

Two features of national politics are strongly stabilizing for our 35 African states: pre-independence electoral turnover and the degree of political pluralism around 1975. The highly significant negative coefficient of our political pluralism variable indicates that African states that have either maintained or restored some degree of party competition have considerably less military involvement than more authoritarian states. It should be noted that this finding, based on a mid-1970s variable, contradicts Jackman's (1978, p. 1271) finding that a pre-independence measure of pluralism (multipartyism) was destabilizing. The "ideal" situation regarding political parties and pluralism in today's Africa would appear to be a strong mass party (in terms of having nationwide rather than regional or ethnic-based electoral support and in terms of holding legislative seats), which also tolerates or permits minority parties to exist, to compete in elections, and to hold seats in the legislature, at least as long as they are not a threat to its continued rule (e.g., Botswana).

As Jackman did, we find that the early social mobilization of African societies is strongly related to subsequent military coups and other interventions. States whose populations were still primarily in agriculture around 1960 have experienced significantly less praetorianism than more mobilized societies. Also, early and rapid population growth in the capital city of the African state (where most coups occur) is equally destabilizing. This finding represents a troubling paradox for Africa, in that it suggests that those states where social change is happening, something both African leaders and masses presumably want, are most likely to experience generally unwanted praetorianism.

In addition to aspects of the African militaries themselves, we extend Jackman's model most in the political economic sphere. As Table 7 shows, we find that three measures of positive economic performance are all highly stabilizing and, con-

versely, that African states whose economies have not performed well in the 1960s and 1970s are prone to coups. States where the ratio of industrial jobs to all employment increased the most between 1960 and 1978 have been relatively stable, as have states whose economies grew in the late 1960s and whose mid-1960s export performance was superior. Finally, as O’Kane (1981) has argued, states whose commodity exports became less diversified in the early 1960s have experienced more military interventions than those whose economic or market dependency lessened in the same period.

To summarize, we find that African states with relatively dynamic economies whose societies were not much mobilized before independence and which have maintained or restored some degree of political participation and pluralism while keeping their military forces small and nonpoliticized have been the most stable, whereas countries with the opposite set of characteristics have experienced considerable political instability in the form of military coups and associated forms of military intervention in politics.

How stable are these results? An examination of a plot of the residuals from the first regression in Table 7 against our observed TMIS 1960-1982 values indicated a homoscedastic error variance. Stepwise regression analysis of the same regression indicated great stability in the estimated values of the parameters and their standard errors, thereby suggesting that multicollinearity is not a problem in this model. (The estimated standard errors are also much less than one-half their

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<tr>
<td>Army cohesion, ca. 1970</td>
<td>.319</td>
<td>.325</td>
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<td></td>
<td>(.113)</td>
<td>(.122)</td>
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<td>Army political centrality, ca. 1965</td>
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<td>.0006</td>
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<td></td>
<td>(.0016)</td>
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<td>Political pluralism, 1975</td>
<td>-76.312</td>
<td>-41.893</td>
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<tr>
<td></td>
<td>(8.863)</td>
<td>(9.516)</td>
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<tr>
<td>Turnout, pre-independence</td>
<td>-17.986</td>
<td>-12.809</td>
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<td></td>
<td>(6.521)</td>
<td>(7.001)</td>
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<tr>
<td>Percentage of population in agriculture, 1960</td>
<td>-.653</td>
<td>-.287</td>
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<td></td>
<td>(.095)</td>
<td>(.102)</td>
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<tr>
<td>Percentage of increase in the population of the capital city, 1950-1960</td>
<td>.043</td>
<td>.038</td>
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<td></td>
<td>(.008)</td>
<td>(.009)</td>
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<tr>
<td>Absolute increase in percentage of industrial jobs, 1960-1978</td>
<td>-180.339</td>
<td>-163.616</td>
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<td></td>
<td>(68.881)</td>
<td>(73.954)</td>
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<td>(4.228)</td>
<td>(4.540)</td>
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<tr>
<td>Ratio of exports-imports to GNP, 1965</td>
<td>-.763</td>
<td>-.306</td>
</tr>
<tr>
<td></td>
<td>(.137)</td>
<td>(.147)</td>
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<td>Percentage increase in export commodity concentration, 1960-1965</td>
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<tr>
<td>Constant</td>
<td>79.708</td>
<td>42.082</td>
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<td>(10.115)</td>
<td>(10.860)</td>
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\[ N = 35 \]
\[ R^2 = .906 \]
\[ R^2 = .872 \]
\[ F = 23.24 \]
\[ p \text{ of } F = .0001 \]

\[^a\text{See Table 2 for a list of countries. Calculated by SAS PROC SYSREG, release 79.6.}\]
coefficients.) Since all but our measures of political pluralism and industrial-employment creation date from 1970 or before, we partitioned our TMIS index and did a second regression reported in Table 7 where only TMIS 1970-1982 is dependent. Both the political centrality of the military around 1965 and pre-independence electoral turnout cease to be significant, thereby indicating that they are mainly related to 1960s military interventions. The remaining eight explanatory variables retain their signs and statistical significance, which indicates the stability of our primary results.

Conclusion

Paradoxically, our findings contradict, support, and extend Jackman's (1978) study. The contradiction is in the fact that the addition of six new countries and seven years of behavior to the analysis causes a rather complete breakdown of his well-known model. But in extending his analysis and producing a theoretically relevant and statistically robust model of African military coups d’etat, we have supported his basic conclusion that "instability of this kind is not random with respect to political and social structure" (1978, p. 1273, Jackman’s emphasis). Although it is true in a phenomenological sense that every plot, coup, and attempted coup are the consequences of the motivations and decisions of small groups of men acting in secret, both Jackman’s and our findings contradict those who see African military intervention as an unpredictable, random phenomenon (Decalo, 1976, p. 22; Zolberg, 1968b, p. 71).

Rather, it would appear that an identifiable structure of forces encourages or discourages coup makers. Agreeing with Jackman, we see social mobilization as favoring coup decisions, whereas political participation lessens them. Where we extend Jackman and thereby shed new light on the role of the military in African politics is to introduce as important explanatory variables political pluralism and domestic and international economic performance. As peripheral members of the world system, Sub-Saharan African states are generally weak and subject to praetorianism. It would appear that in states where influentials have internalized the rules of the capitalist world economy and thereby coped relatively well with the very harsh international economic environment of the last 10 years, these states have lessened their peripherality to a degree, strengthened their civilian structures somewhat, and experienced less military interventionism than states whose influentials have not coped as well (Wallerstein, 1979, pp. 66-94).

Technical Note

This article has shown how a small change in the sample of cases and time period studied can have great effects on the substantive results of analysis. It thus raises some interesting technical questions for quantitative, cross-national research. First, what should be the space-scope or universe of cases examined in such studies? Clearly, the specific research question addressed should be the basic determinant of the sample used in any cross-national study. Since coups d’etat involve the extralegal seizure of state power, the cases should be (nation) states. But which states? Again, because our focus is on coups d’etat, we would argue that the sample studied should not comprise all states in a given year such as 1970 because such a sample would include many states of the First and Second Worlds where coups are not a theoretical or practical problem. All Third World states, then? In principle, we would answer yes, if one’s research interest is the coup d’etat. Since our stated focus is the African military coup d’etat, we have excluded Latin American, Middle Eastern, and Asian Third World states from our study. This may be justified, not only because of our interest in replicating Jackman’s (1978) earlier research, but also because the states of Black Africa share a continuing record of coup activity into the 1980s.

Our space-scope was thus the 50 members of the Organization of African Unity plus Namibia and the Republic of South Africa. We excluded the five North African states from Morocco through Egypt because we see them as belonging to the Middle Eastern, Arab Islamic culture complex whose military patterns differ from those of Black Africa. As long as RSA and Namibia re-
main under minority rule, we believe that they too should be excluded from a study such as ours.

Thus, left with 45 politically independent, majority-ruled states of Black Africa, we further reduced our sample to the 36 that have been independent since 1970 in order to permit sufficient time to pass for the presumed effects of structural forces to appear. Because of a lack of data for our independent variables, we were also forced to exclude Equatorial Guinea, thus ending up with 35 states in our sample.

We would make four points about the space-scope of this article and in cross-national research in general. First, given our theoretical focus, the sample of states is appropriate. Second, samples in quantitative cross-national research are always somewhat arbitrary and are viewed as more or less valid to the extent that scholars accept or reject such classificatory terms as Latin America, Black Africa, Third World, or Periphery (Dogan & Pelassy, 1984; Przeworski & Teune, 1970). Third, how the sample of cases was arrived at should always be explained, hopefully in theoretical terms and not just because of data availability from among, for example, all "Third World states." Finally, our data problems with Equatorial Guinea suggest that cross-national researchers would be well advised to adopt as a rule-of-thumb the World Bank guideline of excluding from samples the ministates of our world with populations of less than one million (World Bank, 1980).

A second question of some importance is the definition of time-scope in quantitative cross-national research. In this article we have worked with three cross-sections of varying lengths, 1960-1975, 1960-1982, and 1970-1982. We started with 1960 because it was only in that year that a sizable number of Black African states achieved political independence. Our ending date was simply as recent as possible, given the research resources available to us. It was not necessarily the case, however, that we had to work with cross-sections aggregating rather long time periods. Given that our military intervention data were collected on a daily basis, we could have worked with annual, half-yearly, or even quarterly time series. A second alternative was to work with several cross sections, thereby utilizing a pooled time-series-cross-sectional design as in Zuk and Thompson's (1982) recent study of the spending patterns of military regimes.

At the present time, genuine time-series analysis of the dynamics of military intervention in African politics is precluded by the absence of annual or quarterly data for most African countries on more than a few basic economic variables. There is also the as-yet-unaddressed problem of how to score the dependent variable, in that coups, plots, and attempted coups are irregular events and a time series of such events would be mainly zeros recording no events in most time periods. Nevertheless, as Brunner and Liepelt (1972) showed, inferences about dynamic phenomena such as coups d'etat are best based upon dynamic research designs and data analysis strategies.

Given current data constraints and the dubious external validity of studying but a few states via true time-series analysis, the pooled time-series—cross-sectional treatment of time-scope would appear to be the most promising future approach in quantitative cross-national research (Pindyck & Rubinfeld, 1981, pp. 252-261). Thus, instead of estimating a model for 35 countries at one point in time (N=35), we could break our time-scope of 23 years into, say, four roughly equal time periods and estimate the model against a data set of 35 states and four time periods (N=140). The degree to which the model's parameters are or are not stable with respect to time would reveal actual structural persistence or change as may have occurred in our data after 1975. A further refinement would be to specify a simultaneous set of equations to be estimated against a pooled time-series—cross-sectional data set.

There is a danger here of techniques overtaking the quality of the data for our independent variables. There are also the problems of weak theory in the area of comparative military studies making it difficult to specify systems of equations and the essentially arbitrary nature of the time periods in pooled time-series—cross-sectional designs; since data are gathered for each time period before analysis and therefore, without strong theory, the periods selected are very likely to be conventional ones, such as five years or with small numbers of states, one year long. Nevertheless, because our article is only the latest and not the last word on these matters, we hope our discussion of these issues will stimulate others to incorporate the considerations raised in this Technical Note in their cross-national research on military coups and other important political phenomena.

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