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JUNE 1978

ACN 78032

ASSESSING THE IMPACT OF MILITARY INTERVENTION:

A QUASI-EXPERIMENTAL APPROACH

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(6) ASSESSING THE IMPACT OF MILITARY INTERVENTION: A QUASI-EXPERIMENTAL APPROACH

by

(12) 52 p.

(10) Richard A. Skinner

(11) 1 June ~~1~~ 1978

(9) Military issues research memos

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FOREWORD

This memorandum was presented at the Military Policy Evaluation: Quantitative Applications workshop conference hosted by the Strategic Studies Institute in mid-1977. During the workshop, sponsored by DePaul University and the Strategic Studies Institute, academic and government experts presented the latest findings of formal models and statistical-mathematical approaches to the processes of military decisionmaking, assistance, intervention, and conflict resolution.

The Military Issues Research Memoranda program of the Strategic Studies Institute, US Army War College, provides a forum for the timely dissemination of analytical papers such as those presented at the workshop.

This memorandum is being published as a contribution to the field of national security research and study. The data and opinions presented are those of the author and in no way imply the indorsement of the College, the Department of the Army or the Department of Defense.

ROBERT G. YERKS
Major General, USA
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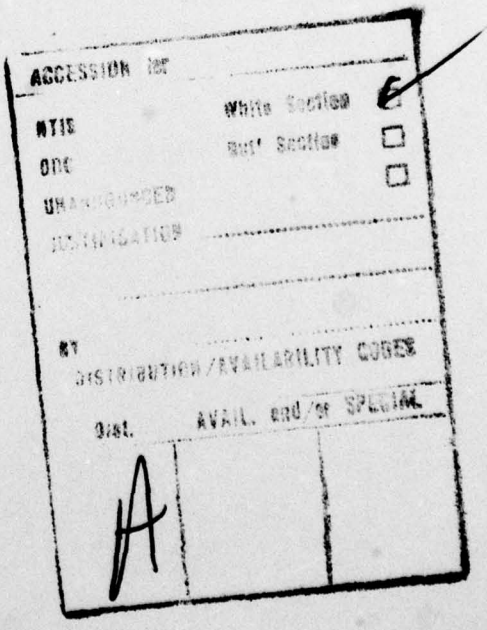

BIOGRAPHICAL SKETCH OF THE AUTHOR

DR. RICHARD A. SKINNER is Director of the Computer-based Laboratory for Instruction and Analysis and Assistant Professor of Political Science, Old Dominion University. He earned his master's degree and doctorate in government and international studies from the University of South Carolina. Co-editor of *International Events and the Comparative Analysis of Foreign Policy*, he has also authored and co-authored several articles on international conflict and is currently involved in several social program evaluations.

ASSESSING THE IMPACT OF MILITARY INTERVENTION: A QUASI-EXPERIMENTAL APPROACH

Concern for the consequences of nations' external actions is an intrinsic feature of making, observing, and analyzing foreign and military policies. To date, however, very little data-based research has been specifically devoted to the task of systematically evaluating such actions. Data for four cases of military intervention are examined by means of the multiple time-series design of quasi-experimental analysis in an effort to assess the short-term consequences of those actions for the target countries involved.

Studies focusing on military-strategic policies have usually been of the cost-benefit type. As Leege and Francis note, cost-benefit analysis deals less with data and more with logically sound strategic predictions. "Its roots are in the rationalist method; occasionally, however, it will seek empirical data to test portions of the theory."[1] By contrast, policy impact analysis is ex post facto research designed to ascertain whether the objective(s) for which a particular policy or action was implemented was actually achieved. It attempts to identify and measure systematically the consequences, if any, that result from the action and, therefore, is concerned with the construction and analysis of empirical data to a much greater extent than cost-benefit studies.

But perhaps the most distinguishing aspect of impact analysts' effort

is their concern for research designs that provide for controlled inquiry into the consequences of an action or program. Such concern is warranted, since their aim is nothing less than the derivation of findings sufficient to warrant statements that the observed changes in impact measures would not have occurred in the absence of the action. In effect, the challenge of impact analysis is to the inferential basis from which theoretical significance is derived and empirical meaning ascribed.

Quasi-experimental analysis represents a powerful response to this challenge.

> Perhaps its fundamental credo is that lack of control and lack of randomization [the basic procedures of laboratory experience] are damaging to inferences of cause and effect only to the extent that a systematic consideration of alternative explanations reveals some that are plausible.[2]

> What is important is not ability to manipulate and to assign randomly, but the ends these procedures serve. Ability to manipulate is merely a way of assuring that there is variation in the independent variable, while ability to randomly assign subjects to experimental and control groups is one of the most refined ways of controlling for the operation of interfering variables. Each is only a specialized technique (and, especially in the case of randomization, a very efficient one).[3]

A variety of quasi-experimental designs is available to the impact analyst.[4] All share certain procedural characteristics: first, they are applied in natural social settings in which the researcher has neither the capacity for manipulating stimuli nor the opportunity for randomized exposure of subjects to stimuli. Second, observations are arrayed over time intervals with two being the minimum number of sequential observations.

As modes of analysis, these designs are formulated to enable the researcher to answer: (1) Is there a nonrandom change in a set of observations? (2) Can the change be inferred to be a result of the quasi-experiment X, or, if not, which is the more plausible rival hypothesis for accounting for the observed change?

Following Campbell, the validity of any of the designs can be evaluated in terms of two major criteria:

> First, and as a basic minimum, is what can be called internal validity: did in fact the experimental stimulus make some significant difference in this specific instance? The second criterion is that of external validity . . . .: to what populations, settings, and variables can this effect be generalized?[5]

The lists presented in Appendix A inventory the major threats to the validity of any design. Four are of particular importance.

The first is the threat of history. Once a nonrandom change is identified, the temptation is to ascribe the change to the quasi-experimental event. But experimental logic dictates that the observed relationship be exposed to rival hypothesis, of which history is one of the more plausible in ex facto research. History refers to events, other than the quasi-experiment, occurring before, or with X and thus representing an alternate explanation of effects.

Maturation poses a second threat to the analysis of impact. "It is distinguished from history in referring to processes, rather than to discrete events."[6] As an observational feature of analysis, maturation assumes the form of trend or some other periodicity in a time series and confounds interpretation of an observed change since the observed variation in impact measures may be due to a mean shift upward or downward. If repeated observations of impact measures are available over a fairly long time-period, maturation can usually be detected and dealt with as a plausible rival hypothesis.

Regression is an equally plausible hypothesis in impact analysis. Regression refers to the tendency for extreme values to regress toward mean values in statistical analyses of time-series observations. Substantively, its plausibility is enhanced here because military intervention often occurs subsequent to extreme conditions in the target country. Again, extended observation of impact measures in the period prior to the occurrence of X can aid in revealing regression effects.

A final, major validity threat is that of diffusion. In the application of the multiple time-series design following, diffusion is usually characterized by the tendency of X (here, military intervention) to modify not only the target nation but also the control or matched countries.

The design employed here is the multiple time-series design and can be represented as

$$\begin{array}{c} 01\ 02\ 03\ 04\ X\ 05\ 06\ 07\ 08 \\ \hline 01\ 02\ 03\ 04 \qquad 05\ 06\ 07\ 08 \end{array}$$

where,

X refers to the quasi-experimental event, or independent variable;

O denotes an observation of the dependent variable(s) or impact measures;

01, 02, . . . refers to the time order of observations, the numerical subscript indicating the order; and
---- refers to nonrandom group assignment.

Where similar social or political units are subject to the same type of quasi-experiment and roughly equivalent units do not experience X, the interrupted time-series design (which consists of a single time-series) can be expanded so as to provide a second basis of comparison for the effects of X. Moreover, the multiple time-series design provides for "gains in certainty of interpretation from the multiple measures plotted, as the [quasi-experimental] effect is in a sense twice demonstrated, once against the control and once against the pre-X values of its own series."[7]

Most other method effects are similarly reduced as threats; selection-maturation interaction (see Appendix A) is controlled to the extent that, if the treatment unit demonstrated a greater rate of gain in the impact measures, it would be apparent in the pre-X values. Since maturation is controlled for in both treatment and matched units by virtue of lengthy observations in both pre- and post-X periods, the interactions of selection with instrumentation or regression are not plausible rival hypotheses.

The multiple time-series design also appears to be the strongest design for dealing with the threat of history. The note of reservation stems from the fact that the control of extraneous variables is not entirely a formal property of the design.

> It is an induction based on an implicit hypothesis that the variables being controlled are common to both units. The general principle is that the rival hypotheses must operate without discrimination on both [treatment and matched units].[8]

In their application of this design to the impact of colonial rule in Black Africa, Duvall and Welfling argue:

> To the extent that the experimental event affects many subjects simultaneously (as with national independence in Black Africa), the use of a roughly equivalent nation renders implausible the potential impact of some other event possibly occurring in all nations in the sample at the same time.[9]

Inasmuch as many method effects are controlled in the multiple

time-series design and in view of the availability of nation-level longitudinal indicators as impact measures, this design is perhaps the most powerful and practical mode of analysis for assessing the impact of military intervention.

The definition of intervention employed here is a truncated version of one proposed by Pearson[10] and is confined to actions involving the overt use of military force. Foreign intervention is the movement of troops and military forces by one independent country, or a group of countries in concert, across the borders of another independent country or colony of an independent country. This definition excludes "clandestine military action and subversion, where indigenous elements are the most significant enabling links,"[11] as well as domestic actions by indigenous military forces.

Data on military interventions were provided by Pearson.[12] One alteration is made in the coding of these data. Because instances have occurred in which foreign troops have intervened in a country and remained for a considerable length of time, a limitation is imposed upon the duration of troop presence beyond which the behavior is not considered an intervention. For this study a time-limit of 24 months is used to define the sample of military intervention.

The framework employed here for analyzing the impact of military intervention takes its direction from the writings of public policy analysts[13] and involves specification of policy impact, policy output, policy objectives, policy environment, and intervening factors associated with the action to be assessed.

The primary impact of military intervention is hypothesized to be the political system of the target country, inclusive of its regime, its actors (competing groups as well as incumbents), and its policies. No assumption is made that this is the intended impact of intervention, but rather its primary impact. Nor does this hypothesis necessarily preclude consideration of the issue component of an action (see below). Governments may intervene militarily for any number of issues of concern and the consequences of that action may well be observed in the status or behavior of these concerns. For example, military intervention may result in the securing of territorial gains by the intervening country and the consequent loss of territory by the target country, but this result, or impact, is secondary to this analysis in that it is unmeasured.

Specification of a target country's political system as the primary

impact evolves from three considerations. The first is that foreign military intervention poses a threat to the political system of the target country not only in that it challenges the monopoly of force traditionally imputed to the state, but also, in functional terms, is likely to interfere with and, if severe enough, to destroy existing political processes and conditions.

A second rationale for hypothesizing a target country's political system and, more specifically, its regime as primary impact variables stems from the consideration of military intervention as a type of foreign policy behavior. Since the latter is viewed as the actions directed by national governments to influence their counterparts, one of the more likely and most immediate effects to occur as a result of military intervention should be observable in the status or behavior of target countries' regimes. Following Salmore and Salmore, regime can be defined as "that role or set of roles in the political system in which inheres the power to make authoritative policy decisions. A regime change occurs when the role incumbents change."[14]

A final consideration in specifying target countries' political systems as primary impacts of intervention derives from previous research on the relationship between the domestic conflict of nations and the actions their governments direct to and receive from other international actors. A significant portion of this research deals specifically with the processes by which external parties become involved in domestic conflicts. [15]

> The frequency of this phenomenon since 1945 suggests that many interstate conflicts in the present have originated in internal conflicts. . . . In many cases, the initial conflict has been over issues that were primarily domestic, between parties forming part of an independent political community, and the conflict behavior has normally occurred, at least in the initial stages, within the geographical area of a separate state.[16]

Hence, in addition to the regime dimension, allowance is made for domestic political behavior occurring outside the target country's official governmental channels and institutions. Such consideration produces a three-way classification of domestic political behavior suggested by the numerous cross-national studies of domestic conflict and employed by Pearson[17] as independent variables to account for occurrences of military intervention. Regime, mass, and structural dimensions of domestic political behavior are used as the primary impact measures.

Fourteen event-types coded by Taylor and Hudson[18] are assigned to these three categories (Table One). Regime behavior denotes the actions of individuals occupying the set of roles in the political system "in which inheres the power to make authoritative policy decisions." The mass dimension of political behavior reflects what Rummel, Tanter and Wilkenfeld term "turmoil"—nonorganizational, relatively spontaneous behavior, involving numbers of individuals who are not official members of a nation's government.[19] The structural category describes the intense, widespread actions of organized groups, involving efforts to alter or replace incumbents or the conventional modes of political behavior of a country. Employed in a longitudinal design, these indicators are considered to reflect, by their occurrences and nonoccurrences, the change and/or persistence of a target country's political system. By virtue of the conceptual and operational procedures used in the collection of these data, a high degree of temporal precision is built into such indicators.[20]

TABLE I

PRIMARY IMPACT MEASURES

REGIME	MASS	STRUCTURAL
renewals of executive tenure	protest demonstrations	armed attacks
unsuccessful regular executive transfers	regime-support demonstrations	unsuccessful irregular power transfers
executive adjustments	political strikes	irregular power transfers
regular executive transfers	riots	
political assassinations		
political executions		
elections		

The independent variable here is an occurrence of military intervention and its characterization is here confined to three aspects of interventionary behavior: skills/resources, affect, and issues of concern. By restricting analysis to military interventions, the skills/resources property is already specified. The implicit hypothesis embodied by this property is that different modes of output will have different impacts

upon a target country at differential rates. The choice of military intervention is predicated on the expectation that its primary impacts (if any) will be observable in the immediate aftermath of its occurrence.

The affective property of intervention relates to the hostility or friendliness of the intervening government toward the target country's government. Following Pearson, the affect of military intervention is characterized as "hostile (opposing target government or aiding rebels), friendly (supporting government or opposing rebels), or neutral."[21]

Military interventions are also characterized by their issue component; that is–

> issues of concern to intervening governments, as evidenced by the behavior of troops once inside the target and by historically valid accounts of interests involved. Issues may include: (1) territorial acquisition or domain; (2) protection of social groups in the target, including irredentist claims; (3) protection of economic interests in the target, including business enterprises or natural resources; (4) protection of diplomatic or military bases, embassies, or diplomats; (5) ideology, involving organized belief systems or doctrines; and (6) regional power balances.[22]

Because previous research has indicated that predictor variables are different for different types (i.e., issues) of military intervention, it may be expected that the consequences of that action will also vary in identity and scope according to the issues of concern for the intervening government.

The derivation of policy objectives poses considerable difficulties for the analyst. Public policy researchers can usually identify the goals of a domestic program with some confidence and need not be overly concerned with policymakers' objectives. Foreign policy analysts, by contrast, are reluctant to attribute precise goals to the actions initiated by policymakers on the assumption that the stated aims of a foreign policy action may not reflect the actual objectives for which the action was taken. Not surprisingly, therefore, the few exceptions to this practice are studies of the impact of programs such as military assistance or economic aid[23] which demonstrate the "distributive" properties of many domestic programs.[24]

Since the expected primary impact of military intervention is the political system of the target country and because this behavior is viewed as directed between national governments, objectives are characterized as the orientation of intervening governments toward change in the direction of a foreign policy action and describes it as a dichotomous measure.[25] Objectives are characterized as alternative to

the extent that an intervening government seeks to redistribute regime roles, role incumbents, and regime policies, or preservative to the extent that an intervening government is interested in maintaining the existing distribution of regime roles, role incumbents, and policies.

A similar line of reasoning can be applied in considering the secondary impacts (if any) of military interventions. Thus, objectives concerning territorial issues can encompass the desire of the intervening government to redistribute existing boundaries or the goal of maintaining existing investments in the economy of a target country.

The policy environment feature of the impact analysis framework refers to the situational or contextual conditions under which an intervention is initiated. Paraphrasing Cook and Scioli, it seems clear that the conditions of policy implementation bear a critical effect on the actual consequences of a foreign policy action and also constrain the interpretation of policy impacts.[26] In a complete model of the policy process, those conditions would include the domestic factors of both the intervening and target countries and the external circumstances attendant to the interaction between the two nations.

While any number of factors may be included in specifying the elements of the policy environment of interventions, two seem particularly appropriate. One is the existing *alignment* between national governments involved in an intervention. It is hypothesized that existing alignments between intervening and target governments condition the direction and extent of impact from the intervention. It is anticipated that an existing alignment will mollify the extent of change in the behavior or status of a target country's regime. Alignment refers to the existence of supportive relations or common orientations between intervening and target states. These relations can include joint memberships in formal military alliances, mutual assistance treaties, and, because the sample of military interventions is restricted to the 1948-67 period, common orientations toward the dominant international system of that era. Alignments are determined from data developed by Teune and Synnestvedt, Singer and Small, and Pearson[27] and classified into six types:

- Nonaligned, leaning west
- Nonaligned, leaning east
- Third World, nonaligned
- Western bloc
- Eastern bloc
- Allied, but neither east nor west

The other element of the policy environment of interventions is suggested by Pearson[28] and concerns the *political circumstances* of a target country. We have already alluded to analysts' assertions of the importance of domestic conflict within a target country for explaining the occurrence of intervention. For the purpose of evaluating the consequences of intervention, the domestic conflict experienced by a country may be of equal importance for foreign military intervention and thus constrain an interpretation of domestic events subsequent to the intervention as being a direct result of that action. In order to avoid duplication of the indicators of primary impact previously detailed, consideration of political circumstances is confined to whether or not a target country experienced major domestic disputes (i.e., armed attacks, riots, and/or irregular power transfers) during the six months prior to foreign military intervention. Indicators of domestic disputes are taken from Taylor and Hudson and Banks.[29]

The final elements of the impact analysis framework are the intervening factors. The four validity threats discussed earlier constitute the principal intervening factors in interpreting the impact (if any) of military intervention.

History represents a major competing hypothesis for accounting for variations in a target country's political system. Events other than the introduction of foreign troops may induce changes in a political system and these may originate within the target country's society or in its external environment. The assassination of a high governmental official exemplifies the former case. Alternatively, a "spectacular event" in a country's external environment such as another country's test detonation of a nuclear device may effect changes in a country's political system. As these examples indicate, the threat of history to an analysis of the impact of intervention is substantial, encompassing a myriad of events both within and outside a target country and thereby potentially accounting for observed variations in impact measures.

Maturation poses a second threat to the analysis of foreign policy impact. Examples of maturation threats could include a pattern of increased regime instability over time (e.g., the French Fourth Republic) or changes in regime incumbents at regular intervals via electoral processes.

Regression is an equally plausible hypothesis in this analysis. Substantively, its plausibility for accounting for observed changes in a target country's political system is enhanced in the present analysis because military intervention often occurs subsequent to extreme

conditions of domestic conflict in a target country. A reduction in political conflict after the intervention may not be the result of that action, but the first manifestation of the tendency for social behavior to return to preexisting levels or rates.

A final major intervening factor, or plausible rival hypothesis, to be considered here is that of diffusion. An example of diffusion would be where military intervention into one country was reacted to by countries composing the matched group.

Still another way in which diffusion can hinder interpretation of the impact of military intervention is where a change in a country's political system is part of a diffusion pattern of such changes across a group of nations and, therefore, not based on independent events. While no general *solutions* to these problems are readily available, investigations such as Midlarsky's[30] can at least allow for substantiation or refutation of diffusion as a plausible rival hypothesis.

The specification of major intervening factors completes the framework for analyzing the impact of military intervention. Table Two summarizes the four selected interventions in terms of the framework.

Use of the multiple time-series design in impact analysis requires that observations of impact measures be available for extended periods of time both before and after the quasi-experiment X—that is, the occurrence of a military intervention. Comparison of pre- and postintervention measures is made in order to ascertain (1) whether or not a nonrandom change occurred in the vicinity of X, and (2) if such change occurred, whether it is attributable to X. The analyst is assisted in the first task either by special tests of statistical significance or, as is the case here, by the observation of deviations from theoretical models which predict random distributions of values (i.e., the impact measures) arrayed over time. Determination of whether a nonrandom change is indeed due to X proceeds by evaluating those intervening factors that represent contending explanations for the observed change. In the present analysis, the indicators of the three impact measures—regime, mass, structural—are divided into pre- and postintervention periods with the date of the military intervention in the target country marking the last observation point of the preintervention period. The pre- and postintervention periods each consist of *daily* observations for one year before and after the intervention date respectively (N = 365 observation points for both periods).

A second basis for determining whether observed changes in impact

SELECTED SAMPLE OF FOREIGN MILITARY INTERVENTIONS

Intervention	Affect	Issue(s)	Political Circumstances	Alignment of Target/ Intervener	Objectives of Intervener
U.S.S.R. - East Germany (June 17, 1953)	friendly	-	domestic dispute	yes	preservative
U.S. - Lebanon (July 15, 1958)	friendly	ideological regional power balance	domestic dispute	no	preservative
Great Britain-Kenya (January 24, 1964)	friendly	military-diplomatic	domestic dispute	yes	preservative
U.S. - Dominican Republic (April 28, 1965)	friendly	military-diplomatic evacuation ideological regional power balance	domestic dispute	yes	preservative

measures are due to foreign military intervention is obtained when a nation that experiences an intervention can be matched against roughly equivalent countries that do not experience intervention. The logic of matching "involves an attempt to achieve equivalence (hence, control) by a selection of entities, or package of variables, which are highly similar in most attributes except those of theoretical interest,"[31] here, military intervention.

Here, matching of the five countries experiencing foreign military intervention is carried out on the basis of four criteria. The two variables making up the policy environment of the impact analysis framework–and *alignment* and *political circumstances*–are the first criteria on which nations are matched. In addition, nations are matched with the target countries according to *propinquity*, defined as joint memberships of target and matched countries in the same geocultural region, and *similarity* of *political systems*. The two latter variables have a formidable lineage in data-based foreign policy studies and matching on both is based on classifications developed by Gurr.[32] Matching on these four variables produces a total sample of 19 countries including the four target nations (Table Three).

The statistical technique usually employed in the multiple time-series design is least-squares regression. This practice presents several difficulties for most foreign policy analyses. The Poisson process and its derivative, the Poisson frequency distribution, are alternatives to the least-squares technique which are more appropriate to the type of data employed here as impact measures. As a measurement device, the Poisson distribution provides an estimate of the probability that an observed distribution of points in one time period is significantly different from the distribution of points in a previous interval. Hence, it performs the important task in the multiple time-series design of determining whether or not a nonrandom change has occurred in a set of observations following the quasi-experiment event–the function of tests of statistical significance in the least-square model. But in addition, the Poisson model and the Poisson distribution are designed for use with dichotomous measures of phenomena which demonstrate varying frequencies of occurrence over a continuum of time. Because continuous-level measures are not required, the aggregation of events data over longer temporal intervals is avoided and the temporal precision of events is therefore retained.

The assumptions of the Poisson process and the Poisson distribution can be summarized as follows:

TABLE 3

TARGET AND MATCHED COUNTRIES

Countries	Time Period	Geocultural Region	Political System	Political Circumstances	Alignment
East Germany (t)	1953	European	Centrist	+	Eastern bloc
Romania	1953	European	Centrist	+	Eastern bloc
Poland	1953	European	Centrist	+	Eastern bloc
Czechoslovakia	1953	European	Centrist	+	Eastern bloc
Hungary	1953	European	Centrist	-	Eastern bloc
Lebanon (t)	1958	Islamic	Personalist	+	Nonaligned,west
Iraq	1958	Islamic	Personalist	+	*
Jordan	1958	Islamic	Centrist	+	Nonaligned,west
Syria	1958	Islamic	Personalist	+	Nonaligned

TABLE 3 - continued

Countries	Time Period	Geocultural Region	Political System	Political Circumstances	Alignment
Kenya (t)	1964	African	Elitist	+	Nonaligned,west
Zambia	1964	African	Elitist	+	Nonaligned,west
Somalia	1964	Islamic	Elitist	+	Nonaligned
Uganda	1964	African	Elitist	+	Nonaligned,west
Tanzania	1964	African	Elitist	+	Nonaligned,west
Dominican Republic (t)	1965	Latin	Personalist	+	Western bloc
Ecuador	1965	Latin	Personalist	+	Western bloc
Peru	1965	Latin	Personalist	+	Western bloc
Guatemala	1965	Latin	Personalist	+	Western bloc
Haiti	1965	Latin	Personalist	+	Western bloc

(t) = target country + = one structural event during pre-intervention period. - = no structural events.

* = Prior to July, 1958, Iraq was decidedly western in its alignment; after the coup of that period, moved toward a nonaligned stance similar to that of Syria and Egypt.

- The occurrence of events is randomly distributed across a continuum (e.g., time, space) such that there exists a transition rate which is constant for all possible states or intervals of the process. 'Once an event has occurred for an element, it continues to be governed by the same transition rate as before—the event may or may not occur again for that element, with the same likelihood as it initially had.'[33]

  Closely related to the assumption of randomness is that of statistical independence: "that nonoverlapping time intervals are stochastically independent in the sense that information concerning the number of events in one interval reveals nothing about the other.'[34] This property is unique to the Poisson process and distinguishes to form other probability models (e.g., Markov chains).
- Events are homogeneous. Data are dichotomous, and the values (0.1) are homogeneous in that "all occurrences are equivalent and all nonoccurrences are equivalent."[35]

  In this analysis, homogeneity is attributed to events within the three categories (regime, mass, and structural) of impact measures.
- The value of p is assumed to be small, and n (the number of intervals) to be relatively large. Consequently, the probability of more than one occurrence within an interval is very small.

As Clark notes, these conditions, when satisfied, are the simplest ones for generating a stochastic, or purely random process.[36] Hence, the Poisson distribution can be used "as a criterion of the randomness of events,"[37] that is, it can be employed to test whether in two different sections of events of Poisson type the mean rate of occurrence is the same. Poisson-based comparisons are thus well-suited for use in the multiple time-series design proposed here.

> If it can be shown that a particular data set meets almost all the criteria for a Poisson distribution, yet does not take that form, then the reason for deviation can be attributed to those assumptions which have not been met. Thus, if a data set is composed of homogeneous events and distributed along a dimension such that, when the dimension is divided into a large number of intervals, the probability of more than one event within an interval is low, yet the number of occurrences within a set of intervals is not dependent on the size of the set, we may conclude that the data are not Poisson-distributed. *The occurrence of events is not randomly distributed through the cells. Some systematic change occurs between the sets of intervals being examined.*[38]

As Hayes has demonstrated, application of the Poisson-based comparison technique is relatively straightforward once the data requirements of the Poisson distribution are met. The event indicators of the regime, mass, and structural impact variables are arranged into two time periods of approximately 365 days each. The two periods

represent the preintervention and postintervention of the multiple time-series design, where the preintervention encompasses the year immediately preceding and including the date of the intervention and the postintervention covers the period beginning one day after the intervention and continuing for one year thereafter.

In the case of the Soviet intervention into East Germany, eight regime events were observed in the preintervention. The probability of a regime event occurring on any one particular date is equal to .021857 (8 divided by 365 days). If the frequency of regime events is dependent only on the number of intervals in both pre- and postinterventions, as it would be if the data were Poisson-distributed, then the number of regime events observed after the Soviet intervention should be equal to 7.999 (i.e., .021857 multiplied by the number of intervals in the postintervention period, 366). This value–denoted *m*– is the frequency of events expected in the postintervention based on the occurrences of events in the preintervention.

Using the standard Poisson formula,

$$f(x) = \frac{e^{-m}\, m^{x}}{X!}$$

where,

f (x) = expected frequency of probability of exactly x occurrences
e = natural base of logarithms
m = expected number of occurrences in the postintervention (calculated np)
x = actual number of occurrences observed in the postintervention
n = number of intervals in the postintervention
p = probability of an occurrence in any one interval of the preintervention

the probabilities of the possible values of x are calculated given a value of 7.999 for m, assuming the data are Poisson-distributed.

The important values computed by this formula for evaluating whether or not a significant (i.e., nonrandom) change has occurred are the cumulative probabilities of x. This involves summing the probabilities for different values of x. In the case of the Soviet intervention into East Germany, the probability of observing twenty regime events (the actual number of events after the intervention) is equal to .0002. Note that no argument is made that the data are Poisson-distributed; rather, those data are compared with a theoretical Poisson distribution to assess the probability that a nonrandom change

has occurred in the series of observations. For the analysis undertaken here, the .01 level is specified as the probability at which the null hypothesis is rejected and a nonrandom change in the frequency of events is deemed to have occurred. Thus, the probability of .0002 for the observed frequency of regime events occurring in East Germany after the Soviet intervention provides statistical evidence that a nonrandom increase occurred in that period. Whether that change is the result of Soviet military intervention remains to be determined via the consideration of plausible rival hypotheses.

Poisson-based comparisons are performed on each of the 57 distributions in the selected sample (3 categories of impact variables for 19 countries). Two additional analyses were performed. The first tests for delayed responses in the impact measures. Substantively, it might be expected that changes, particularly in the mass and structural categories, would be demonstrated only after an interval of time had transpired from the date on which foreign troops entered the target country. Accordingly, the preintervention period is extended beyond the actual date of the intervention for an additional period of 60 days for each of the 5 groups. The aim here is to check for "lagged" responses in the impact measures.

A final test allows for checks on the stability of results and provides for evaluation of the regression threat as a plausible rival hypothesis. The values of m computed in the first comparison are contrasted with the observed values of x obtained from the test for lagged responses and the respective probabilities for values of x are computed once again. If the probabilities for one or more target country impact measures demonstrate significant change in one direction (increase or decrease) over all three comparisons, it can be inferred that a "true change" has occurred. If the probabilities show significant change in an impact measure but not in the same direction, the plausibility of regression is enhanced.

On July 17, 1953, Soviet forces were deployed throughout East Germany in an attempt to quell a wave of strikes, mass marches, and demonstrations. What began the day before as a relatively minor incident involving construction workers in East Berlin had become a general antigovernment demonstration in that city and, then, spontaneously erupted in nationwide mass actions.

The uprising represented a major challenge to Soviet policy in East Germany and the other Socialist states of Eastern Europe. Local police and security forces were either unable or unwilling[39] to put down the

insurrection. The challenge to Soviet hegemony was all the more imposing because the Soviet collective leadership, dominated by Malenkov, was barely 5 months in power following Stalin's death in March.[40]

In addition to its brevity, the more notable features of the uprising were its spontaneity, its occurrence at a time when the East German regime was liberalizing economic policies to a degree, and the general absence of overt hostility toward the Soviet Union. Denunciations were reserved for the major political figures of the East German government and the Socialist Unity Party (SED), such as Otto Grotewohl and Walter Ulbricht.

As detailed in Table 4a, all three impact measures show significant changes in the frequency of events in the period immediately following the Soviet intervention. The only matched country demonstrating a similar change is Poland, and the increase in structural events in this case is attributable to the September 1953 arrest of Cardinal Stefan Wyszinsky and the onset of a "new church-state crisis."

These results thus appear to substantiate significant impact from the Soviet intervention on the East German political system. But the increase in both mass and structural events appears somewhat at odds with accounts of the situation. A result more in keeping with accounts is indicated by the lagged values for mass behavior reported in Table 4b. Here, there is a significant decline in the number of mass political events, suggesting that strikes and demonstrating continued for a short period until mid-August after the Soviet intervention and then declined.

Yet even here it is difficult to describe the decline as a "true change" in mass behavior. Perusal of all three tests' results suggest the plausibility of *regression effects* for accounting for the observed change. These results show a marked increase in strikes, demonstrations, and riots immediately after the Soviet intervention, followed by an equally sharp decline. Comparing the value of m for the preintervention period ($m = 4.999$) with the observed lagged value ($x = 9$) as in Table 4c, no significant change is revealed, thus enhancing the plausibility of regression effects. Exclusion of government-support demonstrations from the mass behavior category indicates even more clearly the regression of values toward the preintervention level ($m = 4.999$, $x = 5$). Substantively, the very spontaneity of the East German uprising lends credence to this interpretation. As Gyorgy has observed, "Both the 1953 East Berlin and the 1956 Hungarian revolts collapsed because they lacked one of the *sine qua non's*, or essential revolutionary

TABLE 4a

POISSON-BASED COMPARISON OF IMPACT MEASURES
(Soviet Intervention into East Germany)

Countries	Regime	Mass	Structural
East Germany (t)	m= 7.999 x= 20 p(x)= .0002*	m= 4.999 x= 27 p(x)= .0001*	m= 2.999 x= 18 p(x)= .0001*
Romania	m= 7.999 x= 13 p(x)= .064	m= 0.999 x= 1 p(x)= .736	m= 0.999 x= 1 p(x)= .736
Poland	m=3.999 x= 6 p(x)= .889	m= 2.999 x= 3 p(x)= .244	m= 1.999 x= 10 p(x)= .0001*
Czechoslovakia	m= 6.999 x= 2 p(x)= .03	m= 4.999 x= 2 p(x)= .125	m= 1.999 x= 0 p(x)= .406
Hungary	m= 6.999 x= 9 p(x)= .258	m= 0.999 x= 1 p(x)= .736	m= 0.000 x= 0 p(x)= .000

TABLE 4b

CHECK FOR LAGGED RESPONSES IN IMPACT MEASURES
(Soviet Intervention into East Germany)

Countries	Regime	Mass	Structural
East Germany (t)	m= 9.473 x= 12 p(x)= .240	m= 19.807 x= 9 p(x)= .006*	m= 7.751 x= 12 p(x)= .088
Romania	m= 8.162 x= 12 p(x)= .151	m= 0.861 x= 1 p(x)= .787	m= 0.861 x= 0 p(x)= .433
Poland	m= 3.445 x= 5 p(x)= .241	m= 1.722 x= 1 p(x)= .486	m= 6.028 x= 3 p(x)= .149

TABLE 4b - continued

Countries	Regime	Mass	Structural
Czechoslovakia	m= 5.167 x= 2 p(x)= .111	m= 4.306 x= 2 p(x)= .197	m= 0.000 x= 0 p(x)= .000
Hungary	m= 11.195 x= 4 p(x)= .013*	m= 0.861 x= 1 9(x)= .787	m= 0.000 x= 0 p(x)= .000

TABLE 4c

CHECK FOR REGRESSION EFFECTS IN IMPACT MEASURES
(Soviet Intervention into East Germany)

Countries	Regime	Mass	Structural
East Germany (t)	m= 7.999 x= 12 p(x)= .112	m= 4.999 x= 9 p(x)= .072	m= 2.999 x= 12 p(x)= .0002*
Romania	m= 7.999 x= 12 p(x)= .112	m= 0.999 x= 1 p(x)= .636	m= 0.999 x= 0 p(x)= .368
Poland	m= 3.999 x= 5 p(x)= .366	m= 2.999 x= 1 p(x)= .199	m= 1.999 x= 3 p(x)= .322
Czechoslovakia	m= 6.999 x= 2 p(x)= .03	m= 4.999 x= 2 p(x)= .125	m= 1.999 x= 0 p(x)= .136
Hungary	m= 6.999 x= 4 p(x)= .173	m= 0.999 x= 1 p(x)= .636	m= 0.000 x= 0 p(x)= .000

(t) = target of intervention
m = frequency expected after intervention
x = frequency observed after intervention
p(x) = cumulative probability of x, given m
* = significant at p> .01

preconditions, of nationalist success: inspired and individualized political leadership."[41]

The results for regime and structural measures confirm a pattern of governmental assertion of authority, corroborating most accounts of this period. The impact on structural events was immediate, revealing a significant increase in this category. The majority of these events were armed attacks by the government on groups–especially industrial workers–in reprisal for the actions of June. The overall increase in frequency, coupled with the marked difference in the value of m for the preintervention period (m = 2.999) and the lagged observed frequencies (x = 12), indicate a true change in this type of behavior.

Although the results are not as definitive, the increase in regime events after the Soviet intervention provides further evidence of the East German government's assertiveness over its populace. When elections, unsuccessful regular executive transfers, and executive transfers are excluded and the remaining regime events summed for the postintervention period, that pattern is revealed more clearly, with 24 of the 27 events reported indicating an increase in efforts to assert regime control.

Additional support for this interpretation is provided by Freney and Moreno's findings. Employing an annual rate of change measure of domestic instability in a least-squares model, they tested for the effects of the Soviet intervention into East Germany. For the period 1948-53, a strong, positive trend was observed. After 1953 the slopes of the equations–though still positive–were far smaller and decreasing in size over time.[42]

Secondary impact measures can also be described as changing significantly after the Soviet intervention. As reported by Dallin, these changes included Soviet cessation of East German reparations payments, cancellation of existing debts, increased quantities of foodstuffs, coal, metals, and other goods to East Germany, and the extension of large grant credits.[43]

In summary, then, the objectives of the Soviet military intervention into East Germany were realized. The immediate crisis for the East German regime abated. As the effects reported here and history since 1953 document, the Ulbricht regime consolidated its position. There were changes in the regime immediately after the Soviet intervention (several officials were dismissed), but the top leadership positions were retained by their incumbents. Writing 13 years after the June 17 uprising, Kraus argued that "[b]y its intervention the Soviet Union had

not only cut short the course of mass action and thereby secured its G.D.R. base in the heart of Europe; it had also been compelled to become Ulbricht's political savior."[44] And Dallin concludes:

> The Malenkov-Molotov government, by its action in East Germany, was making it plain that the borders of the 'socialist camp,' as well as its political setup, would be maintained by the Soviet power at any cost; that, as far as the extent of the empire was concerned, the Soviet regime would make no concessions to the other great powers; that whatever differences might exist between persons and factions in the Kremlin and in Pankow, rule by a Soviet-controlled regime would be perpetuated.[45]

The interpretation tendered here is less expansive. The results of the Poisson-based comparisons indicate that the impact of the Soviet intervention was indirect, serving to stabilize the East German regime. Subsequent domestic political behavior seems attributable to the increasing assertiveness of the regime, rather than the intervention itself. The change in mass behavior is not so consistent as to neutralize the threat of regression effects and thereby permit the ascription of direct, explanatory significance to the Soviet intervention.

In May 1958, civil war broke out in Lebanon. A confluence of domestic, regional, and international events served to render the situation in Lebanon, from May through September 1958, of major importance. American actions signified, successively, the actualization and the abandonment of the Eisenhower Doctrine as a tenet of US policy in the Middle East.

The crisis in Lebanon was a protracted one, beginning with riots in Beirut, Tripoli, and other major urban areas in May, escalating to American marines landing on June 15. The domestic factors precipitating the crisis were increasing Muslim dissatisfaction with Christian economic and political domination, what were considered by opposition groups as fraudulent 1957 elections, and the attempt by President Camille Chamoun to serve a second successive term in violation of Lebanon's constitution. Regional factors further fueled an already tense domestic situation. By 1958 Nasser had effectively established himself as leader of the Arab nationalist movement. His policy of positive neutralism, or nonalignment, denied British and American hopes for a defense alliance with the Arab Middle East, and when Iraq did join the Baghdad Pact, polarized Arab relations between Egypt and Syria, on the one hand, and Iraq, Jordan, and Lebanon, on the other.[46] The Chamoun government came under increasing pressure

from Egypt and Syria for its "deviationist" policies. Although formally neutral, Lebanon showed a distinctly pro-Western stance, especially when in a March 1957 joint American-Lebanese statement, the Chamoun government accepted the Eisenhower Doctrine–the only Arab state to do so.[47] Thereafter, Egyptian and Syrian efforts against the Chamoun regime escalated considerably.

The international significance of the Lebanese crisis was a direct outgrowth of the Cold War atmosphere of the era. The policy of positive neutralism espoused by Nasser was suspect to American policymakers, especially when, in the case of Egypt, it allowed for the receipt of Soviet aid. Consistent with its concern displayed at Suez for Soviet influence in the Middle East, the United States opposed all perceived Russian incursions in Lebanon, although in the latter crisis, the Soviet Union and the United States confined their actions and responses to diplomatic maneuverings in the United Nations, rather than direct threats of action.[48]

When rioting broke out in May, the United States, at the request of Chamoun government, airlifted arms into Lebanon. As Qubain notes, American official statements by late May show "that a decision for direct military intervention in Lebanon–if it became necessary–had been taken." When a military coup d'etat on July 14, 1958 overthrew the Iraqi monarchy, the United States landed marines in Lebanon.[49]

The American objective in intervening in Lebanon was decidedly preservative. The United States was convinced that arms and money were flowing into Lebanon from Syria in considerable amounts and that this, together with Egyptian radio broadcasts supporting the United National Opposition Front over President Chamoun, was responsible for the continuation of the civil strife as well as aggravating the situation. Second, the United States was subjected to intensive pressure from formal allies and friendly governments in the Middle East to intervene in Lebanon. Iraq and Jordan perceived the Lebanese crisis to have been instigated by the U.A.R., regarded the possible success of the opposition in Lebanon as a threat to their own security, and as an incentive for the further spread of Arab nationalism.[50] Moreover, the Iraqi coup of July 14 seemed to confirm the United States' and its Arab allies' worst fears. Finally, the United States hoped to demonstrate to the Soviet Union its resistance to any Russian "encroachment" in the Middle East.

American aims were achieved: troops remained in Lebanon for three and a half months, during which time a new president acceptable to

both loyalist and opposition forces was elected and installed in office in an orderly fashion, and a government acceptable to both sides was established.[51] When American troops were withdrawn in late October, the domestic crisis was over and civil order was restored. Finally, observers seem to agree that the American intervention foiled Nasser's hopes for adding Lebanon to a growing list of Arab nationalist states.[52]

The results obtained from analysis demonstrate an exceptional fit to historical accounts of this situation. There are no immediate significant changes in the domestic political behavior in Lebanon after American troops landed (Table 5a), since opposition forces pressed their demands on and continued actions against the Chamoun government until mid-September when the newly-elected president, Fraud Chehab, succeeded Chamoun. After this point, there are significant changes in both regime and structural categories (Tables 5b, 5c). Only Jordan among the matched countries shows a similar pattern and this is likely due to the British intervention there. Regression is not a plausible threat, since comparison of preintervention and lagged postintervention values show them to be significantly different (Table 5c).

The decrease in regime behavior substantiates the general stability of the Lebanese government. The few regime events reported are mostly renewals of executive tenure and executive adjustments. Although Chamoun was forced to resign, his successor was acceptable to all sides in the domestic conflict and to the United States.

Perhaps the most important secondary impact of the American intervention was Lebanon's return to a policy of neutrality both in regional and international relations. As a consequence, Nasser was denied the addition of Lebanon to the list of Arab nationalist states. The direction of Lebanese policy might appear as an unsought result for American interest, but such was not the case. First, the new regime was friendly to the United States, though officially neutral. Second, with the termination of the Lebanese intervention, the United States launched a new policy in the Middle East. The Eisenhower Doctrine was set aside and hopes for military or political pacts in the region were dropped. The new Iraqi government was quickly recognized and serious efforts made to reach an accommodation with Nasser, Arab nationalism, and positive neutralism. In this new approach, Lebanese neutrality was well-received.

Analysis of the British intervention into Kenya on January 24, 1964 provides for a most interesting application of the multiple time-series design. In the space of ll days, British forces were deployed in Uganda,

TABLE 5a

POISSON-BASED COMPARISON OF IMPACT MEASURES
(American intervention into Lebanon)

Countries	Regime	Mass	Structural
Lebanon (t)	m= 12.999 x= 17 p(x)= .735	m= 13.999 x= 11 p(x)= .260	m= 54.999 x= 46 p(x)= .074
Iraq	m= 5.999 x= 9 p(x)= .256	m= 2.999 x= 15 p(x)= .0001*	m= 0.999 x= 19 p(x)= .0001*
Jordan	m= 8.030 x= 7 p(x)= .421	m= 5.001 x= 5 p(x)= .616	m= 5.001 x= 5 p(x)= .616
Syria	m= 6.022 x= 4 p(x)= .282	m= 4.015 x= 5 p(x)= .374	m= 0.999 x= 1 p(x)= .736

TABLE 5b

CHECK FOR LAGGED RESPONSES IN IMPACT MEASURES
(American intervention into Lebanon)

Countries	Regime	Mass	Structural
Lebanon (t)	m= 18.849 x= 5 p(x)= .0001*	m= 12.817 x= 12 p(x)= .482	m= 69.211 x= 23 p(x)= .0001*
Iraq	m= 5.127 x= 10 p(x)= .036	m= 3.418 x= 17 p(x)= .0001*	m= 0.854 x= 20 p(x)= .0001*
Jordan	m= 9.399 x= 4 p(x)= .043	m= 0.854 x= 4 p(x)= .011*	m= 5.127 x= 0 p(x)= .006*
Syria	m= 5.127 x= 5 p(x)= .593	m= 4.272 x= 4 p(x)= .401	m= 0.854 x= 0 p(x)= .426

TABLE 5c

CHECK FOR REGRESSION EFFECTS IN IMPACT MEASURES
(American intervention into Lebanon)

Countries	Regime	Mass	Structural
Lebanon	m= 12.999 x= 5 p(x)= .003*	m= 13.999 x= 12 p(x)= .356	m= 54.999 x= 23 p(x)= .001*
Iraq	m= 5.999 x= 10 p(x)= .123	m= 2.999 x= 17 p(x)= .0001*	m= 0.999 x= 20 p(x)= .0001*
Jordan	m= 8.030 x= 4 p(x)= .098	m= 5.001 x= 4 p(x)= .440	m= 5.001 x= 0 p(x)= .007*
Syria	m= 6.022 x= 5 p(x)= .442	m= 4.015 x= 4 p(x)= .623	m= 0.999 x= 0 p(x)= .368

(t) = target of intervention
m = frequency expected after intervention
x = frequency observed after intervention
p(x) = cumulative probability of x, given m
* = significant at p> . 01.

Kenya, Tanzania (then, Tanganyika), and Zambia. In the first three instances, the circumstances surrounding the British actions were essentially the same. As Nielsen recounts:

> In January 1964, the troops of President Nyerere in Tanzania mutinied, and he immediately issued an urgent call for British military assistance, which was promptly supplied. Within days a similar instance occurred in Uganda and shortly thereafter another in Kenya. In all three, British forces dispatched from nearby naval units in the Indian Ocean made it possible to put down the danger.[53]

Thus, in this instance we have the opportunity for assessing the impact of foreign military intervention across a group of target countries, all of which experience intervention almost simultaneously, all of which share important geographical, cultural, historical (all were British colonies), and political circumstances, and all experienced quite similar domestic disputes in the period immediately prior to intervention. As a result, assessments of the impact of intervention and evaluation of plausible rival hypotheses are facilitated.

The results of analysis are, however, mixed. Only Kenya and Uganda demonstrate consistent, significant changes in their domestic political behavior, indicated by the decrease in mass political events (particularly, riots) in Kenya and a decrease in structural actions (especially, armed attacks) for Uganda (Tables 6a, 6b, and 6c). The other country experiencing British intervention–Tanzania–shows no significant change in any of the three impact measures. This is all the more surprising since, as Shepherd notes, British intervention in Tanzania is credited with saving the Nyerere regime from overthrow.[54] The most apparent conclusion to be reached in this case is that the very absence of any significant change in regime behavior favors an interpretation that the British action succeeded in preserving the existing government. However, the results for the two other impact measures make such a conclusion tenuous.

For Kenya, analysis results do substantiate accounts of the intervention: the attempted coup by Vice President Odinga was averted and the accompanying disorder put down. No real change in secondary impact measures is reported as might be expected given the preservative aim of the British government in intervening in Kenya. The increase in Kenyan arms reported for the period after 1964 is the result of British military assistance to Kenya in its antishifta war on its northern frontier,[55] as well as a part of a British policy of increased aid to all of

TABLE 6a

POISSON-BASED COMPARISON OF IMPACT MEASURES
(British intervention into Kenya)

Countries	Regime	Mass	Structural
Kenya (t)	m= 9.025 x= 5 p(x)= .114	m= 15.041 x= 3 p(x)= .002*	m= 5.014 x= 9 p(x)= .069
Zambia	m= 4.011 x= 3 p(x)= .431	m= 7.012 x= 3 p(x)= .081	m= 1.003 x= 14 p(x)= .001*
Somalia	m= 0.985 x= 6 p(x)= .005*	m= 2.993 x= 1 p(x)= .425	m= 0.985 x= 0 p(x)= .373
Uganda	m= 2.007 x= 3 p(x)= .865	m= 4.015 x= 1 p(x)= .091	m= 7.000 x= 1 p(x)= .001*
Tanzania	m= 0.985 x= 4 p(x)= .997	m= 0.985 x= 4 p(x)= .997	m= 2.007 x= 0 p(x)= .134

TABLE 6b

CHECK FOR LAGGED RESPONSES IN IMPACT MEASURES
(British intervention into Kenya)

Countries	Regime	Mass	Structural
Kenya (t)	m= 7.622 x= 4 p(x)= .123	m= 12.703 x= 4 p(x)= .005*	m= 8.469 x= 4 p(x)= .076
Zambia	m= 3.387 x= 3 p(x)= .561	m= 5.928 x= 3 p(x)= .158	m= 5.928 x= 23 p(x)= .0001*
Somalia	m= 0.847 x= 4 p(x)= .011*	m= 3.387 x= 0 p(x)= .034	m= 0.847 x= 0 p(x)= .429

TABLE 6b - continued

Countries	Regime	Mass	Structural
Uganda	m= 1.694 x= 3 p(x)= .241	m= 3.387 x= 2 p(x)= .342	m= 5.928 x= 3 p(x)= .158
Tanzania	m= 0.847 x= 4 p(x)= .011*	m= 1.694 x= 3 p(x)= .241	m= 1.694 x= 0 p(x)= .184

TABLE 6c

CHECK FOR REGRESSION EFFECTS IN IMPACT MEASURES
(British intervention into Kenya)

Countries	Regime	Mass	Structural
Kenya (t)	m= 9.025 x= 4 p(x)= .054	m= 15.041 x= 4 p(x)= .0007*	m= 5.014 x= 4 p(x)= .418
Zambia	m= 4.011 x= 3 p(x)= .431	m= 7.012 x= 3 p(x)= .081	m= 1.003 x= 23 p(x)= .0001*
Somalia	m= 0.985 x= 4 p(x)= .997	m= 2.993 x= 0 p(x)= .050	m= 0.985 x= 0 p(x)= .373
Uganda	m= 2.007 x= 3 p(x)= .856	m= 4.015 x= 2 p(x)= .236	m= 7.008 x= 0 p(x)= .001*
Tanzania	m= 0.985 x= 4 p(x)= .997	m= 0.985 x= 3 p(x)= .938	m= 2.007 x= 0 p(x)= .134

(t) = target of intervention
m = frequency expected after intervention
x = frequency observed after intervention
p(x) = comulative probability of x, given m
* = significant at p>. 01.

its former African colonies, rather than a result of domestic disorder or the intervention itself.

The quantitative results reported here and accounts of the period thus seem to substantiate British officials' contentions of success in preserving the newly-independent states from what Sir Alec Douglas-Home described as attempted "illegal takeover by mutinous elements."

After the assassination of Trujillo in 1961, the internal affairs of the Dominican Republic were increasingly chaotic. The December 1962 elections resulted in the accession of Juan Bosch to the presidency, but his government was overthrown in a military coup in September 1963, and Bosch was forced into exile. But the political instability of Dominican politics continued.

> The kaleidoscope of Dominican politics, fueled by personal ambition and virtually unchecked by program commitments or mediating institutions, moved on to a new constellation. The Triumvirate—which was eventually transformed by a series of resignations and replacements into a two-man regime dominated by Donald J. Reid Cabral—was soon struggling to retain office.[56]

In the events of April 1965, Bosch, Reid, and the Dominican military would be central characters.

The American intervention into the Dominican Republic is especially noteworthy. The United States had intervened twice before—in 1905 and 1916, but the landing of troops in 1965 marked the first time in almost 40 years that an American government used its own forces in an overt action in Latin America. In its policy toward the region, a new element had been added to American strategy: the resolution to prevent "another Cuba." Finally, the American action is all the more significant since it occurred at the precise point in time when the United States was beginning to escalate its role in South Vietnam.[57]

The objectives of the United States in intervening in the Dominican Republic evolved in large measure in response to the rapidly developing and worsening crisis in Dominican politics. The Center for Strategic Studies describes four goals:

> American actions had four objectives. These were (1) the protection of American and other foreign lives, (2) the halting of violence, (3) the prevention of a Communist seizure of power, and (4) the opening of an option to the Dominican people to choose their leaders in a free election.[58]

The Dominican crisis had its roots in the coup of September 1963, and the ouster of Juan Bosch. A coalition of forces involved in the attempt to restore "constitutional government" under Bosch had begun to form as early as 1963. Bosch's own party, the Partido Revolucionario Dominicano (PRD), other moderate leftist groups, the radical left, and the major opposition party in the 1962 elections, the Union Civica Nacional, coalesced in opposition to the government that followed the 1963 coup. An important addition to this coalition were various disgruntled military officers and former officers.

An opposing coalition was composed of the more powerful segments of the Dominican army and air force, led by General Elias Wessin y Wessin, and the large commercial and business interests of Santo Domingo. The armed forces would play the key role in the events after April 24, when the crisis began.

On April 25, Reid was arrested by pro-Bosch military officers, Molina Urena was named provisional president, and nationwide broadcasts were made announcing the imminent return of Bosch to power. At the same time, the anti-Bosch forces, consisting primarily of the military forces under Generals Wessin and De Los Santos began attacks on the constitutionalists. "What had begun as a coup was rapidly turning into an incipient civil war."[59]

By April 27 the United States was prepared to intervene in the Dominican crisis. Historians are in agreement that the factors precipitating the American action were (1) evidence of large-scale violence as pro- and anti-Bosch forces clashed, (2) the very real possibility that the military under Wessin would fail to hold Santo Domingo, thereby raising the possibility of a constitutionalist victory and the return of Bosch to power, and (3) a growing concern over what was perceived as significant Communist participation in the crisis. The first marines landed in Santo Domingo on April 28; within 10 days the number of American troops would reach 23,000.

Turning to the results of analysis, there is clear indication of change in all three impact measures, as might be expected given the scope and intensity of the Dominican crisis. The immediate, significant increase in regime events reflected the rapid turnover of leadership after April 28.

The consistent significance of an increase in mass events suggests that the American (and later, OAS) presence served to increase the number of riots, demonstrations, and strikes. Accounts of the situation only partially substantiate this finding and suggest that these were "internally driven" events. Substantively, then, it seems apparent that

the US intervention was unable to restore civil order. Although Ecuador shows a similar pattern of increase in mass events, the plausibility of history for accounting for the increase in the case of the Dominican Republic seems doubtful, since none of the other matched countries reveals a like pattern.

The immediate decline in the number of structural events (primarily armed attacks) reflects the cease-fire the United States was able to obtain between the factions. But the decline is followed by a significant and substantial increase in armed attacks (Table 7c), corresponding to Slater's account that "by the end of September, the Dominican political system was once again torn by a civil-military crisis, as the military sought . . . to block civilian control of the armed forces and elections which could result in the return of Bosch to the presidency."[60] Mass violence and armed conflict among political groups continued through May 1966. On June 1 elections were held and Bosch was convincingly defeated by Joaquin Balaguer for the presidency.

Reviewing American goals outlined above, it seems the US intervention in the Dominican Republic in the end was generally successful.

> Whether or not there was a threat of Communist takeover on the island, we were able to go in, restore order, negotiate a truce among conflicting parties, hold reasonably honest elections which the right man won, withdraw our troops, and promote a very considerable amount of social and economic reform.[61]

A note of reservation must be appended to the assertion that order was restored in the Dominican Republic as a consequence of the American intervention, but the overall results substantiate *to a degree* the interpretation of an American success. Not only was Juan Bosch not returned to power, but the governments that followed the 1966 elections remained friendly toward the United States.

The results presented here are by no means conclusive with regard to establishing generalizations on the impact of foreign military intervention. Not only are these results subject to confirmation and/or refutation by replication, but an expanded sample of interventions requires examination before definitive statements can be tendered.

But the evidence mustered here does correspond to the limited store of empirical research on military intervention. One of the more important findings of this research is that military intervention has but

TABLE 7a

POISSON-BASED COMPARISON OF IMPACT MEASURES
(American intervention into the Dominican Republic)

Countries	Regime	Mass	Structural
Dom. Republic (t)	m= 1.005 x= 9 p(x)= .0001*	m= 5.027 x= 44 p(x)= .0001*	m= 38.209 x= 3 p(x)= .0001*
Ecuador	m= 2.011* x= 7 p(x)= .005*	m= 1.005 x= 16 p(x)= .0001*	m= 3.016 x= 6 p(x)= .085
Peru	m= 3.016 x= 3 p(x)= .644	m= 3.016 x= 0 p(x)= .05	m= 1.005 x= 20 p(x)= .0001*
Panama	m= 3.016 x= 1 p(x)= .197	m= 8.044 x= 4 p(x)= .097	m= 3.016 x= 0 p(x)= .05
Guatemala	m= 1.005 x= 5 p(x)= .004*	m= 0.000 x= 0 p(x)= .000	m= 4.022 x= 7 p(x)= .113
Haiti	m= 4.015 x= 2 p(x)= .236	m= 0.985 x= 0 p(x)= .373	m= 6.022 x= 2 p(x)= .061

TABLE 7b

CHECK FOR LAGGED RESPONSES IN IMPACT MEASURES
(American intervention into the Dominican Republic)

Countries	Regime	Mass	Structural
Dom. Republic (t)	m= 1.710 x= 6 p(x)= .028	m= 9.406 x= 43 p(x)= .0001*	m= 24.799 x= 42 p(x)= .0007*
Ecuador	m= 2.565 x= 6 p(x)= .046	m= 2.565 x= 15 p(x)= .0001*	m= 3.421 x= 4 p(x)= .661
Peru	m= 2.565 x= 3 p(x)= .474	m= 2.565 x= 0 p(x)= .077	m= 2.565 x= 19 p(x)= .0001*
Panama	m= 2.565 x= 1 p(x)= .274	m= 7.696 x= 7 p(x)= .496	m= 2.565 x= 0 p(x)= .077
Guatemala	m= 1.710 x= 5 p(x)= .03	m= 0.000 x= 0 p(x)= .000	m= 4.276 x= 10 p(x)= .011*
Haiti	m= 3.421 x= 2 p(x)= .336	m= 0.855 x= 0 p(x)= .425	m= 5.131 x= 2 p(x)= .114

TABLE 7c

CHECK FOR REGRESSION EFFECTS IN IMPACT MEASURES
(American intervention into the Dominican Republic)

Countries	Regime	Mass	Structural
Dom. Republic (t)	m= 1.005 x= 6 p(x)= .0006*	m= 5.027 x= 43 p(x)= .0001*	m= 38.209 x= 42 p(x)= .045
Ecuador	m= 2.011 x= 6 p(x)= .017	m= 1.005 x= 15 p(x)= .0001*	m= 3.016 x= 15 p(x)= .0001*
Peru	m= 3.016 x= 3 p(x)= .644	m= 3.016 x= 0 p(x)= .05	m= 1.005 x= 19 p(x)= .0001*
Panama	m= 3.016 x= 1 p(x)= .197	m= 8.044 x= 7 p(x)= .447	m= 3.016 x= 0 p(x)= .05
Guatemla	m= 1.005 x= 5 p(x)= .004*	m= 0.000 x= 0 p(x)= .000	m= 4.022 x= 10 p(x)= .008*
Haiti	m= 4.015 x= 2 p(x)= .236	m= 0.985 x= 0 p(x)= .373	m= 6.022 x= 2 p(x)= .061

(t) = target of intervention
m = frequency expected after intervention
x = frequency observed after intervention
p(x) = cumulative probability of x, given m
* = significant at p>. 01.

a limited effect on the structural behavior of target countries, especially where conflict among large, well-organized factions is involved. This tallies with Pearson's conclusion that, "while interveners and factions which invite intervention may seek 'stability,' the result of intervention is all too frequently (for as long as a year or more) violence and bloodshed."[62] What Zartman terms "the dual nature of 'state and revolution' " not only makes intervention a more frequent phenomenon in Arab and African affairs, but also suggests the apparent ineffectiveness of foreign states either to affect widespread domestic conflict in the short range or to impose "stability" by means of military intervention.[63]

A somewhat mixed record of success for intervening states is suggested by these results for the impact of military intervention on mass behavior in target countries. It appears that those relatively spontaneous actions are quelled by intervention, but the abilities of either the intervening state or the target country's government to maintain civil order after foreign intervention are not impressive.

More favorable results are achieved by intervening states in those instances where the issue of concern involves the target countries' regimes. Apparently, the effects of intervention on regime behavior are immediate and more permanent than for either of the two other impact categories. Again, this corresponds well with other findings. "Assassinations, coups . . . political executions, purges, and governmental crisis were quite unlikely to result in intervention from abroad."[64] In general, then, it appears that efforts to preserve regimes by intervening militarily on their behalf have been fairly successful.

An additional observation concerns the type and scope of interpretation given these four interventions and the results of their analysis. The assessments made here of the impact of foreign military interventions are circumscribed and restricted in large part to their quantitative aspects. The questions posed here reflect this quantitative bent: were there significant changes in the number of events between pre- and postintervention intervals? If so, what was the direction of change—increasing or decreasing? How does the observed change correspond to the intended direction of events in the sense that the intervening nation's intentions can be inferred to prescribe direction? "Significance" is a statistical criterion and "direction" a question of observed frequencies. The latter is a more substantive matter than the former and historical accounts of the four interventions have been employed to provide some validation of the interpretation provided here.

The self-imposed limitation of interpretation of the qualitative aspects of these interventions is a necessary one and one in keeping with the principal objectives of this research. The British intervention in Kenya is described here as a success, since the results of data-based analysis reveal a change in the number and type of events within Kenya commensurate with the stated aims of the British government and with historical accounts of the period. But the qualitative effects of the British action are subject to any number of interpretations. Some feeling for this conundrum can be gained by noting Slater's comment that "it is premature and remarkably short-sighted to consider the Dominican intervention a 'success'," and his subsequent arguments that "Communist, or, at least, radical and extremist strength in the Dominican Republic is far higher today than it was in April 1965, in good part because of the intervention," and that "the OAS was seriously undermined and is currently in the political doldrums"[65] as a result of the actions of 1956-66. Contrast these points with the conclusion of the Center of Strategic Studies report that all American objectives pursued in the Dominican intervention were attained.[66]

For the practitioner and for the scholar with an eye for the practical relevance of his research, such questions and a concern for nuance and qualitative distinctions are the substance of analysis. But in the context of the present research these questions are put aside in favor of the effort to derive a means of analysis by which systematic, empirical evidence can be obtained on the impact of foreign military intervention. The results of this analysis provide sufficient grounds to endorse the research strategy of military policy impact analysis. With some justification, then, it may be contended that the effort to extend data-based inquiry to the consequences of military actions has met with some initial success.

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APPENDIX A
MAJOR THREATS TO DESIGN VALIDITY

Threats to Internal Validity

History: events, other than the experimental treatment, occurring between pretest and posttest and thus providing alternate explanations of effects.

Maturation: processes within the respondents or observed social units producing changes as a function of the passage of time *per se,* such as growth, fatigue, secular trends, etc.

Instability: unreliability of measures, fluctuations in sampling persons or components, autonomous instability of repeated or "equivalent" measures. (This is the only threat to which statistical tests of significance are relevant.

Testing: the effect of taking a test upon the scores of a second testing: the effects of publication of a social indicator upon subsequent readings of that indicator.

Instrumentation: in which changes in the calibration of a measuring instrument or changes in the observers or scores used may produce changes in the obtained measurements.

Regression artifacts: Pseudo-shifts occurring when persons or treatment units have been selected on the basis of their extreme scores.

Selection: biases resulting from differential recruitment of comparison groups, producing different mean levels on the measure of effects.

Experimental mortality: the differential loss of respondents from comparison groups.

Selection-maturation interaction: selection biases resulting in differential rates of maturation of autonomous change.

Threats to External Validity

Interaction effects of testing: the effect of a pretest in increasing or decreasing the respondent's sensitivity or responsiveness to the experimental variable, thus making the results obtained for a pretested population unrepresentative of the effects of the experimental variable for the unpretested universe from which the experimental respondents were selected.

Interaction of selection and experimental treatment: unrepresentativeness of the treated population.

Reactive effects of experimental arrangements: "artificiality;" conditions making the experimental setting atypical of conditions of regular application of the treatment. ("Hawthorne effects" - an everpresent threat in work with artificial knowledge in gaming and simulation.)

Multiple-treatment interference: where multiple treatments are jointly applied, effects atypical of the separate application of the treatments.

Irrelevant responsiveness of measures: all measures are complex and all include irrelevant components that may produce apparent effects.

Irrelevant replicability of treatments: treatments are complex, and replications of them may fail to include those components actually responsible for the effects.

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11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE 1 June 1978
		13. NUMBER OF PAGES 48
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED
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military intervention; quasi-experimental analysis; analysis of military strategic policies.

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Concern for the consequences of nations' external actions is an intrinsic feature of making, observing and analyzing foreign and military policies. To date, however, very little data based research has been specifically devoted to the task of systematically evaluating such actions. This memorandum examines data for four cases of military intervention by means of the multiple time series design of quasi-experimental analysis in an effort to assess the short term consequences of those actions for the target countries involved.

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