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A CAUSAL MODEL OF CIVIL STRIFE:
A COMPARATIVE ANALYSIS USING NEW INDICES[1]

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This article describes some results of a successful attempt to assess and refine a causal model of the general conditions of several forms of civil strife, using cross-sectional analyses of data collected for 114 polities. The theoretical argument, which is discussed in detail elsewhere, stipulates a set of variables said to determine the likelihood and magnitude of civil strife.[2] Considerable effort was given here to devising indices that represent the theoretical variables more closely than the readily-available aggregate indices often used in quantitative cross-national research. One consequence is an unusually high degree of statistical explanation: measures of five independent variables jointly account for two-thirds of the variance among nations in magnitude of civil strife ($R = .80$, $R^2 = .64$).

It should be noted at the outset that this study does not attempt to isolate the set of conditions that leads specifically to "revolution," nor to assess the social or political impact of any given act of strife except as that impact is reflected in measures of "magnitude" of strife. The relevance of this kind of research to the classic concern of political scholarship with revolution is its attempt at identification and systematic analysis of conditions that dispose men to strife generally, revolution included.

I. THEORETICAL CONSIDERATIONS

The basic theoretical proposition is that a psychological variable, relative deprivation, is the basic precondition for civil strife of any kind, and that the more widespread and intense deprivation is among members of a population, the greater is the magnitude of strife in one or another form. Relative deprivation is defined as actors' perceptions of discrepancy between their value expectations (the goods and conditions of the life to which they believe they are justifiably entitled) and their value capabilities (the amounts of those goods and conditions that they think they are able to get and keep). The underlying causal mechanism is derived from psychological theory and evidence to the effect that one innate response to perceived deprivation is discontent or anger, and that anger is a motivating state for which aggression is an inherently satisfying response. The term relative deprivation is used below to denote the perceived discrepancy, discontent to denote the motivating state which is the postulated response to it. The relationship between discontent and participation in strife is however mediated by a number of intervening social conditions. The initial theoretical model stipulated three such societal variables that are explored here, namely coercive potential, institutionalization, and social facilitation.[3] Results of a previous attempt to operationalize

[2] Ted Gurr, "Psychological Factors in Civil Violence," *World Politics*, 20 (January 1968), 245–278.

[3] Coercive potential is labelled "retribution" in *ibid*. The theoretical model also stipulates a set of variables that determines the intensity of deprivation. In the research reported in the present article, deprivation was operationalized directly rather than by reference to its component variables. The causal mechanism of the theory is the frustration-aggression relationship, which the author has attempted to modify and apply to collective strife in the light of recent empirical and theoretical work, e.g., Leonard Berkowitz, *Aggression: A Social Psychological Analysis* (New York: McGraw-Hill, 1962), and Aubrey J. Yates, *Frustration and Conflict* (New York: Wiley, 1962).
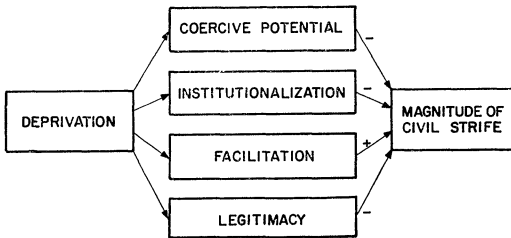
some of these variables and relate them to strife suggested that a fourth variable whose effects should be controlled is the legitimacy of the political regime in which strife occurs.[4]

The initial model, sketched in simplified form in Figure 1, specified no hierarchical or causal interactions among the mediating variables. Each was assumed to have an independent effect on the fundamental relationship between deprivation and strife. The theoretical arguments with reference to each variable are briefly stated here.

Great importance is attributed in psychological theory and equally, in theoretical and empirical studies of revolutionary behavior, to the inhibiting effects of punishment or coercion, actual or threatened, on the outcome of deprivation. The relationship is not necessarily a linear one whereby increasing levels of coercion are associated with declining levels of violence. Psychological evidence suggests that if an aggressive response to deprivation is thwarted by fear of punishment, this interference is itself a deprivation and increases the instigation to aggression. Comparative studies of civil strife suggest a curvilinear relationship whereby medium levels of coercion, indexed for example by military participation ratios or ratings of regime repressiveness, are associated with the highest magnitudes of strife. Only very high levels of coercion appear to limit effectively the extent of strife.[5] No systematic comparative study has examined

whether the curvilinear relationship also holds for levels of coercion actually applied. Comparative studies have, however, emphasized the importance of the loyalty of coercive forces to the regime as a factor of equal or greater importance than the size of those forces in deterring strife, and this relationship is almost certainly linear, i.e., the greater the loyalty of coercive forces, the more effective they are, *ceteris paribus*, in deterring strife.[6] Two measures of coercion are used in this study: *coercive force size*, which is hypothesized to vary curvilinearly with levels of strife, and coercive force size weighted for the degree of loyalty of coercive forces to the regime, referred to throughout as *coercive potential*, which is expected to have a linear relationship with strife.

The second intervening variable is *institutionalization*, i.e., the extent to which societal structures beyond the primary level are broad in scope, command substantial resources and/or personnel, and are stable and persisting. Representative of the diverse arguments about the role of associational structures in minimizing strife are Huntington on the necessity of political institutionalization for political stability, Kornhauser on the need for structures intervening between mass and elite to minimize mass movements, and a variety of authors on the long-range tendencies of labor organizations to minimize violent economically-based conflict.[7] Two underlying psychological processes are likely to affect the intensity of and responses to discontent. One is that the existence of such structures increases men's value opportunities, i.e., their repertory of alternative ways to attain value satisfaction. A complementary function is that of displacement: labor unions, political parties, and a range of other associations may provide the discontented with routinized and typically non-violent means for expressing their discontents.[8] The proposed relationship is linear: the greater the institutionalization, the lower the magnitude of strife is likely to be.

[4] Ted Gurr with Charles Ruttenberg, *The Conditions of Civil Violence: First Tests of a Causal Model* (Princeton: Center of International Studies, Princeton University, Research Monograph No. 28, April 1967).

[5] See Douglas Bwy, "Governmental Instability in Latin America: The Preliminary Test of a Causal Model of the Impulse to 'Extra-Legal' Change," paper read at the American Psychological Association Annual Convention, New York, September 2–6, 1966; Jennifer Walton, "Correlates of Coerciveness and Permissiveness of National Political Systems: A Cross-National Study," (M.A. thesis, San Diego State College, 1965); Gurr and Ruttenberg, *The Conditions of Civil Violence . . .* , 81–84.

[6] See, for example, Chalmers Johnson, *Revolution and the Social System* (Stanford: The Hoover Institution on War, Revolution and Peace, 1964), pp. 14–22.

[7] Samuel P. Huntington, "Political Development and Political Decay," *World Politics*, 17 (April 1965), 386–430; William Kornhauser, *The Politics of Mass Society* (New York: The Free Press, 1959); and Arthur M. Ross and George W. Hartmann, *Changing Patterns of Industrial Conflict* (New York: Wiley, 1960), among others.

[8] Gurr, "Psychological Factors. . ."

Given the existence of widespread discontent in a population, a great number of social and environmental conditions may be present that facilitate the outbreak and persistence of strife. They may be categorized according to their inferred psychological effects, for example, according to whether they facilitate interaction among the discontented, or provide the discontented with a sense that violent responses to deprivation are justified, or give them the means to make such responses with maximum effect, or shelter them from retribution.[9] Two aspects of facilitation are treated separately in this study: *past levels of .civil strife* and *social and structural facilitation* per se. The theoretical basis for the first of these variables is that populations in which strife is chronic tend to develop, by an interaction process, a set of beliefs justifying violent responses to deprivation; the French tradition of urban "revolution" is a striking example. Social and structural facilitation (referred to below as "facilitation") comprises aspects of organizational and environmental facilitation of strife, and the provision of external assistance. The operational hypotheses are that the greater the levels of past strife, and of social and structural facilitation, the greater is the magnitude of strife.

Two considerations suggested the incorporation of the fourth intervening variable examined in this study, *legitimacy of the regime*. A study of strife for the years 1961–1963 identified a number of nations that had less strife than might be expected on the basis of characteristics they shared with more strife-ridden polities.[10] One apparent common denominator among them was a high degree of popular support for the regime. This appeared consistent with Merelman's recently-proposed learning-theory rationale for legitimacy, to the effect that people comply with directives of the regime in order to gain both the symbolic rewards of governmental action and the actual rewards with which government first associated itself, an argument that applies equally well to acceptance of deprivation and is compatible with experimental findings, in work on the frustration-aggression relationship, that people are less aggressive when they perceive frustration to be reasonable or justifiable.[11]

[9] *Ibid.*

[10] Gurr and Ruttenberg, *The Conditions of Civil Violence* . . . , 100–106.

[11] Richard M. Merelman, "Learning and Legitimacy," this REVIEW, 60 (September 1966); see also the work of Pastore and of Kregarman and Worchel, reviewed in Berkowitz, *op. cit.*, *passim.*

The proposed relationship of legitimacy as an intervening variable is linear: the greater is regime legitimacy at a given level of deprivation, the less the magnitude of consequent strife.

II. OPERATIONAL MEASURES

The universe of analysis chosen for evaluating the model comprised 114 distinct national and colonial political entities, each of which had a population of one million or more in 1962.[12] Data on civil strife were collected for 1961 through 1965. Cross-sectional multiple and partial correlation techniques were used. The use of product-moment correlation coefficients was justified on grounds of their necessity for multiple regression, although not all the indicators formally meet the order-of-measurement requirements of the techniques used.

Because of the very considerable difficulties of operationalizing a number of the variables, and the fact that most of the indicators constructed are new, this article gives relatively close attention to the data collection and scaling procedures.

With the exception of magnitude of strife and its components, the underlying variables examined in this study are unmeasured and must be inferred from indicators. In most instances they are in fact unmeasureable by aggregate data, since they relate in the instance of deprivation-induced discontent to a state of mind, and in the case of the intervening variables to conditions that have their effect only insofar as the discontented perceive them, and moreover perceive them as relevant to their response to deprivation. Following Blalock's recommendation that "when dealing with unmeasured variables it will usually be advisable to make use of more than one indicator for each underlying variable," each of the summary measures used in this study is derived by combining two to seven indicators of the underlying variable. This procedure has not only the advantage Blalock attributes to it, namely of minimizing the effects of confounding variables, but also facilitates incorporation of various empirically-discrete conditions that have theoretically-identical effects.[13]

[12] Five polities meeting these criteria were excluded: Laos on grounds that at no time in the 1960's did it have even the forms of a unified regime, and Albania, Mongolia, North Korea, and North Vietnam for lack of sufficient reliable data. The universe nonetheless includes polities with more than 98 percent of the world's population.

[13] Hubert M. Blalock, Jr., *Causal Inferences in Nonexperimental Research* (Chapel Hill: University of North Carolina Press, 1964), pp. 166–167, italicized in original.

Magnitude of Civil Strife

The dependent variable of the theoretical model is magnitude of civil strife. Civil strife is defined as all collective, nongovernmental attacks on persons or property that occur within the boundaries of an autonomous or colonial political unit. By "nongovernmental" is meant acts by subjects and citizens who are not employees or agents of the regime, as well as acts of such employees or agents contrary to role norms, such as mutinies and coups d'état. Operationally the definition is qualified by the inclusion of symbolic demonstrative attacks on political persons or policies, e.g., political demonstrations, and by the exclusion of turmoil and internal war events in which less than 100 persons take part.

A three-fold typology of civil strife is also employed, based on an empirical typology of civil strife events identified by Rummel, Tanter, and others in a series of factor analyses. The general categories, and representative subcategories, are

(1) *Turmoil:* relatively spontaneous, unstructured mass strife, including demonstrations, political strikes, riots, political clashes, and localized rebellions.
(2) *Conspiracy:* intensively organized, relatively small-scale civil strife, including political assassinations, small-scale terrorism, small-scale guerrilla wars, coups, mutinies, and plots and purges, the last two on grounds that they are evidence of planned strife.
(3) *Internal war:* large-scale, organized, focused civil strife, almost always accompanied by extensive violence, including large-scale terrorism and guerrilla wars, civil wars, private wars, and large-scale revolts.[14]

Various measures of the relative extent of civil strife have been used in recent literature, among them counts by country of number of strife events of various types, factor scores derived from such typologies, number of deaths from violent strife, man-days of participation in strife, and scaling procedures that take account of both number of events and their severity.[15] One can infer from frustration-aggression theory that no single measure of magnitude of aggression, individual or collective, is likely to be sufficient. It is likely that high levels of discontent may be expressed either in intense, short-lived violence or in more protracted but less severe strife. Moreover, the proportion of a collectivity that participates in civil strife ought to vary with the modal intensity of discontent: mild discontent will motivate few to participate, whereas rage is likely to galvanize large segments of a collectivity into action.

Three aspects of civil strife thus ought to be taken into account in specifying its magnitude:

(1) *Pervasiveness:* the extent of participation by the affected population, operationally defined for this study as the sum of the estimated number of participants in all acts of strife as a proportion of the total population of each polity, expressed in terms of participants per 100,000 population.
(2) *Duration:* the persistence of strife, indexed here by the sum of the spans of time of all strife events in each polity, whatever the relative scale of the events, expressed in days.
(3) *Intensity:* the human cost of strife, indexed here by the total estimated casualties, dead and injured, in all strife events in each

[14] In each of a number of analyses by Rummel and others a set of "domestic conflict" measures was factor analyzed. Turmoil, indexed by riots and demonstrations, is found to be a distinct dimension in all the analyses; two other factors, labelled by Rummel "revolution" and "subversion," are in some cases separate and in others combined. Principal components of the "revolution" dimension are coups, palace revolutions, plots, and purges; the category is labelled here conspiracy. Guerrilla war and terrorism are major components of the "subversion" dimension, here labelled internal war. See Rudolph J. Rummel, "A Field Theory of Social Action With Application to Conflict Within Nations," *Yearbook of the Society for General Systems Research,* X (1965), 189–195; and Raymond Tanter, "Dimensions of Conflict Behavior Within Nations, 1955–1960:

Turmoil and Internal War," *Peace Research Society Papers,* III (1965), 159–183. The subcategories used here are adapted, with their operational definitions, from Rummel, "Dimensions of Conflict Behavior Within and Between Nations," *Yearbook of the Society for General Systems Research,* VIII (1963), 25–26.

[15] See, for example, Rummel, *op. cit.;* Tanter, *op. cit.;* Bruce M. Russett, "Inequality and Instability: The Relation of Land Tenure to Politics," *World Politics,* 16 (April 1964), 442–454; Charles Tilly and James Rule, *Measuring Political Upheaval* (Princeton: Center of International Studies, Princeton University, 1965); and Ivo K. and Rosalind L. Feierabend, "Aggressive Behaviors Within Polities, 1948–1962: A Cross-National Study," *Journal of Conflict Resolution,* 10 (September 1966), 249–271.

polity as a proportion of the total population, expressed as casualties per 10,000,000 population.

To approximate these requirements an extensive data-collection and -estimation effort was undertaken. Coding sheets and a coding manual were devised for recording a variety of information about any strife event, and a large number of sources scanned and coded to get as full as possible a representation of the strife events that occurred in the 114 polities in the 1961–1965 period. Three sources were systematically searched for data: the *New York Times* (via its *Index*), *Newsyear* (the annual volumes of *Facts on File*), and *Africa Digest*. This information was supplemented from a variety of other sources, among them *The Annual Register of World Events, Africa Diary: Weekly Record of Events in Africa, Hispanic-American Report*, and country and case studies. Some 1100 strife events were thus identified, coded, and the data punched onto IBM cards.[16] Many small-scale strife events, and some larger ones, probably went unreported in these sources and hence are not included in this civil strife data bank. Moreover, much reported and estimated data is in varying degrees inaccurate. However, neither random nor systematic error seem sufficient to affect in any substantial way the analyses or conclusions reported here; the data are adequate for the purposes to which they are put.[17]

[16] Information coded, in addition to that required for the three measures specified, included the socio-economic class(es) of the initiators, the social context in which they acted, the category of events, the targets and apparent motives of action, the number and role of coercive forces, and the extent and types of external support for initiators and regime, if any. Although no formal reliability tests were undertaken, the four coders did extensive practice coding on the same set of materials prior to coding and reviewed points of disagreement, and the author reviewed all coding sheets for internal consistency and, where necessary, recoding or search for additional information. It should be noted that the 1100 "events" include many cumulated reports, e.g., civil rights demonstrations in the U.S. were treated as a single set of events, all European-OAS terrorism in Algeria as a single event, etc.

[17] It has been suggested that strife in countries with press restrictions is under-reported. As a check on this type of systematic error a nine-point measure of press freedom was incorporated in initial analyses; the measure is from Raymond B. Nixon, "Freedom in the World's Press: A Fresh Appraisal With New Data," *Journalism Quar-*

Data estimation procedures were used to circumvent the substantial missing-data problem. Methods for determining number of initiators serve as examples. The coding sheet itself contained two "number of initiator" scales. The first was a modified geometric progression of two used to record proximate estimates of initiators, its first interval being 1 to 40, its highest 55,001 to 110,000; for purposes of summing such estimates to obtain total number of initiators, the midpoint of each interval was used. The second scale was used for recording rough estimates, sometimes coder estimates, of number of initiators, ranging from "less than 100" (set equal to 40 for purposes of computing totals) to "10,001 to 100,000" (set equal to 40,000). Data for events for which no estimate could be made were supplied by calculating and inserting means for the appropriate subcategory of event, e.g., if a riot was coded "no basis for judging" for number of initiators, it was assigned the average number of initiators of all riots for which estimates were available.

"Duration" posed little difficulty, being coded on a geometric progression whose first two intervals were "one-half day or less" and "one-half to one day," and whose upper intervals were four to nine months, nine to fifteen months, etc. No event was assigned a duration of more than five years, though some began before and/or persisted after the 1961–1965 period.

Casualties were coded similarly to number of initiators, the principal missing-data component being estimates of injuries. The ratio of injuries to deaths was calculated for all events of each subcategory for which both data were available—the general ratio for all well-reported strife being 12:1—and was used to estimate injuries for all such events for which "deaths" but not injuries estimates were given.[18]

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terly (Winter 1965), 3–14. The correlations of this measure, in which high scores reflect low press freedom, with some measures of strife are: Duration, +19; Intensity, +17; Pervasiveness, −16; Total magnitude of strife, +11. The first two are significant at the .05 level, the third at .10. In effect, *more* strife tends to be reported from polities with low press freedom, not less, as might be expected. The results almost certainly reflect the association of high levels of economic development and press freedom in the Western nations, which tend to have less strife than the developing nations.

[18] The missing-data procedures gave implausibly-high estimates for initiators and casualties for

Strife events occurred in 104 of the 114 polities during the 1961–65 period. Pervasiveness, Duration, and Intensity scores were calculated separately, following the guidelines specified above, for turmoil, conspiracy, and internal war for each country, and for all strife taken together for each polity. All the distributions were highly skewed, hence were subjected to a log $(X+1)$ transformation. To obtain combined magnitude scores for turmoil, conspiracy, internal war, and all strife, the three component logged scores were added, divided by eight to obtain their eighth root, and the anti-log used as the polity magnitude-of-strife score. The distributions remained skewed, but substantially so only in the case of internal war, which by our definitions occurred in only 25 of the 114 polities.[19]

Measures of Deprivation

A very large number of conditions are likely to impose some degree of relative deprivation on some proportion of a nation's citizens. Similarly, all men are likely to be discontented about some of their conditions of life at some point in time. On the basis of prior theoretical and empirical work, however, it was possible to construct, and subsequently to combine, a set of cross-nationally comparable indices of conditions that by inference cause pervasive

and intense types of deprivation, relying in part on aggregate data and in part on indices constructed by coding narrative and historical material. In the initial stages of data collection a large number of measures were constructed, some of them representing short-term and some persisting conditions, some of each relating to economic, political, and sociocultural deprivation. Whenever possible, separate measures were included of the intensity of inferred deprivation and of its pervasiveness, i.e., of the proportion of population presumably affected, plus a third measure combining the two elements. A correlation matrix for 48 such measures and a variety of strife measures was generated, and 13 representative deprivation measures selected for combination.[20] The general rationale for the two general types of measures, short-term and persisting deprivation, and the measures finally selected, are summarized below.

Persisting Deprivation: In the very long run men's expectations about the goods and conditions of life to which they are entitled tend to adjust to what they are capable of attaining. In the shorter span, however, some groups may persistently demand and expect values, such as greater economic opportunity, political autonomy, or freedom of religious expression, that their societies will not or cannot provide.

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(1) *Economic discrimination* is defined as systematic exclusion of social groups from higher economic value positions on ascriptive bases. For each polity the proportion of population so discriminated against, if any, was specified to the nearest .05, and the intensity of deprivation coded on a four-point scale (see below). The proportion and the intensity score were multiplied to obtain a polity score.

(2) *Political discrimination* is similarly defined in terms of systematic limitation in form, norm, or practice of social groups' opportunities to participate in political activities or to attain elite positions on the basis of ascribed characteristics. Proportionality and intensity scores were determined and combined in the same manner as economic discrimination scores. The "intensity" scales were defined as follows:

Intensity Score	Economic Discrimination	Political Discrimination
1	Most higher economic value positions, *or* some specific classes of economic activity, are closed to the group.	Some significant political elite positions are closed to the group, *or* some participatory activities (party membership, voting, etc.).

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a number of events. In subsequent and comparable analysis it seems advisable to rely on estimates of deaths alone, rather than casualties, and to insert means derived from comparable events *in comparable countries* rather than such events in all countries.

[19] Tables are available on request from the author listing the 114 countries, their strife scores, the summary measures of deprivation and me-

diating conditions discussed below, and the data sources.

[20] The 48 deprivation measures, with only one statistically significant exception, were positively associated with strife, most of them at a relatively low level. The thirteen were selected with regard to their representativeness, relatively high correlations with the dependent variables, and low intercorrelations.

Intensity Score	*Economic Discrimination*	*Political Discrimination*
2	Most higher and some medium economic value positions are closed, *or* many specific classes of economic activity.	Most or all political elite positions are closed *or* most participatory activities, *or* some of both.
3	Most higher and most medium economic value positions are closed.	Most or all political elite positions and some participatory activities are closed.
4	Almost all higher, medium, and some lower economic value positions are closed.	Most or all political elite positions and most or all participatory activities are closed.

(3) *Potential separatism* was indexed by multiplying the proportional size of historically-separatist regional or ethnic groups by a four-point intensity measure.[21] The intensity of separatist deprivation was scored as follows:

Intensity Score	*Type of Inferred Separatism*
1	The separatist region or group was incorporated in the polity by its own request or mutual agreement.
2	The separatist region or group was assigned to the polity by international agreement or by fiat of a former colonial or governing power, except when (3) or (4) below holds.
3	The separatist region or group was forcibly assimilated into the polity prior to the twentieth century, *or* was forcibly conquered by a former colonial power prior to the twentieth century.
4	The separatist region or group was forcibly assimilated into the polity during the twentieth century, *or* was forcibly reassimilated in the twentieth century after a period of autonomy due to rebellion or other circumstance.

(4) *Dependence on private foreign capital*, indexed by negative net factor payments abroad as a percentage of Gross Domestic Product in the late 1950's, is assumed to be a chronic source of dissatisfaction in an era characterized by economic nationalism. The greater the proportion of national product that accrues to foreign suppliers of goods or capital, the greater the inferred intensity of deprivation; the extent of such deprivation was assumed equal to the proportion of population engaged in the monetary economy. The polity score is the extent score $\times$ the intensity score.[22]

(5) *Religious cleavages* are a chronic source of deprivation-inducing conflict. The scale for intensity of religious cleavage takes account both of number of organized religious groups with two percent or more of total population (the major Christian and Muslim subdivisions are counted as separate groups) and of the duration of their coexistence, the greater that duration the less the inferred intensity. The extent measure is the proportion of the population belonging to any organized religious group. The polity score is the product of the two scores.

(6) *Lack of educational opportunity* was indexed, in proportionality terms only, by subtracting primary plus secondary school enrollment ratios ca. 1960 from 100. Education is so widely regarded as an essential first step for individual socio-economic advancement that one can infer deprivation among the uneducated, and among the parents of children who cannot attend school if not yet among the children themselves.

Six indicators of persisting deprivation were combined to obtain a single long-run deprivation measure.

These six measures all had distributions approaching normality, and correlations with

[21] Coding judgments for both discrimination indices and for separatism were made on the basis of country studies. The proportionality measures are versions of indices reported in Ted Gurr, *New Error-Compensated Measures for Comparing Nations* (Princeton: Center of International Studies, Princeton University, 1966), 67–90.

[22] A crude measure of the proportion of each polity's population engaged in the monetary economy, to the nearest .10, was constructed for the purpose of weighting this and some other measures. The measure was based primarily on labor census data.

several strife measures ranging from .09 to .27. To combine them they were weighted to bring their means into approximate correspondence, and each polity's scores added and then averaged to circumvent the missing data problem.

Short-Term Deprivation: Any sharp increase in peoples' expectations that is unaccompanied by the perception of an increase in value capabilities, or any abrupt limitation on what they have or can hope to obtain, constitute relative deprivation. We inferred that short-term, relative declines in system economic and political performance were likely to be perceived as increased deprivation for substantial numbers of people. Indices were devised of five kinds of short-term economic deprivation and two of political deprivation.

(1) *Short-term trends in trade value, 1957–60 compared with 1950–57:* The percentage change of trade value, exports +imports, for 1957–60 was compared with the rate for 1950–1957, and any relative decrease in the later period was treated as an indicator of short-term economic deprivation. Decreases were scaled so that polities with lower rates of increase in the earlier period received greater deprivation scores than those with high rates.

(2) *Short-term trends in trade value, 1960–63 compared with 1950–60:* Procedures identical with (1), above, were used. Both measures were incorporated in the final analysis because both were markedly correlated with strife measures but had a relatively low intercorrelation of .18.[23]

(3) *Inflation 1960–63 compared with 1958–61:* Data on cost-of-living indices were scaled and combined in such a way that the highest deprivation scores were assigned to polities with substantial and worsening inflation in the 1958–63 period, the lowest scores (0) to polities with stable or declining costs-of-living throughout the period.

(4) *1960–63 GNP growth rates compared with 1950's growth rate:* Economic growth rate data were scaled so that polities having low rates in the 1950's and even lower rates in the early 1960's received the highest deprivation scores; those with moderate rates in the 1950's but substantial relative decline in the early 1960's received somewhat lower deprivation scores; and those with steadily high, or moderate but steadily increasing, rates received zero deprivation scores.

(5) *Adverse economic conditions 1960–63:* To supplement aggregate data indicators of economic deprivation, several summary news sources were searched for evaluative statements about adverse internal economic conditions such as crop failures, unemployment, export market slumps, drought, etc. Each such description was coded on the following intensity and extent scales:

"Severity" (Intensity) Scores		"Proportion Affected" (Extent) Scores	
Moderate	=1	One region or city, *or* a small economic sector	=0.2
Substantial, *or* moderate and persisting for more than one year	=2	Several regions or cities, *or* several economic sectors	=0.5
Severe, *or* substantial and persisting for more than one year	=3	Much of country, *or* several major or one dominant economic sector	=0.7
Severe *and* persisting for more than one year	=4	Whole country, *or* all economic sectors	=1.0

The score for each such condition is the product of the extent and intensity scores; the score for each polity for each year is the sum of the "condition" scores; and the score used for the summary index is the sum of annual scores for 1960 through 1963. The sources used were *Hispanic-American Report* for Latin America and the *Annual Register* for other polities.[24]

(6) *New restrictions on political participation and representation by the regime* were coded from the same sources for the same years. Seventeen types of action were defined on *a priori* grounds as value-depriving political restrictions, including harrassment and banning of parties of various sizes, banning of political activity, and improper dismissal of elected assemblies and executives. These were ranked on a nine-point intensity scale.[25] The extent measure was the politically-participatory proportion of the population, crudely estimated to the nearest .10 on the basis of voting participa-

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[23] The two measures will be used in subsequent analyses to examine time-lag relationships between short-term economic deprivation and strife. The trade data, obtained primarily from United Nations sources, was converted to U.S. currency when necessary to maintain comparability over time.

[24] The *Hispanic-American Report* is much more comprehensive a source, hence the mean deprivation scores for Latin America were much higher than those for other polities. As a crude adjustment, the Latin American polity scores were divided by a constant so that their mean approximated that of other polities. The same procedure was followed for indices 6 and 7, below. Analyses of regional clusters of polities, not reported here, provide a check on the adequacy of the procedure.

[25] Types of restrictive actions, and their scale values, are as follows:

1 Amalgamation of splinter party with larger party
1 Restriction or harrassment of splinter party
2 Banning of splinter party
2 Amalgamation of minority party with larger party
2 Restriction or harrassment of minority party
3 Banning of minority party
3 Amalgamation of a major party with another major party
3 Restriction or harrassment of major party
4 Banning of major party
4 Improper dismissal of regional representative body
4 Improper dismissal of elected regional executive
5 Ban on party activities, parties allowed to continue their organizational existence
5 Improper dismissal of national legislature, with provision for calling new one within a year
5 Improper dismissal of elected chief executive, with provision for replacement within a year
6 Dissolution of all parties, ban on all political activity
6 Improper dismissal of national legislature, no short-term provision for reestablishment
6 Improper dismissal of elected chief executive, no short term provision for reelection

tion levels and, in lieu of voting data, on the basis of urbanization and literacy levels. The score for each action identified is the product of the intensity and extent scores; the annual polity score the sum of "action" scores; and the summary index the sum of annual scores for 1960–63.

(7) *New value-depriving policies of governments 1960–63* were defined as any new programs or actions that appeared to take away some significant proportion of attained values from a numerically or socially significant group, for example land reform, tax increases, restrictions on trade, limitations of civil liberties, restrictive actions against ethnic, religious, or economic groups, and so forth. Two aspects of such policies were taken into account in scaling for intensity: the degree of deprivation imposed, and their equality of application. The "degree of deprivation" scale values are: small = 1, moderate = 2, substantial = 3, most or all = 4. The "equality of application" scale values are: uniform = 1, discriminatory = 2. The intensity score is the product of values on these two scales. The most intensely depriving policies are assumed to be those intentionally discriminatory and designed to deprive the affected group of most or all the relevant value, e.g. seizure of all property of absentee landlords without compensation (score = 8). Deprivation is inferred to be least intense if the policy is uniformly applicable to all the affected class of citizens and deprives them of only a small part of the value, e.g. a five percent increase in corporation tax rates (score = 1). The extent measure is a crude estimate of the proportion of the adult population likely to be directly affected, the permissible values being .01, .02, .05, .10, .20, .40, .60, .80 and 1.00. The score for each policy identified is the product of the intensity and extent scores; the annual polity score the sum of "policy" scores; and the summary index the sum of annual scores for 1960–63. The sources are the same as for (6) and (7).[26]

Three summary short-term deprivation scores were calculated for each polity from these seven indices. The five economic variables were multiplied by constants so that their means were approximately equal and averaged to circumvent the missing-data problem. This is the "short-term economic deprivation" index referred to below. The summary measures of politically-related deprivation were similarly combined to obtain a summary "short-term political deprivation" measure. The two measures were then added to comprise a single "short-term deprivation" measure for the purposes of some subsequent analyses.

Measures of the Mediating Variables

Coercive Potential and Size of Coercive Forces: A composite index was constructed to take into account four aspects of the regime's apparent potential for controlling strife. Two of the component indices represent the manpower resources available to the regime, namely military and internal security forces participation ratios, i.e., military personnel per 10,000 adults ca. 1960 (n = 112), and internal security forces per 10,000 adults (n = 102). The two distributions were normalized and their means brought into correspondence by rescaling them using 10-interval geometric progressions. The other two component indices deal respectively with the degree of *past loyalty of coercive forces to the regime*, and the extent of *illicit*

[26] The annual scores for (5), (6), and (7) are being used in a series of time-lagged and cross-panel correlation analyses, not reported here, in further tests of causal relationships.

coercive-force participation in strife in the 1960–65 period.

The rationale for the five-point coercive-force loyalty scale, below, is that the more recently coercive forces had attacked the regime, the less efficacious they would be perceived to be by those who might initiate strife—and the more likely they might be to do so again themselves. Countries were scored on the basis of information from a variety of historical sources.

Loyalty Score *Regime Status and Military Attempts to Seize Control of the Regime*

5   As of 1960 the polity or its metropolitan power had been autonomous for 25 years or more and had experienced no military intervention since 1910.

4   As of 1960 the polity or its metropolitan power had been autonomous for 5 to 24 years and had experienced no military intervention during that period; *or* had been autonomous for a longer period but experienced military intervention between 1910 and 1934.

3   The polity last experienced military intervention between 1935 and 1950, inclusive.

2   The polity last experienced military intervention between 1951 and 1957, inclusive.

1   The polity last experienced military intervention between 1958 and 1960, inclusive.

For 28 polities that became independent after 1957 no "loyalty" score was assigned unless the military or police did in fact intervene between independence and the end of 1960. For purposes of calculating the summary score, below, a military loyalty score for these polities was derived from the "legitimacy" score.

Insofar as the military or police themselves illicitly initiated strife in the 1961–65 period, they lost all deterrent effect. To quantify the extent of such involvement, all military or police participation in strife was determined from the data bank of 1100 events and for each polity a "coercive forces strife participation" score calculated, by weighting each involvement in a mutiny or a turmoil event as one and each involvement in any other event (typically coups and civil wars) as two, and summing for each country.

All four of the "coercive potential" measures were correlated in the predicted direction with several preliminary measures of strife levels. The participation ratios had low but consistently negative correlations with strife; the "loyalty" and "strife participation" indices had correlations of the order of −40 and +40 with strife respectively.[27] The composite "coercive potential" score was calculated by the following formula:

$$\text{Coercive potential} = 10 \cdot \sqrt{\frac{L[2(\text{HiR}) + 1(\text{loR})]}{1 + P}}$$

where

  L = "loyalty" score;
  HiR = the higher of the scaled military and security forces participation ratios;[28]
  loR = the lower of the participation ratios; and
  P = "coercive forces strife participation" score.

The effect of the formula is to give the highest coercive potential scores to countries with large coercive forces characterized by both historical and concurrent loyalty to the regime. The more recently and extensively such

forces have been involved in strife, however, the lower their coercive potential score.

A second coercion measure was included in the final analysis to permit a further test of the curvilinearity hypothesis. The measure used is the expression in brackets in the coercive potential formula above, i.e., a weighted measure of the relative sizes of military and internal security forces (*coercive force size*).

Institutionalization: Indices of institutional strength and stability which I found in previous analyses to be negatively associated with strife are the *ratio of labor union membership to nonagricultural employment, central government budgeted expenditure as a percentage of Gross Domestic Product*, ca. *1962*, and the *stability of the political party system.*[29] A ten-interval geometric progression was used to normalize the first of these indices, the second was multiplied by 100 and rounded to the nearest 10. To index characteristics of party systems two scales were used, one relating to the number of parties, the other to party system stability per se:

No. of parties score	Characteristics
0	no parties, or all parties illegal or ineffective
1	one or several parties, membership sharply restricted on ascriptive bases (typically along ethnic lines) to less than twenty percent of the population
2	one party with no formal or substantial informal restrictions on memberships
3	one party dominant
4	two-party (reasonable expectation of party rotation)
5	multi-party

Party system stability score	Party System Characteristics
0	no parties, or membership restricted on ascriptive bases to less than twenty percent of population
1	unstable

[27] These are product-moment correlation coefficients, the strife measures including measures of duration, pervasiveness, intensity, and total magnitude of strife for 1961–65. The last two strife measures are defined differently from those employed in the present analysis, but are derived from the same 1100-event data bank.

[28] If one or the other ratio was missing, it was assumed equal to the known ratio. Internal security force ratios for 94 polities are reported in Gurr, *New Error-Compensated Measures for Comparing Nations*, 111–126.

[29] The first two indices are reported in *ibid.*, 33–66, 91–110. Correlations among all three and strife measures are reported in Gurr and Ruttenberg, *The Conditions of Civil Violence, passim*. The party characteristics are recoded from Arthur S. Banks and Robert B. Textor, *A Cross-Polity Survey* (Cambridge: MIT Press, 1963), raw characteristics 41 and 43.

Party system
stability score   *Party System Characteristics*

   2   all parties relatively new (founded
            after 1945), long-range stability
            not yet ascertainable
   3   moderately stable
   4   stable

Scores on these two scales were combined on an 8-point scale using party stability as the primary indicator of institutionalization but giving highest scores at each stability level to systems with larger numbers of party structures.

The summary institutionalization measure was constructed using this formula:

$$\text{Institutionalization} = 3\,(\text{hiI}) + 2\,(\text{midI}) + \text{loI},$$

where hiI = the highest of the three institutionalization scores, etc. This procedure gives greatest weight to the most institutionalized sector of society on the assumption that high institutionalization in one sector compensates for lower levels in others. The highest scores are attained by the Eastern European Communist states while the scores of the Western European democracies are slightly lower. The lowest-scoring polities are Ethiopia, Haiti, Nepal, and Yemen.

Facilitation: Two aspects of facilitation were indexed separately: *past levels of civil strife* and *"social and structural facilitation"* per se. The "past levels of strife" measure was derived from the Eckstein data on frequency of internal wars of various types in the period 1946–59; although its reliability is only moderate it covers a longer period and a larger number of polities than other available data.[30] Data were collected for those of the 114 polities not included in the Eckstein tabulation, using the same procedure, a *New York Times Index* count, and recollected for a few others. Weights were assigned to events in various categories, e.g. riots = 1, coups = 5, and a summary score for each polity calculated. The distribution was normalized with a log $(X+1)$ transformation.

The terrain and transportation network of a country constitute a basic structural limitation on the capabilities of insurgents for maintaining a durable insurrection. A complex "inaccessibility" index was constructed taking account of the extent of transportation net-

works related to area, population density, and the extent of waste, forest, and mountainous terrain; the highest inaccessibility scores were received by polities like Bolivia, Sudan, and Yemen, which have limited transportation networks and large portions of rugged terrain.[31]

A crucial "social" variable that facilitates strife is the extent to which the discontented can and do organize for collective action. The relative strength of Communist Party organizations was used as a partial index, taking into account both the number of party members per 10,000 population and the status of the party. Unfortunately no comparable data could be obtained for extremist parties of the right. Party-membership ratios were rescaled to an 11-point scale based on a geometric progression of 2. The party status scale, below, is based on the premise that illegal parties are more facilitative of strife because their membership is likely, because of the exigencies of repression, to be more dedicated, better organized, and committed to the more violent forms of conflict. Factionalized parties are assumed to be more facilitative because they offer more numerous organizational foci for action.

Score   *Communist party status and characteristics*
   0   In power *or* nonexistent.
   1   Out of power; no serious factionalization
         or multiple organization; party permitted to participate in electoral activities.
   2   Out of power; multiple factions or organizations; party permitted to participate in electoral activities.
   3   Out of power; party excluded from electoral activities but other party activities tolerated.
   4   Out of power; no serious factionalization or multiple organization; party illegal and/or actively suppressed.
   5   Out of power; multiple factions or organizations; party illegal and/or actively suppressed.

The score for each polity is the scaled membership ratio times the party status score.

The third measure of facilitation is the extent of external support for initiators of strife in the 1961–65 period. Each strife event in the 1100-event data bank was coded for the degree of support for initiators (if any) and for the

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[30] Harry Eckstein, "Internal War: The Problem of Anticipation," in Ithiel de Sola Pool *et al.*, *Social Science Research and National Security* (Washington, D.C.: Smithsonian Institution, March 5, 1963).

[31] Inaccessibility appears to be an almost-but-not-quite necessary condition for protracted internal wars. With one exception all such internal wars in the post-1945 period occurred in polities with high or very high scores on this index; the exception, a notable one, is Cuba.

number of nations supporting the initiators in any of these ways. The scale points for "degree of support" are provision of arms and supplies (=1), refuge (=2), facilities and training (=3), military advisors and mercenaries (=4), and large (1,000+) military units (=5). The event support score is the "degree" score times the "number of nations" score, these scores then being summed for all events for each polity to obtain a polity score. This measure alone has a relatively high correlation with strife level measures, ranging from .3 to .4; its two extreme outliers, South Vietnam and the Congo, are also among the three extreme outliers on the total magnitude of strife distribution.

The three social and structural facilitation measures were weighted to bring their means into approximate correspondence, several missing-data items estimated, and the weighted measures added to obtain the composite index.

Legitimacy: The legitimacy of a regime can be defined behaviorally in terms of popular compliance, and psychologically by reference to the extent to which its directives are regarded by its citizens as properly made and worthy of obedience. In lieu of evidence on compliance or allegiance necessary to operationalize the concept directly, I combined one indicator of an inferred cause of legitimacy, the circumstances under which the regime attained its present form, with an indicator of an inferred effect, the durability of the regime. The "character" of the regime was scored on a seven-point scale:

Character Score	Origins of national political institutions
7	Institutions are wholly or primarily accretive and autochthinous; reformations, if any, had indigenous roots (although limited foreign elements may have been assimilated into indigenous institutions).
6	Institutions are a mixture of substantial autochthinous and foreign elements, e.g. polities with externally-derived parliamentary and/or bureaucratic systems grafted to a traditional monarchy.
5	Institutions are primarily foreign in origin, were deliberately chosen by indigenous leaders, and have been adapted over time to indigenous political conditions. (By adaptation is meant either the

Character Score	Origins of national political institutions
	modification of regime institutions themselves or development of intermediate institutions to incorporate politically the bulk of the population.)
4	Institutions are primarily foreign in origin, have been adapted over time to indigenous political conditions, but were inculcated under the tutelage of a foreign power rather than chosen by indigenous leaders of their own volition.
3	Institutions are primarily foreign in origin, were deliberately chosen by indigenous leaders, but have *not* been adapted over time to indigenous political conditions.
2	Institutions are primarily foreign in origin, were inculcated under the tutelage of a foreign power, and have not been adapted to indigenous political conditions.
1	Institutions are imposed by, and maintained under threat of sanctions by, foreign powers (including polities under colonial rule as of 1965).

A similar scale, based on the number of generations the regime had persisted as of 1960 without substantial, abrupt reformation, was constructed for durability:

Durability Score	Last major reformation of institutions before 1960
7	More than eight generations before 1960 (before 1800).
6	Four to eight generations (1801–1880).
5	Two to four generations (1881–1920).
4	One to two generations (1921–1940).
3	One-half to one generation (1941–1950).
2	One-quarter to one-half generation (1951–1955).
1	Institutions originated between 1956 and 1960, or were in 1960 in the process of transition.

Examples of coding decisions about "major reformations" are that France experienced such a change in 1957; that most French tropical African polities date their basic institutional structures from the 1946 reforms, not the year of formal independence; that the Canadian regime dates from 1867, when dominion status was attained; and that many Latin American regimes, despite performance of musical chairs at the executive level, attained their basic institutional structures at various (historically specified and coded) points in the mid- or late nineteenth century.

The summary legitimacy index was constructed by summing and rescaling the "character" and "durability" scores.[32]

III. RESULTS OF CORRELATION AND REGRESSION ANALYSIS

The results of four multiple regression analyses are discussed in this paper, one of them in detail. The dependent variables in the four analyses are, respectively, total magnitude of civil strife, magnitude of conspiracy, magnitude of internal war, and magnitude of turmoil. The correlations between the ten summary independent variables and these four strife measures are given in Table I. The independent variables all correlate with the dependent variables in the predicted direction, with the exception of coercive force size. The r's for the remaining nine independent variables are significant at the .01 level except for four correlates of internal war, three of which are significant at the .05 level.

The hypothetical curvilinear relationship between coercive force size and total magnitude of strife (TMCS) is examined graphically in Figures 2 and 3, each of which is a smoothed curve of deciles of the independent variable plotted against TMCS. Figure 2, based on all 114 polities, suggests an apparent tendency, among countries with relatively small forces, for strife to increase with the size of those forces, and also a slight increase in TMCS at very high levels of coercive forces.[33] It is quite

[32] The following rescaling was used, the sum of the "durability" and "character" scores being given on the upper line, the final legitimacy score on the lower:

Sum: 3,4 5 6 7 8 9 10 11 12 13,14
Legitimacy: 0 1 2 3 4 5 6 7 8 9

[33] The S-shape of this relationship is considerably more pronounced when coercive-force size is related to total magnitude of turmoil; see Ted Gurr, "Why Urban Disorder? Perspectives from the Comparative Study of Civil Strife," *American Behavioral Scientist*, 10 (March-April 1968).

likely that countries with protracted political violence expand their coercive forces to meet it. It also seems likely that armies in countries facing foreign threats cause less dissatisfaction—by their presence or actions—than armies in states not significantly involved in international conflict. Both factors might contaminate the proposed curvilinear relationship, so countries with either or both characteristics were removed and the relationship plotted for the remaining 69 countries; the results, in Figure 3, show curvilinearity even more distinctly. Figure 4 indicates that the measure of coercive force potential, in which size is weighted for military loyalty to the regime, is essentially linear, as predicted. The latter measure is used in the multiple regression analyses, below.

Eight of the ten independent variables (excluding coercive force size and short-term deprivation, the sum of the two specific short-term deprivation measures) are included in the multiple regression analyses summarized in Table 2. The variables yield considerable and significant multiple correlation coefficients (R), including a high R of .806 for total magnitude of strife ($R^2 = .650$); a moderately high R for conspiracy of .630 ($R^2 = .397$); a similar R for internal war of .648 ($R^2 = .420$); and a somewhat lower R for turmoil of .533 ($R^2 = .284$).[34] There are several possible explanations for the finding that total magnitude of strife is accounted for nearly twice as well as the several forms of strife. One technical factor is that all the class-of-strife measures have greater distributional irregularities than does TMCS,

[34] Significant computational errors in internal war and TMCS scores of several countries were identified and corrected after completion of the analyses reported here. Robert van den Helm of Princeton University has analyzed the corrected data, using the combined short-term deprivation measure in lieu of the two separate measures, with these multiple regression results: for TMCS, $R^2 = .638$; conspiracy, $R^2 = .391$; internal war, $R^2 = .472$; and turmoil, $R^2 = .284$. The significant increase in the degree of explanation for internal war is the result of increased correlations between magnitude of internal war and short-term deprivation (from .28 in Table 1 to .34); facilitation (from .57 to .61); and legitimacy (from −.23 to −.26). The r between magnitudes of turmoil and internal war increases from .17 to .23, the r between TMCS and internal war from .79 to .86. No other results of the analyses reported here are significantly affected by the reanalysis. The actual TMCS scores shown in Table 3 are corrected ones.

TABLE 1. CORRELATES OF CIVIL STRIFE[a]

Variable[b]	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Economic deprivation (+)		48	83	−02	−17	−16	−36	−09	26	32	34	31	25	44
2 Political deprivation (+)			88	08	−18	03	−37	−20	33	27	44	18	30	38
3 Short-term deprivation (+)[c]				04	−20	−07	−42	−17	34	34	46	28	32	48
4 Persisting deprivation (+)					−04	−21	−14	−37	−04	17	29	26	27	36
5 Legitimacy (−)						25	48	02	−05	−15	−29	−23	−29	−37
6 Coercive force size (±)							53	27	31	04	−23	−11	−01	−14
7 Coercive potential (−)								41	−14	−37	−44	−39	−35	−51
8 Institutionalization (−)									−19	−40	−35	−23	−26	−33
9 Past strife levels (+)										41	24	16	30	30
10 Facilitation (+)											42	57	30	67
11 Magnitude of conspiracy												30	32	59
12 Magnitude of internal war													17	79
13 Magnitude of turmoil														61
14 Total magnitude of strife														

[a] Product moment correlation coefficients, multiplied by 100. Underlined r's are significant, for $n = 114$, at the .01 level. Correlations between 18 and 23, inclusive, are significant at the .05 level.

[b] The proposed relationships between the independent variables, nos. 1 to 10, and the strife measures are shown in parentheses, the ± for coercive force size signifying a proposed curvilinear relationship. Examination of the r's between the independent and dependent variables, in the box, shows that all are in the predicted direction with the anticipated exception of coercive force size, and that all but one are significant at the .05 level.

[c] Short-term deprivation is the sum of scores on the short-term economic and short-term political deprivation measures. The separate short-term deprivation measures were used in the regression analyses reported below; the summary measure was used in the causal inference analysis.

hence TMCS should be somewhat better explained. It is also possible that the categorization employed has less empirical merit than other work has suggested, i.e., that conspiracy, internal war, and turmoil are not sharply distinct forms of civil strife. To qualify this possibility, the correlation matrix in Table 1 suggests that the forms of strife are only weakly related in magnitude—the highest r among the three is .32—but it may still be that they are more strongly related in likelihood, and hence that the universe of strife is more homogenous than the typology suggests. The least-predicted class of strife—turmoil—might be better accounted for if turmoil events in the context

of internal wars, e.g., riots and localized rebellions in such polities as the Congo and South Vietnam, were categorized as aspects of the internal wars in these countries rather than turmoil per se. The most likely substantive interpretation of the relatively low predictability of turmoil, however, is that much turmoil is a response to a variety of locally-incident deprivations and social conditions of a sort not represented in the indices used in this study.

The multiple regression equation for total magnitude of strife was used to calculate predicted magnitude of strife scores. Only ten polities have predicted scores that differ from
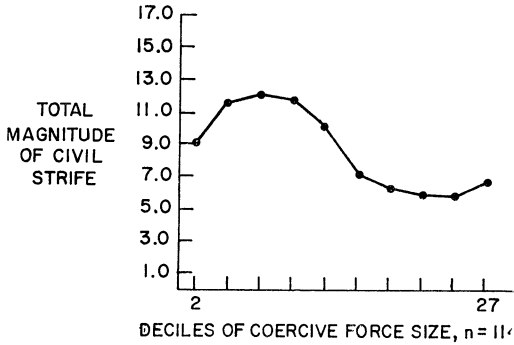
FIG. 2. Magnitude of civil strife and coercive force size, 114 polities.

their actual scores by more than one standard deviation (7.70 units of TMCS). These polities, and three others that have discrepancies approaching one standard deviation, are listed in Table 3.

In five of the thirteen polities—the Congo, Indonesia, Zambia, Rwanda, and Yemen—there is probably systematic error from data-estimation procedures. All of these countries had intense but inadequately-reported civil violence for which only rough and quite possibly exaggerated estimates of deaths were available. When estimates of "wounded" were added to deaths estimates, using a ratio of about twelve to one based on better-reported but smaller-scale events (see above), the result was almost certainly a gross inflation of actual casualties, and hence inflation of TMCS scores. The high actual TMCS score for Israel is the result of a questionable coding judgment about the extent and duration of extremist Orthodox religious conflict. More substantive questions are raised by some of the countries. Paraguay, Argentina, Ecuador, and Volta all could be argued to have had an unrealized potential for

FIG. 3. Magnitude of civil strife and coercive force size, 69 low-conflict polities.

strife: in fact both Argentina and Ecuador experienced coups in the mid-1960's that according to their initiators were preventive or protective in nature, and early in 1966 the government of Volta succumbed to rioting followed by a coup. In the Dominican Republic, the Congo, and Rwanda the unexpectedly high levels of violence followed the collapse of rigid, authoritarian regimes; one can infer a time-lag effect from the deprivation incurred under the old regimes. These are special explanations rather than general ones however. The lack of apparent substantive similarities among the thirteen poorly-predicted polities suggests that the analysis has included measures of most if not all the general determinants of magnitudes of civil strife.

IV. A REVISED CAUSAL MODEL

One striking result of the regression analyses is that the partial correlations of several of the variables tend to disappear when the other variables are introduced (see Table 2). The short-term deprivation measures consistently decline in consequence, in most instances falling below the .05 level of significance. Institutionalization is in all analyses controlled for by
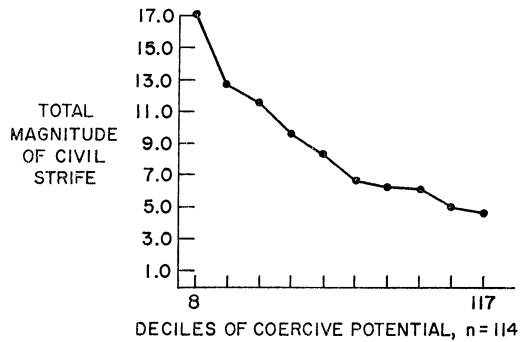

FIG. 4. Magnitude of civil strife and coercive potential.

Note: The vertical axes in Figures 2, 3 and 4 give the average magnitude of civil strife scores for deciles of countries with coercive forces of increasing size (Figures 2 and 3) and for deciles of countries with increasingly large coercive forces relative to their loyalty. The range of TMCS scores for the 114 polities is 0.0 to 48.7, their mean 9.0, and their standard deviation 7.7. Units on the horizontal axes represent numbers of cases, not proportional increases in force size/loyalty; the figures represent the scores of the extreme cases. Eleven rather than ten groupings of cases were used in computations for Figures 2 and 4; the curves of all three figures were smoothed by averaging successive pairs of decile scores.
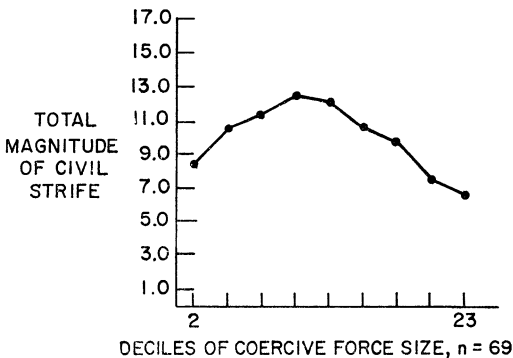
TABLE 2. MULTIPLE LINEAR REGRESSION RESULTS:
SIMPLE CORRELATIONS, PARTIAL CORRELATIONS, AND STANDARD WEIGHTS[a]

Dependent Variables	Independent Variables								
	Econ. Dep.	Pol. Dep.	Per. Dep.	Coerce	Instit.	Past CS	SS Facil.	Legit.	R, R²
Total Magnitude of Strife:									
Simple r's	44	38	36	−51	−33	30	67	−37	
Partial r's	24	(09)	39	−17	(07)	(04)	55	−26	R = .806
Constant	− 3.11								
Weights	.177	.066	.271	− .140	.056	.024	.481	− .184	R² = .650
Magnitude of Conspiracy:									
Simple r's	34	44	29	−44	−35	24	42	−29	
Partial r's	(10)	24	22	(−11)	(−09)	(03)	19	(−15)	R = .630
Constant	1.10								
Weights	.094	.238	.194	− .120	− .088	.026	.181	− .135	R² = .397
Magnitude of Internal War:									
Simple r's	31	18	26	−39	−23	16	57	−23	
Partial r's	(14)	(−08)	22	−17	(11)	(−07)	48	(−07)	R = .648
Constant	− 3.66								
Weights	.128	− .073	.186	− .179	.102	− .066	.513	− .063	R² = .420
Magnitude of Turmoil:									
Simple r's	25	30	27	−35	−26	30	30	−29	
Partial r's	(07)	(08)	23	(−09)	(−05)	21	(04)	−19	R = .533
Constant	1.37								
Weights	.072	.085	.223	− .102	− .056	.205	.043	− .192	R² = .284

[a] Simple correlations from Table 1 are repeated here to facilitate comparisons. Partial correlations in parentheses have standard (beta) weights that are significant at less than the .05 level, using the one-tailed T test with n =114. Since this analysis is concerned with what is, effectively, the entire universe of polities, all the correlations are in one sense "significant," but those in parentheses are of substantially less consequence than the others. The weights are reported to facilitate comparisons of the relative importance of the independent variables; because of the use of a variety of scaling and combination procedures for both independent and dependent variables, the weights do not permit direct interpretations, for example, of the effects of a one-unit decrease in intensity of economic discrimination on extent of turmoil.

the other variables. One or the other of the two facilitation variables declines to zero in each analysis, "past levels of strife" vanishing in three of the four. Coercive potential and legitimacy also decline in their relation to strife rather sharply. The only variable that is consistently unaffected by the introduction of the control variables specified by the model is persisting deprivation. A preliminary analysis of the behavior of first- and second-order partials suggests what causal interactions and sequences may be involved in these results. The causal path analysis is concerned principally with the sources of the total magnitude of strife, examining the causal sequences of the the specific forms of strife only when they appear to deviate from that of all strife.

A basic supposition for the evaluation of causal models is that, if X_1 is an indirect cause of X_3 whose effects are mediated by an intervening variable X_2, then if X_2's effects are controlled the resulting partial correlation between X_1 and X_3 should be approximately zero. Similarly, if several intervening variables are specified, controlling for all of them or for the last in a causal chain should, if the causal model is not to be falsified, result in a partial correlation not significantly different from zero.[35]

The initial model of the causes of civil strife (Figure 1) postulated that all the mediating

[35] These and other fundamental arguments about causal inference are well summarized in Blalock, *Causal Inferences* . . . , Chapters 2 and 3. A partial correlation coefficient can be most easily regarded as the correlation between X and Z after the portions of X and Z that are accounted for by Y are removed, or held constant. The results discussed below are based on the use of only one of a variety of related causal inference techniques and are open to further, more refined analysis and interpretation. For other applicable approaches see, for example, Hayward R. Alker, Jr., *Mathematics and Politics* (New York: Macmillan, 1965), Chapters 5 and 6.

variables intervened separately and simultaneously between deprivation and strife. The results indicate that this supposition is only partly correct: none of the mediating variables appear to affect the relationship between *persisting deprivation* and strife, i.e., there is a certain inevitability about the association between such deprivation and strife. Persisting deprivation is moreover equally potent as a source of conspiracy, internal war, and turmoil. With the partial and weak exception of institutionalization, no patterns of societal arrangements nor coercive potential that are included in the model have any consistent effect on its impact.

The effects of short-term deprivation on strife are substantially different—and, it should be added, uncorrelated with persisting deprivation. The intervening variables do tend to control for short-term deprivation's effects. To determine which one or ones exercise primary control, first-order partials were calculated for the several postulated intervening variables, with these results.

1) The simple r between short-term deprivation and strife = .48[36]

2) The partial r between short term deprivation and strife is:

when the control variable is:

.46	Institutionalization
.45	Legitimacy
.42	Past strife
.36	Facilitation
.34	Coercive potential

Only the last two constitute a significant reduction, and moreover when they are combined, the second-order partial, $r_{dS \cdot fc} = .27$, i.e., *coercive potential* and *facilitation* are the only consequential intervening variables affecting the outcome of short-term deprivation. Short-term deprivation taken alone accounts for $(.48)^2 = .23$ of the magnitude of strife; controlling for coercive potential and facilitation reduces the proportion of strife directly accounted for to $(.27)^2 = .07$, a relatively small but still significant amount.

The same controlling effects of coercive potential and facilitation on short-term deprivation occur among the three generic forms of strife. It is worth noting that when the mediating variables are controlled, short-term economic deprivation still accounts directly for a

portion of strife, internal war in particular, while political deprivation contributes significantly to conspiracy. These relationships may reflect contamination of the independent and dependent variables because of their partial temporal overlap. Some short-term economic deprivation in the early 1960's may be attributable to protracted internal wars, and successful conspirators may impose politically-depriving policies once they are in power. The relationship between short-term deprivation of both types and the magnitude of turmoil, however, is effectively mediated or controlled by characteristics of the society and its response to strife.

The relationships among the mediating variables remain to be examined. Institutionalization has no significant relation to any measure of strife when the other variables are controlled, and in the case of magnitude of total strife and of internal war a weak *positive* relationship emerges, i.e., there is a slight though not statistically significant tendency for high institutionalization to be associated with higher levels of strife. A computation of partials between institutionalization and the other three mediating variables indicates that institutionalization has a preceding or causal relationship both to coercive potential and to the facilitation variables, as shown in the

TABLE 3. POLITIES WITH LEAST-PREDICTED TOTAL MAGNITUDE OF CIVIL STRIFE[a]

Polity	Predicted TMCS	Actual TMCS[b]	Residual
Congo-Kinshasa	31.6	48.7	+17.1
Rwanda	12.7	28.2	+15.5
Yemen	9.4	23.6	+14.2
Indonesia	23.8	33.7	+ 9.9
Dominican Republic	12.1	21.9	+ 9.8
Italy	3.1	12.3	+ 9.2
Belgium	2.4	10.5	+ 8.1
Zambia	8.1	15.5	+ 7.4
Israel	6.9	14.0	+ 7.1
Argentina	20.5	13.2	− 7.3
Ecuador	18.6	10.1	− 8.5
Volta	9.3	0.0	− 9.3
Paraguay	17.2	5.0	−12.2

[a] See text. A negative residual indicates that a polity had less strife than would be predicted on the basis of the characteristics it shares with other polities; a positive residual indicates more than predicted strife.

[b] Corrected scores. See footnote 34.

[36] To simplify evaluation of the effects of the control variables, the summary short-term deprivation variable was employed rather than its economic and political components separately.

revised model in Figure 3. Polities with high levels of institutionalization tend to have high coercive potential and to have few of the conditions that facilitate strife.

Legitimacy apparently has a causal relationship with strife independent either of deprivation or the other intervening variables. About half of the initial correlation between legitimacy and strife is accounted for by the apparent causal relation between legitimacy and coercive potential, i.e., legitmate regimes tend to have large and, most importantly, loyal military and police establishments. Separately from this, however, high legitimacy is significantly associated with low levels of strife, a finding consistent with the postulate that political legitimacy itself is a desired value, one whose absence constitutes a deprivation that incites men to take violent action against their regimes. The relationship is relatively strongest for total magnitude of strife, less so for turmoil and conspiracy, and inconsequential for internal war.

Coercive potential appears in several respects to be a crucial variable in the revised causal model: it is evidently attributable in part to both levels of institutionalization and of legitimacy, and has a major mediating effect on short-term deprivation. Nonetheless, when all variables are controlled (see Table 2), the partial r between coercive potential and strife is sharply reduced, in two instances below the .05 level of significance. This is in part due to the effects of legitimacy, which is causally linked to both strife and coercive potential.[37] The other major intervening variable is facilitation ($r_{cs} = -.52$; $r_{cs \cdot f} = -.40$, where c = coercive potential, s = strife, and f = social and structural facilitation), i.e., whether or not facilitative conditions exist for civil strife is partly dependent upon the coercive potential of the regime, and thus indirectly dependent upon legitimacy as well. (The relationship is evidently between coercive potential on the

[37] Analysis of the correlation coefficients does not indicate definitively that legitimacy contributes to coercive potential rather than vice versa; nor would it be impossible to argue, on the basis of the partial r's alone, that short-term deprivation is a weak intervening variable between coercive potential and facilitation, on the one hand, and strife on the other. It is the plausibility of the theoretical arguments, in each case, that gives deciding force to the interpretation proposed. For a comparable argument see Hugh Donald Forbes and Edward R. Tufte, "A Note of Caution in Causal Modelling," elsewhere in this issue of this REVIEW.
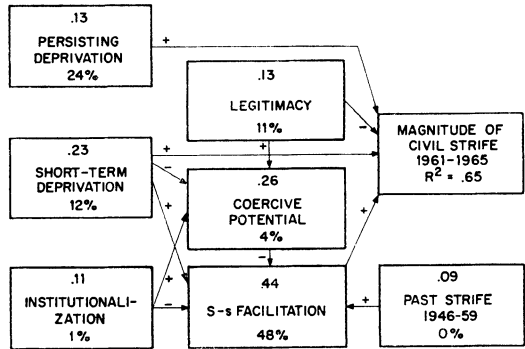

FIG. 5. Revised causal model of the determinants of magnitude of civil strife. The proportion at the top of each cell is the simple r^2 between the variable and civil strife, i.e. the proportion of strife accounted for by each variable separately. The percentages are the proportion of explained variance accounted for by each variable when the effects of all others are controlled, determined by squaring each partial r, summing the squares, and expressing each as a percentage of the sum. The explained variance, R^2, is .65.

one hand and the "Communist party status" and the "external support for initiators" components of facilitation on the other; coercive potential cannot have any consequential effects on "physical inaccessibility.")

This completes the revision of the causal model with the exception of the second component of facilitation, *past strife levels*. This variable has a consistently lower relationship with strife than other variables, with the exception of the turmoil analysis. Moreover its partial correlation is reduced to zero in these analyses, with the same exception, the sole significant controlling variable being *social and structural facilitation*. Among the causes of turmoil, however, social and structural facilitation is controlled for by several variables—principally past strife, coercive potential, and institutionalization—whereas past strife remains significant when other effects are partialled out. Both findings support the theoretical argument that suggested the "past strife" measure: a history of chronic strife apparently reflects, and contributes to, attitudes that directly facilitate future turmoil, and indirectly acts to facilitate general levels of strife.

The revised model, with proportional weights inserted, is sketched in Figure 5. The most proximate and potent variable is social and structural facilitation, which accounts for nearly half the explained variance. The deprivation variables account directly for over one-third the magnitude of strife, legitimacy and

institutionalization for one-eighth. But these proportions refer only to direct effects, and in the case of both coercive potential and facilitation part of that direct effect, i.e., the illicit participation of the military in strife and the provision of foreign support for initiators, can be determined only from the characteristics of strife itself.[38] The more remote causes of strife, namely deprivation, institutionalization, legitimacy, and prior strife, are the more fundamental and persisting ones. Some additional regression analyses provide some comparisons. Four of the independent variables relate to inferred states of mind: the two short-term deprivation measures, persisting deprivation, and legitimacy. The R based on these variables is .65, compared with .81 when the remaining four variables are added. The R based on the three deprivation variables alone is .60. These analyses show that all "states-of-mind" conditions contribute significantly to magnitude of strife, but that long-term deprivation has a partial controlling effect on political deprivation. The inference is that short-term political deprivation, as indexed in this study, is most likely to lead to strife if it summates with conditions of persisting deprivation.

We can also ask, and answer, the question, To what extent do the remaining four mediating conditions alone account for magnitude of strife? The variables coercive potential, facilitation, institutionalization, and past strife give a multiple R of .73, with almost all the explained variance accounted for by the first two variables. This result should provide aid and comfort to those concerned with "levels of analysis" problems: research of this sort can focus on aggregative, societal characteristics—which the mediating variables represent—and the (inferred) psychological level can be ignored with relatively little loss of statistical explanatory power. Why these variables are strongly operative and others, like levels of development and type of political system, are relatively weak still needs answering; the answer may be to treat psychological variables

as unoperationalized assumptions, or to replace them with variables whose rationale is strictly in terms of effects of social structure or processes on stability.

A further problem is identification of the set of variables that provides the most parsimonious account of magnitude of civil strife. As one approach to the answer, Figure 5 implies that three variables can be eliminated: coercive potential, institutionalization, and past strife, all of which have no consequential direct effects on TMCS. The remaining five variables—the "state of mind" variables and facilitation—give an R of .80 and R^2 of .64, results almost identical to those obtained when all eight variables are included.[39] Four of the five variables included contribute substantially to the regression equation; as expected, the effects of short-term deprivation, political deprivation in particular, are partially controlled. One important observation is that *social and structural facilitation*, though it is substantially the strongest explanatory variable,[40] has here, as in Figure 5, only a moderate direct controlling effect on short-term deprivation. One interpretation is that some of the effects of facilitation on TMCS are independent of deprivation. Two of its three component measures, Communist Party status and external support for initiators, have in common a "tactical" element, i.e., one can infer that underlying them are calculations about gains to be achieved through the employment of strife. This tactical element is not wholly independent of deprivation, inasmuch as three of the four correlations between facilitation and deprivation measures are significant, ranging from .17 to .34 (see Table 1). The basic proposition of this study, that relative deprivation is a necessary precondition for strife, is not challenged by these observations. They do, however, suggest that tactical motives for civil strife are of sufficient importance that they deserve separate operational attention comparable to the conceptual attention given them by conflict theorists.[41]

[38] Tanter has examined time-lag effects between a number of measures of foreign economic and military assistance for the regime and magnitude of civil violence in 1961–63 for Latin American nations and finds generally weak relationships. The only consequential positive relationship, an indirect one, is between levels of U.S. military assistance and subsequent strife. Raymond Tanter, "Toward A Theory of Conflict Behavior in Latin America." (Paper read to the International Political Science Association, Brussels, September, 1967).

[39] In a reanalysis using corrected data (see footnote 34), four variables—the combined short-term deprivation measure, persisting deprivation, legitimacy, and facilitation—given an R^2 of .629.

[40] The partial r's for these five variables are: economic deprivation, .27; political deprivation, .13; persisting deprivation, .39; legitimacy, .36; facilitation, .61.

[41] For example Kenneth E. Boulding, *Conflict and Defense: A General Theory* (New York: Harper and Row, 1962); Lewis Coser, *The Functions*

A number of additional causal inference analyses can be made which might lead to modifications of these conclusions, and of the causal model in Figure 5. Other articles will report the results of causal analyses of various subsets of the universe of polities, and of the causal sequences that can be identified for the several forms of strife.[42]

V. SUMMARY AND CONCLUSION

Quantitative comparative research cannot flourish in a theoretical vacuum, even if it makes use of an armamentarium of techniques of causal inference. This article may not be proof of that assertion, but it should suggest the usefulness of beginning with a theoretical model based on previous substantive work. The theoretical model of the causes of civil strife employed here dictated the construction of a number of aggregate indicators of not-easily-operationalized variables for 114 polities. Eight summary indicators proved to account jointly for two-thirds the variance among nations in relative magnitudes of civil strife during 1961–65 ($R^2 = .65$). Of greater theoretical consequence, the initial analysis of partial correlation coefficients makes possible a number of more precise statements about the causal interactions among the theoretical variables.

The fundamental proposition that strife varies directly in magnitude with the intensity of relative deprivation is strongly supported; the three deprivation variables alone provide an R of .60 ($R^2 = .36$), and when a fourth state-of-mind variable, legitimacy, is added the R^2 increases to .43. One criticism of this research, and of other cross-national studies of strife that make inferences about collective manifestations of psychological variables, is that the results are not a "direct" test of the relevance of such variables, since the indices of psychological variables are derived from aggregate data rather than being obtained, for example, from cross-national surveys. It is unquestionably necessary to test all hypotheses, including psychological ones, in a variety of ways, for example to determine whether the inferentially-deprived groups are those most likely to engage in strife, and to ask highly frustrated individuals whether they would, or have, taken part in collective violence. No scientific proposition is ever *directly* confirmed or disconfirmed, but some tests are less indirect than others. However, there is only one scientifically acceptable alternative to regårding the results reported here as strong indirect evidence for the psychological propositions relating deprivation and legitimacy to civil violence. That is to provide some reasonably parsimonious, alternative explanations (substantive or technical) of the fact that indices of inferred collective states of mind account for two-thirds of the explained variance (43 percent compared with 65 percent for all variables) in total magnitude of strife.

The effects of the intervening or mediating variables on the disposition to civil violence proved considerably more complex than those of the deprivation variables. Regime legitimacy apparently has no consequential mediating effect on deprivation but acts much as deprivation itself does: low levels of legitimacy, or by inference feelings of illegitimacy, apparently motivate men to collective violence. Levels of institutionalization, as reflected in high levels of unionization, party system stability, and large public sectors, have no direct mediating effect on deprivation; they are however important determinants of coercive potential and of social facilitation, variables which in turn crucially affect the outcome of short-term deprivation. Social and structural facilitation is the most potent of the intervening variables and appears to have some independent effect on magnitudes of strife. One inference is that the index of this variable reflects tactical decisions to engage in strife as a means of goal attainment. The measure of past levels of strife, 1946–1959, provides a partial test of what might be called the null hypotheses of human conflict, that the best predictor of future conflict is the level of past conflict.[43] The measure has relatively weak relationships with magnitude of strife measures for 1961–65 and is an important mediating variable only among the causes of turmoil.

One striking finding is that nations' levels of persisting deprivation are consistently and directly related to their levels of strife. Depri-

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of Social Conflict (New York: The Free Press, 1956); and Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, Mass.: Harvard University Press, 1960).

[42] See Gurr, "Why Urban Disorder?" for a causal inference analysis of the sources of turmoil. The turmoil model differs principally in that "past strife levels" has the primary mediating role that facilitation has in the TMCS model.

[43] The test is less than precise because the measures are not comparable; the past strife measure is based on an arbitrary weighting of counts of number of events, whereas the magnitude of strife measures reflect levels of participation, duration, and intensity.

vation attributable to such conditions as discrimination, political separatism, economic dependence, and religious cleavages tends to contribute at a relatively moderate but constant rate to civil strife whatever may be done to encourage, deter, or divert it, short only of removing its underlying conditions. One other result has important implications for theory, and also for policy, if it is supported by further research. The relation between coercive force size (the relative size of military and internal security forces) and the magnitude of civil violence is distinctly curvilinear: as the level of resources devoted to coercive forces increases, the magnitude of violence also tends to increase up to a certain point, and only at relatively high levels of coercive force does strife tend to decline. Moreover at the outer limit the relationship again tends to change direction: countries with the very largest coercive forces tend to have more strife than those with somewhat smaller forces. When one eliminates from analysis the countries that have experienced protracted internal or external conflict, the basic curvilinear relationship remains. The adage that force solves nothing seems supported; in fact force may make things worse.

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