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Ryan Dudley
Santa Clara University

Ross A. Miller
University of Nebraska - Lincoln, rmiller10@unl.edu

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Group Rebellion in the 1980s

Ryan Dudley and Ross A. Miller
Department of Political Science, Santa Clara University

The authors evaluate the ability of four theoretical approaches to account for the occurrence and severity of group rebellion in the 1980s. These explanations for rebellion are state responses and capabilities, relative deprivation, diffusion, and rational actor. Results indicate that relative deprivation and rational actor explanations were most important in accounting for the occurrence of group rebellion. On the other hand, state responses and capabilities and relative deprivation were the best explanations for the level of group rebellion.

The recent civil war in Zaire demonstrates the devastating consequences of ethnic conflict. Unfortunately, Zaire is not an isolated case of internal rebellion. Events in Bosnia, Liberia, Rwanda, and Somalia are but a handful of contemporary examples. In fact, a 1995 study identified 56 ongoing internal conflicts (Jongman 1995, 22-23, cited in Gurr and Moore 1997, 1). Our objective is to evaluate and extend the theoretical and empirical knowledge about the causes of rebellion. We offer three contributions.

Previous research has tended to focus on the extent, or level, of violent political conflict within a state rather than the occurrence of rebellion. One of the most commonly used measures of rebellion is the natural logarithm of deaths from political violence within a state during a set period of time, usually 1968 to 1972 or 1973 to 1977 (e.g., Boswell and Dixon 1990; Muller 1985; Muller and Seligson 1987; Muller and Weede 1990, 1994; Schock 1996; Weede 1987). It is important to note that studies that employ this measure shed very little light on what causes groups to rebel in the first place. Instead, they identify factors associated with the severity of rebellion within a state. As we demonstrate below, the distinction between the intensity of rebellion and the occurrence of rebellion is important because the factors leading to the former are not always good predictors of the latter, and vice versa.

Our study also differs from past research by using communal groups within states as the unit of analysis (Gurr 1993a). Previous empirical studies have often used the nation-state as the unit of analysis, thereby implicitly assuming that groups within states respond similarly to conditions that foster or prevent rebellion. Although this assumption is understandable, given the typical focus on the volume of conflict, it may be analytically suboptimal. As Lichbach (1994, 15) explains, "communal relationships beget the communal beliefs that beget communal action." Groups respond differently to changing conditions (e.g., Scott 1976). By focusing on the group as our unit of analysis, we are able to take into account factors

Authors' note: We thank Robert Jackman and the anonymous reviewers for helpful comments. Data are available on request.

such as communal relationships and how these affect the occurrence and extent of group rebellion. We are also able to include those state-level variables—for example, political institutions—as contextual factors that may influence the propensity of groups to rebel.

Our third contribution is the evaluation of alternative measures of relative deprivation. Previous studies have overwhelmingly relied on income inequality as a measure of relative deprivation.[1] We believe that this indicator is limited on both conceptual and empirical grounds. Conceptually, relative deprivation is inherently a psychological (or subjective) political orientation, whereas income inequality is an objective measure. By not distinguishing between the two, one confuses equality with equity (Bronfenbrenner 1973, and also see below).[2] Moreover, income inequality is limited conceptually to measuring relative deprivation in terms of relative economic well-being, as opposed to other equally valid orientations, including political autonomy, political rights, and social and cultural rights. Finally, because income inequality is measured with national data, the indicator assumes that all groups within a state are affected similarly and will respond similarly to the level of income inequality.

To address these issues, we use four separate measures of relative deprivation. Each identifies the level of group grievances across four different dimensions: political autonomy, economics, political rights, and social and cultural rights (Gurr 1993a). We begin with a brief discussion of the four theoretical approaches to ethnic conflict. We then evaluate their explanatory power using a set of 203 cases across 80 countries during the 1980s.

THEORETICAL AND EMPIRICAL ISSUES

Four general explanations are often advanced to account for group rebellion: state responses and capabilities, diffusion, relative deprivation, and rational actor. We discuss each of these in turn.

STATE RESPONSES AND CAPABILITIES

According to Gurr (1993a, 91), "it should ... be obvious that state responses to communal grievances are crucial in shaping the course and outcomes of minority conflicts." The fundamental issue here centers on the form of government (Muller 1985). In particular, the degree to which a state prevents disadvantaged groups from expressing their interests and participating in the selection of leaders has often been hypothesized to influence the propensity of groups to rebel. By far the most common specification of this hypothesis is an inverted U-shaped relationship between the repressiveness of the regime and domestic political violence (Gurr 1970, 237; see also Muller 1985). At high and low levels of repression, little violent activity on the part of groups is expected. In situations of high levels of repression, disadvantaged groups are less likely to rebel given the large expected costs for participation in a failed rebellion. Cases of low repressiveness should also exhibit low levels of rebellion because alternative channels for expressing dissatisfaction exist and violence is unnecessary. Rebellious activity is, therefore, associated with relatively moderate levels of repression. This hypothesis has enjoyed

[1]Gurr and Moore (1997), Gurr (1993b), and Lindstrom and Moore (1995) are exceptions.

[2]We are grateful to Robert Jackman for bringing this to our attention.

wide-ranging empirical support in studies employing a variety of research designs and sample sizes (e.g., Boswell and Dixon 1990; Muller 1985; Muller and Seligson 1987; Muller and Weede 1990, 1994; Weede 1987). To this end, we construct the measure of government type (see below) to take into account the possibility of a nonlinear relationship.

DIFFUSION

A second source of internal conflict—one that has received far less attention than the others discussed here—is the diffusion of political conflict. The idea that cross-national or intranational observations are interdependent (i.e., that rebellion by one group is related to rebellion by another) is often known as Galton's problem (Ross and Homer 1976). In their study of the diffusion of war, Siverson and Starr (1990, 47) provide a nice summary of the theoretical consequences of Galton's problem: "while the theory under investigation specifies that *onset* [of war] is being measured, the distinct possibility of diffusion is overlooked. This means that the process by which the first two nations in a war *begin* fighting may be considerably different than the process by which subsequent participants *join* the war."

In the case of group rebellion, the diffusion of conflict can occur for a number of reasons. For example, a group may mobilize to support the rebellion of a kindred group either within that state or in an adjoining state. As evidence of this, Gurr (1993a, 133) points to "generations of Kurdish leaders and fighters in Turkey, Syria, Iraq, and Iran [that] have sustained one another's political movements." Diffusion of conflict may also occur because one or more groups believe that the chaos and confusion caused by an ongoing rebellion or civil war represent an opportunity to pursue their own interests (Gurr 1993a, 133). Hill and Rothchild (1986, 719-20) hypothesize that political conflict by one group can serve as an educational tool for other groups: "demonstrations, protests, economic boycotts, and the like are very visible political tools that can be easily copied by others for their own purposes." In their study of the diffusion of political conflict in Africa and the world, Hill and Rothchild found that conflict is more likely to diffuse to states with a "recent history of domestic strife," and in countries "where the mass media come under central political controls, a greater level of media development will slow the spread of conflict by offering political elites an important means by which to control the information available about outside discord" (p. 733). Similarly, a recent study by Lindstrom and Moore (1995, 180) found that "protest and rebellion ... in neighboring countries influences mobilization and rebellion by ethnic groups."

To date, most empirical research on ethnic conflict has ignored possible diffusion effects. In the analyses reported below, we assess the degree to which rebellions diffuse both across and within states.

RELATIVE DEPRIVATION

Relative deprivation, as defined by Gurr (1970, 24), is a group's "perception of [the] discrepancy between ... [its] value expectations and... [its] value capabilities." In other words, it is the difference between what a group believes it should receive and what it believes it will receive. One of the most commonly used indicators of relative deprivation is income inequality. The empirical evidence for an inequality effect on internal political conflict is, however, mixed. Studies by Sigelman and Simpson (1977), Muller (1985), Muller and Seligson (1987), Boswell

and Dixon (1990), and Schock (1996) report a significant, positive relationship between income inequality and political violence. Hardy (1979) and Weede (1981, 1987), on the other hand, conclude that once a control for the level of economic development is introduced, the relationship between income inequality and political violence vanishes. This finding is surprising given that many of the studies reported above include a control for the level of economic development.

Leaving these contradictory results to one side, there are at least two other problems—one conceptual and one empirical—with using income inequality as a measure of relative deprivation. Conceptually, income inequality and relative deprivation are quite different. Income inequality is an inherently objective concept, whereas relative deprivation, because it is based on a group's perception of the difference between what it actually receives and what it should receive, is obviously subjective. Using income inequality to assess the degree to which groups believe they are relatively deprived, therefore, confounds equality with equity. As Bronfenbrenner (1973, 9) explains,

> The terms equality and equity are widely confused. Despite their phonetic similarity and philological connections, they are quite distinct. The equality of a distribution of income or wealth is basically a matter of fact and is, therefore, basically objective. The equity of the same distribution is basically a matter of ethical judgment and is, therefore, basically subjective.

Pen (1971, 291) makes a similar point: "good and evil do not speak for themselves.... Followers of Christ and Mao-tse-tung, Moslems and humanists, adherents of Nietzsche and of the Sufi movement live in their own world of ideas." Based on his survey of ethical systems, Pen identifies 21 different perceptions about how income should be distributed, ranging from those that stress equality, such as "all to get the same" (p. 293) and the Marxist view "incomes from work only" (p. 294), to those that stress merit—"deserving professions must be generously remunerated" (p. 309) and "special effort must be specially rewarded" (p. 311). Clearly, equality is not the same thing as equity. Although Bronfenbrenner (1973, 23) concedes that there "may be some objective connection, positive or negative, between equity and equality in the distribution of income and wealth," he points out that "unfortunately, we still do not know what that connection is." Further, our knowledge of any possible connection has not advanced in the 25 years since Bronfenbrenner's statement.

Using income inequality as an indicator of relative deprivation presents empirical problems as well. Because it ignores noneconomic sources of relative deprivation, it excludes the potential effects of other equally important concerns, such as social and cultural rights, political autonomy, and political rights.[3] In fact, Gurr (1993a, 74) found significant regional variation in the types of grievance expressed by groups. Although economic grievances tended to be very intense in Latin America

[3]Even as an indicator of economic relative deprivation, this measure has its limitations. Russett (1964), for example, found that an inequitable distribution of land as well as the proportion of the population involved in agricultural production had a significant effect on the number of deaths from political violence. Recent studies have tended to focus solely on the distribution of wealth, as opposed to other equally important factors.

during the 1980s, they appear to have been of little or no relevance to groups in Eastern Europe and the former Soviet Union. Political autonomy grievances, on the other hand, were concentrated among groups in Asia and North Africa and the Middle East, and "grievances about political and social rights were greatest in the Middle East, paralleling this region's high levels of discrimination and inequalities" (Gurr 1993a, 74). The substantial amount of variation in the types of grievances expressed by groups highlights the difficulties associated with relying on a single indicator of relative deprivation.

To overcome the conceptual and empirical difficulties with using income inequality as a measure of relative deprivation, we employ four separate measures of relative deprivation, based on the dimensions outlined above: political autonomy demands, economic grievances, social and cultural grievances, and political rights (Gurr 1993a). Each one focuses on the extent to which groups express each of the four types of grievances.

RATIONAL ACTOR APPROACHES

Deprivation and discrimination by themselves do not lead directly to rebellion. One of the pathbreaking works on the subject of group mobilization is Olson's (1971) *The Logic of Collective Action*. Olson demonstrates formally that absent selective incentives (positive and/or negative), large groups will remain latent groups and, therefore, will fail to obtain their objectives (see also Lichbach 1994, 1995, 1996). Coleman (1990, 273) explains the problem in detail:

> When a number of self-interested persons are interested in the same outcome, which can only be brought about by effort that is more costly than the benefits it would provide to any of them, then, in the absence of explicit organization, there will be a failure to bring about that outcome, even though an appropriate allocation of effort would bring it about at a cost to each which is less than the benefits each would experience.

This phenomenon, often known as the free-rider problem, has sparked a great deal of discussion among group theorists (see, e.g., Lichbach 1994) because it contradicts one of the key assumptions of group theory: that rational, self-interested individuals will naturally form groups to achieve a common objective. Olson demonstrates that unless the number of (potential) group members is small or selective incentives are provided, individuals will not organize and provide a collective good. Instead, these groups will remain latent groups.

In addition to providing a theoretical challenge, Olson's (1971) argument raises an empirical puzzle as well. As Coleman (1990, 273) explains,

> The puzzle lies in the fact that there are many empirical situations in which just the opposite of free-rider activity seems to occur, even though the circumstances are those in which free riders would be predicted to abound.

Group rebellion represents one of the puzzles identified by Coleman. Why do individuals join a rebel movement if it is in their interest to be free riders?

Recent research by Lichbach (1994, 1995, 1996), Coleman (1990), and Moore (1995) identifies a number of factors that apparently allow large groups to over-

come the free-rider problem. One factor that is thought to be quite significant is the presence of social networks among subgroups of the population. Briefly stated, social networks exist when individuals interact with one another. They provide a connection among individuals by some common denominator. The networks may exist for a variety of reasons, including, for example, racial heritage or religious ties. Moore (1995, 445) contends that social networks offer a "promising solution" to the problem of accounting for the rebellion of large numbers of people when selective incentives are absent. Social networks "can produce sanctioning systems" that penalize those who do not contribute and reward those who do because the networks allow individuals to monitor the contributions of others (Moore 1995, 444). Social networks create responsibility and accountability on the part of individuals, thereby providing a mechanism by which the collective action problem faced by large groups can be overcome.

Unfortunately, to date we have "no empirical analyses of Coleman's account" (Moore 1995, 445). In this article, we provide an empirical assessment of the effect of social networks on the occurrence and severity of group rebellion.

DATA

In the statistical models estimated below, the unit of analysis is drawn from Phase I of Gurr's (1993a) Minorities at Risk Project (MARP). In the MARP, Gurr identifies 233 politically active communal groups, defined as "psychological communities: groups whose core members share a distinctive and enduring collective identify based on cultural traits and lifeways that matter to them and to others with whom they interact" (p. 3). To be included, each group had to meet the following criteria. First, as of 1990, each group must have had at least 100,000 members or have constituted at least 1% of the population of the country in which they resided, and the country must have had a total population of 1 million or more as of 1985. Second, each group in the study "collectively suffers, or benefits from, systematic discriminatory treatment vis-à-vis other groups in a state" (p. 6). Although inclusion of a group that benefits from systematic discrimination (e.g., the Serbs of Yugoslavia or the Chinese of Malaysia) may seem inappropriate, these groups "mobilize in response to challenges by other groups (as the Serbs have done) and, when not in power, often are subject to discriminatory restrictions (as are the Malaysian Chinese)" (p. 8). A final important coding rule in the MARP is that each group was "the focus of political mobilization and action in defense or promotion of its self-defined interests at some time between 1945 and 1989" (p. 7).

MEASURES

Two indicators of rebellion are used as dependent variables, and both are based on research by Gurr (1993a, 352-64). The first indicates the extent, or level, of group rebellion in the 1980s. Gurr constructed this measure by summing two Guttman scale scores of rebellions from 1980 to 1984 and from 1985 to 1989, each of which varied between 0 and 5, with the following activities associated with each value (Gurr 1993a, 95):

0 = no rebellion reported
1 = political banditry, sporadic terrorism, and unsuccessful coups
2 = campaigns of terrorism, successful coups

3 = small-scale guerrilla activity
4 = large-scale guerrilla activity
5 = protracted civil war[4]

The summary measure for the 1980s, therefore, varies between 0 and 10. Of the 203 groups included in the analyses below, approximately 37% engaged in some form of rebellion.

The second measure of group rebellion captures whether a group rebelled during the 1980s. It takes on the value of 0 for cases in which the group did not rebel and 1 for those situations in which a group rebelled (at any level).

Two measures are used to assess state responses and capabilities. Both are based on an 11-point autocracy measure in the Polity II data for 1980 (Gurr, Jaggers, and Moore 1989).[5] The Polity II autocracy indicator is an additive, weighted 11-point scale, coded the with 0 representing the lowest level of autocracy and 10 representing the highest level of autocracy. Autocracy is defined as the degree to which state political institutions restrict or suppress competitive political participation. Gurr, Jaggers, and Moore (1989, 37) use five indicators to construct the scale: the competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. We use 1980 as the base year because of the potential confounding effects that rebellion can have on the level of autocracy. In the face of rebellion, a state may become more repressive, thereby creating a problem of endogeneity for the autocracy measure.

Two dummy variables are used to measure the level of autocracy. The first, low autocracy, is coded as 1 when the state received a score of 3 or less on the Polity II measure and 0 otherwise.[6] The second indicator, medium autocracy, is coded as 1 for states receiving a score of between 4 and 6 on the Polity II measure and 0 otherwise.[7] By using two separate measures, we are able to capture the hypothesized inverted U-shaped relationship between autocracy and rebellion. Both indicators will be included in the analyses reported below. Therefore, the corresponding estimates will be comparing the rebellion rates and severity of rebellion of groups living in states with low or medium levels of autocracy with those groups living in states with relatively high levels of autocracy.

Taken together, these two variables represent the political context within which groups live. If the inverted U-shaped hypothesis is correct, then groups that reside in states with high or low levels of autocracy should be reluctant to rebel. On the other hand, groups in states with medium levels of autocracy should be more

[4]The original indicator includes values of 6 (other types of activity), 7 (civil or revolutionary war not specifically or mainly concerned with group issues), and 8 (involvement in international war not specifically or mainly concerned with group issues). For the 1980s summary measure, Gurr (1993a, 95) recoded values of 6 as 3, and values of 7 and 8 as 4.

[5]We also considered using the Polity II measure of democracy. However, for theoretical and empirical reasons, we elected to use the measure of autocracy. On theoretical grounds, Gurr (1970, 237) is quite explicit in highlighting the relationship between the balance between the coercive control of (potential) dissidents and the regime and the consequence for the magnitude of political violence. Empirically, the democracy measure posed problems as well. Although both the autocracy and the democracy scales are bimodal, the democracy scale has a much larger grouping of values on the lower and upper values. In fact, when we coded the

likely to use rebellion (and at higher levels) as a means of altering the status quo.

Two variables are employed to represent diffusion effects. Both are based on Gurr's rebellion variable discussed above. The first measures the extent to which groups in border nations, or nations across less than 200 miles of open water,[8] rebelled during the 1980s (Gurr 1993a, 352-64). It takes on the value of 1 for cases in which a neighboring group received a score of 8 or higher on Gurr's measure of rebellion and 0 otherwise.[9] The second indicator of diffusion, intranational rebellion, is designed to assess whether assess whether rebellions diffuse across groups within nations. It assumes the value of 1 if one or more groups (besides the group of interest) engaged in rebellious activity and 0 otherwise. As with the cross-national indicator, the activity had to be coded as 8 or higher. All else being equal, groups residing in states in the midst of rebellion and those near states experiencing rebellion should be more likely than other groups to rebel.

Gurr (1993a) has collected data on four different items based on the types of group grievance that are ideally suited to be measures of relative deprivation: political autonomy, political rights, economic rights, and social and cultural rights. Each indicator represents a summary measure of the salience of issues associated with each of the four dimensions for each group in the survey. For example, Gurr's scale of political autonomy is based on the salience (0 = not salient, 1 = lesser significance, 2 = issue is highly salient) of four issues: (1) the group expresses a general concern with political autonomy, (2) the group demands union with a kindred group elsewhere, (3) the group seeks independence from the state, and (4) the group demands regional autonomy. The greater the salience of each individual issue to the group, the greater the overall score.

In the analyses reported below, autonomy grievance is an ordinal scale, with 0 representing low levels of relative deprivation and 3 representing high levels of

democracy scale using the same rules applied to the autocracy measure below, only 16 cases (about 8%) were included in the middle category. In contrast, 44 cases (about 20%) were included in the medium autocracy category.

[6]This coding rule is admittedly arbitrary. For purposes of comparison, we reestimated the results reported below using two different cutoff points. In the first, we recoded low autocracy to take on a value of 1 for those cases receiving a score of 4 or lower on the original autocracy scale. The results are even more impressive than those reported below: medium level of autocracy was significant across all model variations reported in Tables 2 and 4. We also reestimated the model, with low autocracy coded as 1 for cases receiving a score of 2 or lower. The results were virtually identical to those reported in Tables 2 and 4.

[7]The cutoff of 6 for the upper threshold of medium level of autocracy is necessary on empirical grounds. According to Rousseau et al. (1996, 519), the autocracy index was "created even when one or more of the subcomponents are missing (e.g., Cuba 1959-1986). This implies, for example, that for some countries the autocracy index varies from 0 to 10, while for other countries it only varies from 0 to 7." This may account for the fact that a preponderance of the cases (68) used in the analyses below have a value of 7 on the autocracy scale. Therefore, to avoid this coding problem, cases receiving a score of 7 or higher on the autocracy measure are assumed to be highly autocratic.

[8]This coding rule is based on the one used by Siverson and Starr (1990).

[9]We use 8 as a cutoff to ensure that the level of conflict in a neighboring state (or by another group within a state) is sufficiently visible and active throughout both periods (1980 to 1984 and 1985 to 1989). A coding of 8 guarantees that, minimally, there was small-scale guerrilla war carried out by a bordering nation or by another group within the state.

deprivation;[10] similarly, economic grievance varies from 0 to 5, political grievance ranges from 0 to 5, and social and cultural grievances are scored between 0 and 6 (see Gurr 1993a for more details on the coding rules).

On each dimension of relative deprivation, as the score increases, so does the intensity of grievance. Thus, each measure represents an ordinal scale of relative deprivation and should be positively related to the occurrence and severity of rebellion.

Following Hardy (1979) and Weede (1981, 1987), we also control for the level of wealth within the state. The overall wealth of a state may affect the degree to which groups feel they are deprived (although obviously not identically). Our measure is the 1980 per capita real gross domestic product based on version 5.6 of the Summers and Heston (1991) purchasing power data set. As with the autocracy measure, we use 1980 as the base year because of the possible biasing effects that rebellion could have on the wealth of the state. Because of the skewed distribution of the indicator, the estimates reported below use the natural logarithm of per capita real gross domestic product.

To evaluate the explanatory power of the rational actor approach, two indicators are used to represent the presence of social networks: the coherence and the concen- tration of each of the groups in the study, both of which are from Gurr (1993a, 326-39). The first indicator, coherence, is a 5-point ordinal scale of group coherence, with 1 representing weak group identification and 5 indicating strong group identification. The second indicator, concentration, is a 6-point ordinal scale, with 1 indicating that the group is "widely dispersed in most urban and rural areas" and 6 representing a group that "is concentrated in one or several adjoining regions" (Gurr 1993a, 326). All else being equal, groups with high levels of coherence and/or concentration should be more likely to have strong social networks than groups with low levels of coherence and concentration. In the models estimated below, both variables are hypothesized to have a positive, significant effect on the occurrence and level of group rebellion.

We also include a control for advantaged groups, defined by Gurr (1993a, 326) as groups that enjoy political and/or economic advantages. This indicator takes on a value of 1 for groups considered to be advantaged and 0 otherwise. All else being equal, advantaged groups should be less likely than disadvantaged groups to rebel.

The resulting data set includes information on 203 groups and the states in which they live. Table 1 reports summary statistics on the dependent and indepen-

Also, to ensure that our analysis was not affected by temporal problems—that is, that the conflict by one group that apparently "caused" another group to rebel actually occurred after the latter rebelled—we checked each case of suspected diffusion using a variety of historical sources.

[10]In its original form, the indicator of autonomy grievance had a maximum value of 4. However, there were very few cases that received a score of 4, leading to a skewed distribution. To correct for this, we recoded the variable, with 3 representing a score of 3 or higher on the original Gurr measure. Nonnormal distributions were also found for the economic and political rights measures. Economic grievances and political rights were recoded from their original 9-point scales to 6-point scales to correct for the nonnormal distributions (i.e., like autonomy grievance, both were positively skewed).

dent variables.[11] From this table, we note that, on average, groups rebel about 37% of the time, with a level of rebellion of 1.69. Substantively, a score of 1.69 implies activity such as political banditry, coups (both successful and unsuccessful), and campaigns of terrorism. Furthermore, about one third (36%) of the groups in our sample reside in states with relatively low levels of autocracy, and 20% live in states with medium levels of autocracy. This suggests that roughly half (44%) of the communal groups are located in states that are highly autocratic.

Surprisingly, about 40% of the groups are located in nations bordering a state that experienced group rebellion during the 1980s. If we break this figure down by the regional groupings identified by Gurr (1993a) (Western democracies and Japan, Eastern Europe and the former Soviet Union, Asia, North Africa and the Middle East, Sub-Saharan Africa, and Latin American and the Caribbean), we find that groups in three regions were especially susceptible to diffusion: Eastern Europe and the former Soviet Union (62.5% of groups witnessed rebellion in a bordering nation), Asia (58.1%), and North Africa and the Middle East (64.5%). In contrast, only 8.3% of the groups in the Western democracies and Japan were candidates for the diffusion of conflict across nations. The figures for Sub-Saharan Africa and Latin America and the Caribbean are also low-25.6% and 24.1%, respectively. For the diffusion of conflict across groups within states, only 15% of the 203 groups received a score of 1. Thus, few groups witnessed the rebellion of one or more groups within their borders.

Table 1
Summary Statistics for the Dependent and Independent Variables

Variable	M	SD	Minimum	Maximum
Dependent variables				
Occurrence of rebellion	0.37	0.49	0	1
Level of rebellion	1.69	2.88	0	10
State response/capabilities				
Low autocracy	0.36	0.48	0	1
Medium autocracy	0.20	0.40	0	1
Diffusion				
Cross-national	0.41	0.49	0	1
Intranational	0.15	0.36	0	1
Relative deprivation				
Real gross domestic product (logged)	7.67	1.06	5.78	9.64
Economic grievance	1.88	1.72	0	5
Autonomy grievance	0.92	1.03	0	3
Political grievance	2.11	1.64	0	5
Social grievance	1.77	1.64	0	6
Rational actor				
Coherence	3.75	1.13	1	5
Concentration	4.87	1.74	1	6

Note: N= 203.

[11]For space considerations, we do not report the correlation matrix. However, it is unlikely that multicollinearity is a problem in any of the analyses reported below because the highest correlation between any of the independent variables was .55 (economic grievances and political rights grievances).

Because the variable for wealth is the natural logarithm of per capita real gross domestic product (RGDP), the summary statistics are not intuitively meaningful. Based on the figures from the original (untransformed) measure of per capita RGDP (not reported in Table 1), the median purchasing power of the states in the sample was $1,941, with $322 and $15,295 being the minimum and maximum values, respectively.

Looking at the four measures of relative deprivation, political grievances tend to be the most salient issue across the 203 groups in the study, followed by economic and social grievances and political autonomy grievances. These results underscore the importance of viewing relative deprivation as a multidimensional concept and of expanding the focus to include noneconomic indicators as well.

In terms of characteristics, the groups in our study show relatively high levels of coherence (3.75 out of a possible maximum score of 5) and concentration (4.87 out of a possible maximum of 6).

ANALYSIS

PREDICTING THE OCCURRENCE OF REBELLION

We begin by assessing the ability of the four general approaches described above to account for the occurrence of group rebellion. Because of the dichotomous nature of the measure of the occurrence of group rebellion, probit analysis is used to evaluate the explanatory power of the independent variables (Aldrich and Nelson 1984). Table 2 presents the results from a series of models used to assess the effects of the four sources of group rebellion discussed above.

Each of the columns (2 through 5) represents the results from a model using a different indicator of group grievance (autonomy, economic, political, or social and cultural grievances, respectively). The models are identical in all other respects.

The estimates in columns 2 through 5 provide some support for the inverted U-shaped hypothesis regarding the relationship between the level of autocracy and the occurrence of group rebellion. In all cases, the magnitude of the coefficient for medium autocracy exceeds the corresponding estimate for low autocracy. In two of the models, the indicator of medium autocracy is statistically significant, suggesting that the groups living in states with medium levels of autocracy are more likely than groups in highly autocratic states to rebel. In no cases is the estimate from low level of autocracy distinguishable from zero on statistical grounds.

These results are similar to those reported by Gurr (1993b), Gurr and Moore (1997), and Lindstrom and Moore (1995) that state responses and capabilities influence the probability of rebellion. An important difference between the estimates obtained in previous studies and the ones we report here is that past studies evaluated the linear effect of political institutions on the level of rebellion, rather than attempting to isolate a nonlinear relationship between state responses and capabilities and the probability of rebellion.

Diffusion (both cross-national and intranational) has little, if any, significant effect on the probability that a group will rebel. Although all of the estimates for both indicators are correctly signed (positive), none are statistically significant using conventional standards. This is somewhat surprising, given that Gurr (1993b), Gurr and Moore (1997), and Lindstrom and Moore (1995) all report that the level of rebellion undertaken by a minority group at risk is positively influenced by the

presence of ongoing conflicts in neighboring states. One possible explanation for the differences is the coding rule used by Gurr and Moore. The Gurr and Moore diffusion measure is based on the "occurrence of similar rebellions elsewhere in a region" (p. 5). It is, therefore, considerably more broad than the measures we employ, which require a summary rebellion of 8 or higher by another group in the state (for intranational diffusion) or a group in a neighboring state (for cross-national diffusion).

Our measures of relative deprivation and the control for per capita wealth, on the other hand, enjoy relatively strong support. In all versions of the model, per capita wealth is negatively related to the occurrence of group rebellion, and it is statistically significant in three of the models (models 1, 2, and 4). Looking at the different estimates for group grievances, we note that all of them are correctly signed. However, only two types of group grievances—autonomy and political rights—are sig-

Table 2
Predicting the Occurrence of Rebellion Using State Capabilities, Diffusion, Relative Deprivation, and Rational Actor Approaches

Independent Variable	Model 1: Autonomy Grievance	Model 2: Economic Grievance	Model 3: Political Grievance	Model 4: Social Grievance
State response/capabilities				
Low autocracy	0.22	0.11	0.10	0.20
	(0.89)	(0.45)	(0.40)	(0.84)
Medium autocracy	0.44	0.50*	0.46	0.54*
	(1.39)	(1.70)	(1.53)	(1.84)
Diffusion				
Cross-national	0.10	0.33	0.30	0.25
	(0.45)	(1.47)	(1.34)	(1.11)
Intranational	0.04	0.39	0.36	0.39
	(0.10)	(1.13)	(1.05)	(1.14)
Relative deprivation				
Real gross domestic product (log)	-0.31*	-0.20*	-0.17	-0.20*
	(2.55)	(1.79)	(1.48)	(1.78)
Grievance	0.58*	0.10	0.23*	0.03
	(5.14)	(1.62)	(3.59)	(0.65)
Rational actor				
Coherence	0.17*	0.28*	0.29*	0.25*
	(1.69)	(2.88)	(2.97)	(2.68)
Concentration	0.05	0.13*	0.14*	0.13*
	(0.65)	(1.98)	(2.07)	(2.01)
Control				
Advantaged group	-1.07*	-1.17*	-1.06*	-1.21*
	(2.74)	(3.20)	(2.83)	(3.32)
N	203	202	203	203
Log-likelihood	-95.78	-108.43	-103.39	-110.02
Chi-square	76.91*	50.67*	61.68*	48.42*
Percentage correctly classified	74.38	73.27	73.40	76.35
Proportional reduction in error	0.32	0.29	0.29	0.37

Note: Numbers in the table are coefficient estimates; z scores are in parentheses.
*$p < 0.05$, one-tailed.

nificant using conventional standards. The estimates for economic grievances and social and cultural grievances are correctly signed but not statistically significant. These results highlight the importance of viewing relative deprivation as a subjective, multidimensional concept that should not be reduced to a single, objective indicator such as income inequality. Further, the fact that economic grievances have no effect is noteworthy, given that many analyses of relative deprivation have centered on income inequality. Our results are consistent with those reported by Gurr (1993b) but differ somewhat from those found by Gurr and Moore (1997) and Lindstrom and Moore (1995), who suggest that the link between grievances and rebellion is indirect (i.e., the level of grievance influences the likelihood of mobilization, which, in turn, affects the extent of rebellion).

The estimates of the effect of group characteristics on rebellion are especially striking. The indicator of coherence has the correct sign (positive) and is significant in all four variations of the model. The estimates for group concentration, although not as strong, are nonetheless pronounced. In each of the different models, the coefficient estimate is positive, and the effect is statistically significant in three of the four variations (models 2, 3, and 4). These results provide strong support for the arguments of Coleman (1990) and Moore (1995) and are consistent with the empirical findings of Gurr (1993b) and Gurr and Moore (1997) that social networks can help solve the collective action problem faced by large groups.

The model does a reasonably good job of correctly classifying the cases. On average, 74% of the 203 cases are correctly classified. These results should be viewed with some caution, however, because of the uneven distribution of cases across the dependent variable (Gartner 1997). Of the groups in the study, 63% did not rebel during the 1980s. Thus, predicting no rebellion for each group would still classify cases with 63% accuracy. A measure that does not suffer the same weakness is the proportional reduction in error (PRE). PRE is calculated by (1) subtracting the number of cases correctly classified by the model by the number of cases in the modal category and (2) dividing this figure by the number of cases in the modal category. The last row in Table 2 presents the PRE across each of the four models. Overall, the results are quite strong. On average, the amount of error associated with always predicting the modal category declines by 32%, a significant improvement.

A related question centers on the substantive effects of each variable in the model on the probability of group rebellion. Because the coefficient estimates generated by probit are not intuitively meaningful, Table 3 presents the percentage shifts in the cumulative normal probability distribution for selected values of key independent variables (see Wolfinger and Rosenstone 1980, Appendix C, for a discussion of this procedure). The estimates in Table 3 are obtained by calculating the base probability of rebellion, which is the likelihood of rebellion with all variables held constant. Then, specific values of key independent variables are substituted (one at a time) to assess how much the probability of a rebellion changes across values of that variable. Because not all variables were statistically significant across all models, we elected to present results for variables if they were significant in any two of the four models (in the case of each of the separate grievance variables, we calculated percentage shifts for all that were significant). A second rule was that for those variables that were significant in two or more models, we used the base model in which the variable of interest had the smallest (absolute value) coefficient estimate, thereby making the evaluation as conservative as possible.

For example, we note that the estimates for the effect of group coherence on the probability of rebellion are significant across all four models. Thus, it meets the first criterion (at least two models produced significant results) and is, therefore, included in Table 3. The next question is, Which one of the four coefficient estimates should be used for the calculations in Table 3? Comparing across the four columns, we note that the coefficient estimates vary between a low of 0.17 (model 1) to a high of 0.29 (model 3). Based on our second coding rule, we therefore use the model 1 estimate of 0.17 because it is the smallest of the four coefficients. Table 3 presents the base probability from each model used to calculate the shifts in the cumulative normal probability distribution in column 2, the probability of rebellion when one of the variables is constrained to a particular value in column 3, and the change in the likelihood of rebellion over the baseline probability in column 4.

The effect of level of autocracy is consistent with the inverted U-shaped hypothesis. When autocracy is constrained to a medium level, the probability of group rebellion increases by 9.84 percentage points, from the base of 37.42 to 47.26. Although the estimate for low levels of autocracy increases the probability of rebellion by about 4 percentage points (3.78), it is important to keep in mind that the effect was not distinguishable from zero on statistical grounds. Low autocracy is included in Table 3 only for purposes of comparison with the estimate for medium levels of autocracy.

Table 3
Predicting the Occurrence of Rebellion: Shifts in the Cumulative Normal Probability Distribution for Key Independent Variables

Variable	Baseline Probability	Probability of Rebellion	Change from Baseline
Autocracy	37.42		
Low		41.20	3.78
Medium		47.26	9.84
Per capita real gross domestic product (log)	37.82		
25th percentile		43.31	5.49
50th percentile		38.21	0.39
75th percentile		31.41	-6.41
Autonomy grievance	37.42		
Low (1)		36.87	-0.55
Medium (2)		56.81	19.39
High (3)		75.13	37.71
Political rights grievance	37.55		
Low (1)		28.94	-8.64
Medium (3)		42.99	5.44
High (5)		57.98	20.43
Group coherence	37.42		
Low (1)		25.07	-12.35
Medium (3)		33.31	-4.11
High (5)		42.53	5.11
Group concentration	37.82		
Low (2)		26.01	-11.81
Medium (4)		33.59	-4.23
High (6)		41.91	4.09

Turning to per capita wealth, we notice a modest, but nonetheless pronounced, effect. When we constrain per capita wealth to the 25th percentile (i.e., 75% of the groups live in wealthier states), the probability of rebellion decreases by roughly 5½ percentage points. In contrast, groups in wealthier states (75th percentile) are about 6½ percentage points less likely to rebel.

The level of autonomy demands has a strong net effect on the likelihood of rebellion. When this variable is constrained to a low level (1), the probability of rebellion is slightly less than the baseline probability (36.87 compared with 37.42, respectively). On the other hand, when the value of autonomy grievance is constrained to its highest value (3), the chances of group rebellion increase to 75.13%, a 37.71 point increase! The results for political rights are also striking. When political rights is held constant at a low level (1), the probability of rebellion decreases by 8.64 points to 28.94%. In contrast, when the same indicator is constrained to its highest value (5), the likelihood of rebellion increases by 20.43 points, to about 60% (57.98%). Taken together, these estimates provide strong support for the notion that relative deprivation influences rebellion. Moreover, the results reinforce the pointmade earlier that relative deprivation is a multidimensional concept, and at least two of the dimensions—autonomy and political rights—have significant effects on the behavior of groups.

Moving down to our measures of social networks—coherence and concentration— we find that they have similar effects on the probability of rebellion. When group coherence is held at a low value (1), the likelihood of conflict reduces by 12.35 points to roughly 25%. On the other hand, highly coherent groups have about a 43% chance of rebellion (an increase of about 5 points). Similarly, when group concentration is constrained to a low value (2), the likelihood of conflict drops by about 12 points (11.81). Highly concentrated groups, on the other hand, are about 4 percentage points more likely to rebel.

Based on the analyses reported above, we find significant evidence of an inverted U-shaped effect of autocracy on rebellion. In all of the models, the indicators are correctly signed, and in two out of the four models, medium levels of autocracy had a statistically significant effect on the probability of group rebellion. The strongest effects appear to come from the indicators of relative deprivation. Both autonomy and political rights grievances have a pronounced effect on the occurrence of rebellion. Finally, we also have modest but sustained support for the hypothesis that social networks can help solve the collective action problem. The characteristics of a group— in terms of its coherence and concentration—affect the probability of rebellion.

PREDICTING THE INTENSITY OF REBELLION

We turn now to the second portion of the analysis section: evaluating the ability of the independent variables to account for the level of group rebellion. Because the dependent variable is skewed to the right, tobit analysis will be used to assess the relative explanatory power of the four different models discussed above.[12] In Table 4, we report estimates from models using the same format as in Table 2.

Comparing Tables 2 and 4, one of the most important similarities is the effect of

[12]We also estimated the models using ordinary least squares regression. The results were virtually identical to those reported above.

autocracy on the severity of rebellion. The results in Table 4 provide even more support for the inverted U-shaped hypothesis. In every variation of the model, the estimate for medium level of autocracy is positive and significant, whereas the corresponding estimate for low level of autocracy, although correctly signed, is indistinguishable from zero on statistical grounds.

These results are somewhat surprising, given that Scarritt and McMillan (1995) (who also use the Phase I data set) report a positive and significant relationship between the level of democracy (measured in 1986) and the level of group rebellion during the 1980s. Of course, these differences may be due to the fact that Scarritt and McMillan restrict their attention to Africa. On the other hand, as we mention above, our results are generally consistent with those reported by Gurr (1993b), Gurr and Moore (1997), and Lindstrom and Moore (1995), who found a significant negative effect of democracy on the level of rebellion.

The results for cross-national diffusion are similar to those we found predicting the occurrence of rebellion-no significant effect-and once again are somewhat sur-

Table 4
Predicting the Level of Rebellion Using State Capabilities, Diffusion, Relative Deprivation, and Rational Actor Approaches

Independent Variable	Model 1: Autonomy Grievance	Model 2: Economic Grievance	Model 3. Political Grievance	Model 4: Social Grievance
State response/capabilities				
Low autocracy	0.31	0.24	0.14	0.32
	(0.76)	(0.55)	(0.33)	(0.72)
Medium autocracy	1.18*	1.41*	1.23*	1.47*
	(2.31)	(2.56)	(2.30)	(2.69)
Diffusion				
Cross-national	-0.43	0.01	-0.03	-0.14
	(1.11)	(0.04)	(0.06)	(0.34)
Intranational	0.67	1.24*	1.20*	1.22*
	(1.12)	(1.97)	(1.98)	(1.93)
Relative deprivation				
Real gross domestic product (log)	-0.81*	-0.69*	-0.61*	-0.70*
	(4.09)	(3.26)	(2.93)	(3.28)
Grievance	1.04*	0.14	0.42*	0.12
	(5.57)	(1.21)	(3.78)	(0.96)
Rational actor				
Coherence	-0.05	0.21	0.21	0.18
	(0.28)	(1.23)	(1.26)	(1.05)
Concentration	0.06	0.17	0.19*	0.19*
	(0.52)	(1.54)	(1.77)	(1.65)
Controls				
Advantaged group	-1.52*	-1.92*	-1.62*	-1.94*
	(2.87)	(3.37)	(2.93)	(3.41)
N	203	202	203	203
Chi-square	86.55*	58.88*	71.51*	58.61*
Log-likelihood	-459.42	-471.07	-466.94	-473.39

Note: Numbers in the table are coefficient estimates; t ratios are in parentheses.
*$p < 0.05$, one-tailed.

prising given the findings reported by other studies (e.g., Gurr 1993b; Gurr and Moore 1997; Lindstrom and Moore 1995). On the other hand, intranational diffusion is correctly signed and statistically significant in three of the four variations of the model. Although it is striking that the effect is found predicting the level of rebellion but not the occurrence of rebellion, these results should be viewed with caution. The effect that is attributed to a diffusion process may simply be a result of the fact that the presence of rebellion has weakened the repressive capacity of the state. One possible avenue of future research is, therefore, to explore this finding in more depth.

The estimates for the indicators of grievance and wealth are very similar to those predicting the occurrence of rebellion. Per capita wealth has a negative, significant effect on the severity of rebellion across all variations of the model. Similarly, two indicators of relative deprivation—autonomy grievance and political grievance—have a significant effect on the severity of rebellion. These latter results are consistent with those reported by Scarritt and McMillan (1995) and Gurr (1993b). Although Lindstrom and Moore (1995) and Gurr and Moore (1997) do not find a significant direct relationship between grievances and rebellion, they do report an indirect effect.

Group characteristics, which played a powerful role in predicting the occurrence of rebellion, have less influence on the level of rebellion. The estimate for the coherence of a group, although correctly signed in three of the four models, is actually negative in model 1, and none of the estimates is statistically significant. These results are similar to those reported by Scarritt and McMillan (1995, 336), who found no evidence of a systematic relationship between group coherence and the level of rebellion.

On the other hand, there is limited support for the effect of group concentration on the extent of rebellion. In each of the models, the effect is positive, and in the last two models, the effect is significant. Of course, the fact that social networks have such a pronounced effect on the probability of rebellion but have a much weaker effect on the level of rebellion is not surprising. After all, the collective action problem does not address the intensity with which groups pursue objectives (or with what means), which, in this case, represent things such as coups, civil war, and political banditry; rather, the collective action literature addresses whether a group will form to achieve a particular goal.

CONCLUSIONS

Our goal was to evaluate the ability of state responses and capabilities, diffusion, relative deprivation, and rational actor to account for group rebellion in the 1980s. Overall, our results indicate that relative deprivation and rational actor explanations were more important in accounting for the occurrence of group rebellion. On the other hand, state responses and capabilities and relative deprivation were the better explanations of the level of group rebellion.

These results are somewhat surprising, given that previous studies that used the MARP (Gurr and Moore 1997; Lindstrom and Moore 1995) do not find any direct link between their measures of relative deprivation and group rebellion (although, as we mention above, they do report an indirect effect). Our estimates indicate a pronounced effect of political autonomy grievances and political rights grievances on the occurrence and severity of group rebellion. Most likely, these differences

are due to the fact that both Gurr and Moore (1997, 11) and Lindstrom and Moore (1995, 185) employ a composite measure of grievances based on economic grievances, social grievances, and political rights. The estimates we obtain suggest that it is more useful to treat grievances separately. Moreover, given that both Gurr and Moore (1997) and Lindstrom and Moore (1995) find a significant indirect effect of relative deprivation on the severity of rebellion by taking into account the ability of a group to mobilize, an interesting avenue for future research would be to examine the linkages of the separate types of grievances-both direct and indirect-on the occurrence and severity of group rebellion.

More generally, with the release of Phase III of the MARP, we agree with Ellina and Moore (1990, 275) that it will be especially useful to determine if state responses and capabilities, relative deprivation, and social networks have the same effect on the occurrence and severity of rebellion over time. Most of the studies of group rebellion are cross-sectional, and although much insight can be gained from using a cross-sectional approach (Jackman 1985), our results suggest that it is important to focus on group-specific as well as nation-specific factors that affect the occurrence and severity of group rebellion.

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