

STRUCTURAL CHARACTERISTICS OF CITIES AND
THE SEVERITY OF RACIAL DISORDERS *

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This study attempts to ascertain whether particular structural arrangements and demographic features of a community were responsible for especially severe disturbances during the 1960s. Preliminary to addressing this question, consideration is given to the manner of measuring severity and to the volatile components of this phenomenon. With respect to the latter, it is found that (1) disorder severity declined as a function of the number of prior outbreaks in a city and (2) there is evidence for a temporal effect, with the post-Martin Luther King-assassination disturbances having been unusually destructive. Regarding the more stable (community) determinants of disorder severity, only Negro population size and a dummy term for South were found to be related to severity. Net of these variables, various indicators of Negro disadvantage in a community failed to reveal significant associations with severity. This result is interpreted as further evidence for the distinctly national character of the disturbances in the 1960s.

The issue of disorder severity is conceptually a separate matter from accounting for the locations of disturbances. This distinction was recognized by Wanderer (1969), although the particular procedures he employed to analyze the severity of racial incidents which took place during 1967 have been criticized (Spilerman, 1970a). The rationale for distinguishing between the determinants of disorder location and the determinants of severity can be illustrated most compellingly with respect to the organization and training of social control forces: it may be impossible for the police to react with sufficient alacrity to prevent the occurrence of most

“spontaneous”¹ collective outbursts (especially if an inclusive definition of disorder requiring a low level of violence is used); nevertheless, their manner of response may be an important determinant of the intensity to which an incident will escalate.²

¹ What is intended by this expression are disturbances which were not outgrowths from planned confrontations such as civil rights demonstrations. The precipitants of “spontaneous” disorders typically were the kind of incidents that occur frequently in American cities and are usually disposed of in routine fashion (such as an arrest on a ghetto streetcorner) or unanticipated events of profound significance concerning which information was propagated by television (e.g., the assassination of Martin Luther King). Most of the racial disturbances during the 1960s had such origins.

² There is a widespread belief that police tactics and manner of response to an incipient disturbance can restrain or exacerbate the intensity of the incident. For example, the International Association of Chiefs of Police (1963) recommends the following procedures for controlling hostile outbursts: extricate the leaders; cordon the area to prevent recruits to the mob from entering; fragment the crowd into small isolated groups; introduce plainclothesmen to inject competing slogans and raise divisive issues (Milgram and Toch 1969:579). Also consult Smelser (1963:261-8) for related comments.

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A plausible argument also can be made to the effect that the variation across communities in severity of collective aggression will reflect differences among them in the degree of discontent experienced by their inhabitants. With respect to racial turmoil in the 1960s, it has been reported that the disturbance *locations* were unrelated to a number of objective indicators of Negro social and economic status or to their living conditions in a city (Spilerman 1970b; 1971). This lack of significance of the community characteristics was interpreted as evidence for a thesis that the frustrations which provoked ghetto residents during this period were nationwide in impact and not rooted in circumstances peculiar to the stricken communities. Instead, an explanation was proposed which emphasized the wide availability of television and the role of network news programs in exposing Negroes uniformly to stimuli of a frustrating nature, and in propagating in all cities the same role models regarding how ghetto residents in some communities were responding to the deprivations endemic to Negro life in America.

However, an assessment that community conditions were altogether irrelevant to the riot process would constitute an overinterpretation of those empirical findings since the preceding studies examined only the determinants of disorder location (i.e., outbreak frequency in a city). It still may be the case that the frustrations felt by Negroes which derive from their local situations are salient to other aspects of the disturbance process. In this regard, there is certainly reason to expect community differences to exist in the level of Negro discontent. The conditions under which they live vary enormously among cities, in absolute terms and relative to white circumstance. For instance, in 1960, the range in median Negro income was \$1,880 to \$9,079; relative to median white income the range was .30 to 1.19.³ Disparities of such magnitude must mean that an indi-

vidual's life chances, and a social group's ability to organize and effectively promote its collective interests, are conditioned in dramatically different ways from one community to the next. It is not unreasonable to expect corresponding variations to be present in the degree of frustration that is experienced by Negro residents in these cities.

There is precedent for proposing that the frustrations may come to be expressed in the *intensity* of a release, if not in the frequency of outbreak. Evidence from laboratory studies underscores the importance of the intensity variable. For example, Berkowitz (1965) reports that angered subjects sent shocks of greater frequency and *duration* to stooges; Baron (1971) observed that anger arousal motivated shocks of high severity; and Zimbardo (1969) describes a laboratory study in which aggression was expressed in shock duration, even though frequency was permitted to vary. With respect to collective behavior in natural settings, it also has been suggested that "the fury of the destructive reaction will vary with the indignity of the disappointment" (Milgram and Toch, 1969:549 paraphrasing Dollard et al., 1939).

The argument as to why frustration may come to be expressed in severity of aggression, rather than in frequency, can be made in the following way. In our society, acts of collective violence are inhibited by deep-rooted mores as well as by a fear of apprehension and punishment. In fact, despite the large number of racial disturbances during the 1960s, a disorder was actually a rare event in any given community. While some 170 cities (from among the 673 with 1960 populations exceeding 25,000) did experience some racial turmoil during 1961-68, fewer than ten cities witnessed more than five disturbances during that eight-year interval.⁴ Viewed from

⁴ Figures in this paper which pertain to the *location* of racial disturbances during the 1960s were computed from the data set used in the author's earlier investigations (Spilerman 1970b; 1971). To be included in that data set, an incident had to involve at least 30 participants, be characterized by primarily Negro aggression, and be "spontaneous" in origin. For additional details on the definition and categorization of the disturbances, see Spilerman (1970b:630).

³ Figures are from the 1960 Census of Population (U.S. Bureau of the Census, 1963) and pertain to the 413 communities in the contiguous United States with total population exceeding 25,000 and Negro population in excess of 1,000.

this perspective, even during a decade of great urban unrest the inhibitions which normally deter hostile outbursts appear to have been overcome only infrequently in a particular community.

Breaching the barriers against collective violence may require a precipitant of immense significance. Indeed, 168 of the 341 racial disturbances can be associated with one of two extraordinary events: the massive Newark riot of 1967 (which received extensive television coverage) or the assassination of Martin Luther King. Once the inhibitions against violence have been overcome, however, it is conceivable that the severity of the resulting outburst will be conditioned by the frustrations which have accumulated among Negroes in the community from years of deprivation and powerlessness. As Smelser (1963:259) has observed, "Once hostile outbursts begin . . . they become a *sign* that a fissure has opened in the social order, and that the situation is now structurally conducive for the expression of hostility." With regard to disturbances during the 1960s, evidence in support of a relation between community-based deprivations and riot severity has been reported by several investigators, principally Downes (1968) and Morgan and Clark (1973). The latter (1973:622) are most emphatic in their conclusion: "Cities with a higher grievance level among blacks . . . had higher rates of disorder participation and hence more severe disorders."

Two additional factors warrant consideration. First, apart from the relevance of the social and economic organization of a community, there is a possibility that an outbreak of violence will alter the expected intensity of a subsequent disorder in the same city. The most reasonable conjecture is that later disturbances would be less severe since the initial event would have stimulated police preparation and training in crowd control procedures.⁵

⁵ One police innovation designed to reduce tension and quell turmoil involved the deployment of "youth patrols." In a number of cities, ghetto youth were encouraged to form police auxiliaries and patrol their neighborhoods at the onset of rioting. Knopf (1969), in an examination of the effectiveness of these groups in 12

Second, superimposed upon the foregoing processes, a time trend may exist in disorder severity. For instance, the disturbances subsequent to the assassination of Martin Luther King may have been unusually destructive and violent because of the intensity of bereavement among Negroes. Or, just as the police in a city which has experienced a disorder may be motivated to routinize their crowd control techniques, these tactics might become more widely diffused as other communities recognize that they may not be immune to racial turmoil. Thus, with the passage of time, the severity of even a *first* racial incident in a city might decline.

The above comments constitute a rationale for investigating the variation in disorder severity, and for doing so with reference to several categories of potential determinants: the social and economic situation of Negroes in a community, the preparation by social control forces, the prior disturbance history of the community, and the location in time of the incident. In the following section, preliminary to examining the correlates of severity for the disorders of the 1960s, we discuss the specification and measurement of this construct.

Measurement of Disorder Severity

The measurement of disorder severity raises several conceptual and methodological issues. One matter concerns the question of dimensionality. Wanderer (1968), Downes (1970) and Morgan and Clark (1973) all have treated severity as a unidimensional concept. Indeed, Wanderer reports that the 75 incidents which he analyzed form an eight-category Guttman scale.⁶ In our considerably more extensive data set (322 incidents), information on aspects of disorder severity is not sys-

instances of civil disorder, credits them with restraining the level of violence.

⁶ Wanderer's severity scale contains the following items: (0) No scale items; (1) Vandalism; (2) All of the above plus interference with firemen; (3) All of the above plus looting; (4) All of the above plus sniping; (5) All of the above plus called state police; (6) All of the above plus called National Guard; (7) All of the above plus law officer or civilian killed (Wanderer, 1968: 196-7).

Table 1. Riot Severity Scale

0.	Low intensity—rock and bottle throwing, some fighting, little property damage. Crowd size < 125; arrests < 15; injuries < 8.
1.	Rock and bottle throwing, fighting, looting, serious property damage, some arson. Crowd size 75–250; arrests 10–30; injuries 5–15.
2.	Substantial violence, looting, arson, and property destruction. Crowd size 200–500; arrests 25–75; injuries 10–40.
3.	High intensity—major violence, bloodshed and destruction. Crowd size > 400; arrests > 65; injuries > 35.

tematically available. However, the few inter-correlations which can be computed among the component indicators are large and suggest that a unidimensionality assumption is not unreasonable.⁷ We will proceed here under this assumption; additional evidence to support unidimensionality will be presented in a later section.

A second issue concerns specification of the severity scale categories and selection of items appropriate to the construct. On this matter, we have three disagreements with Wanderer concerning strategy in scale construction. (1) The items he used are all qualitative and, hence, insensitive to the magnitude of an activity type. For instance, two successive items in his scale are “all of the above plus looting” and “all of the above plus sniping.” An incident of brief duration, with a minor amount of looting and one or two snipers (who cause no injuries), would be scaled by Wanderer as more severe than a disorder lacking a sniper but having thousands of looters and vandals, engaged in running battles with the police for many hours, and resulting in numerous injuries and arrests. Intuitively, we prefer to consider the latter a more severe disturbance. (2) Wanderer’s scale omits items which we believe should be major components of a disorder severity instrument: crowd size, number arrested, and number injured. (3) Two of his categories—“called National Guard” and “called state police”—confound an organizational response to rioting with the intensity of the stimulus. An implication of this latter point will be considered at the end of the present section.

⁷ The correlations among severity components are reported in Table 2, following the discussion of data characteristics.

Using data much the same as ours. Downes (1968; 1970) constructed a four-category ordinal scale which incorporates quantitative information on the extent of several kinds of riot activities.⁸ We chose to use a somewhat more elaborate version of Downes’ scale (Table 1), the main difference being that our instrument specifies numerical bounds at each scale level for crowd size, number of arrests, and number of injuries to supplement the descriptive information pertaining to severity. The bounds were specified to overlap one another because the component aspects of severity are not perfectly correlated. Some disturbances have large crowds but few injuries, while other incidents with relatively few participants may be exceedingly sanguinary and result in a great many injuries. In assessing severity, the coders were instructed to use the bounds as guides, in conjunction with the descriptive materials on a disorder, rather than to code in an inflexible manner.

A final issue concerns measurement properties of the severity scale. Whereas Downes utilized ordinal ranks in his computations, we chose to assign interval scores to the categories, in recognition of the fact that our knowledge about the scale levels exceeds rank order informa-

⁸ Downes’ severity scale consists of the following items: (0) Low intensity—rock and bottle throwing, window breaking, fighting; (1) Medium intensity—the above plus some looting and arson; (2) High intensity—the above plus much looting and arson, reports of sniping; (3) Very high intensity—the above plus widespread looting and arson, sniping (Downes, 1968:519). Downes included an additional severity category for cities not experiencing a disorder, which he ranked below “low intensity.” It was properly (in our opinion) omitted in his second paper (Downes, 1970:355–6).

tion. For instance, it was apparent to the coders that the disorders at each successively higher rank were, on average, considerably more severe than ones in the preceding category. Interval values were assigned to the rank differences in the following manner: after classifying all incidents, each coder was instructed to consider the disparity between category 1 and category 0 disorders as equal to one unit of intensity, and then to estimate the severity difference between category 2 and category 0 disorders, and between category 3 and category 0 disorders. The values they assigned were very close and averaged to the scale scores 0, 1, 4, 12, corresponding to the ranks, 0, 1, 2, 3. These interval values define the dependent variable in the main analyses to be reported in this paper.

Our primary data sources were Lemberg Center (1968a; 1968b) and the New York Times Index. Newspaper accounts and the Civil Disorder Chronology (Congressional Quarterly, 1967) were consulted in reference to the pre-1967 disturbances, but information concerning those events was too sketchy to permit reliable classification in terms of severity. The incidents analyzed in this study, therefore, are limited to the period 1967-68. Three hundred and twenty-two events satisfied the minimal criteria of violence necessary for consideration as disorders (Spilerman, 1970b:630) and were used in the analysis.⁹

Following the instructions outlined above, two coders, working independently, classified all incidents. Where information

on some aspect of severity was missing,¹⁰ they were instructed to assign the incident to a rank category on the basis of available data. Agreement between the coders was obtained in 96 percent of the disorders. In every instance of disagreement, a single rank difference was involved and the matter was resolved by averaging the two values.

To validate the resulting scale as a severity instrument, the component variables (number of arrests, number of injuries, and crowd size), the three-category severity classification employed in the Kerner Report (National Advisory Commission, 1968:65) in conjunction with the 1967 disorders, and the composite indices described in this paper were inter-correlated using a pairwise-present calculation. The results are presented in Table 2 and reveal a substantial correspondence between our indices and the other measures of severity.

Inclusion of organizational response items in the severity scale. In the preceding section, we suggested that the inclusion of items such as "called state police" and "called National Guard" in a severity scale would confound an organizational response to a disturbance with the intensity of the stimulus. This is an undesirable situation because the kind of external assistance which is provided to a city may be a function of its structure and demography, in addition to the severity of the incident. This contention is elaborated upon here.

The particular scale items cited above are among those used by Wanderer (1968:197) to define severity levels. He considered "called National Guard" (item 6 in footnote 6) as indicating greater disorder severity than "called state police" (item 5).

⁹ Because the unit of observation here is the disturbance, not the potential riot site, community characteristics had to be collected only for cities which experienced racial turmoil. This permitted the inclusion of incidents which occurred in cities with populations less than 25,000. (These were omitted from the riot location studies because systematic information on small cities is absent in the Alford-Aiken data file, our primary source of data on the independent variables.) Forty-five incidents in small cities are contained in our figure of 322. Due to the large amount of missing data on characteristics of small communities, approximately half of these added disturbances subsequently were eliminated from the main analyses.

¹⁰ Data on number of arrests were available for 294 incidents; information on number of injuries was recorded for 258 disorders. Crowd size was reported less systematically: sometimes a range was specified; in other instances, statements were written such as "a crowd estimated to be larger than . . ." or "a small band of Negro youth." In 209 cases the coders were able to estimate approximate crowd size in terms of the following scale: (0) less than 100 participants; (1) 100-300 participants; (2) 300-700 participants; (3) more than 700 participants. Clearly, the very notion of "participation" is ill-defined, and this index should be recognized as subject to much error.

Table 2. Intercorrelations^a among Severity Components and the Composite Scales

	Severity (0-12)	Arrests ^b	Injuries ^b	Crowd Size ^c	Kerner Index ^d
Severity Scale (0-3)	.893	.769	.754	.570	.597
Severity Scale (0-12)		.712	.741	.586	.676
Arrests			.684	.533	.489
Injuries				.566	.537
Crowd Size					.444
N ^e	322	294	258	209	145

^a Pairwise present correlations were calculated.

^b $\log(x + 1)$.

^c Crowd size was coded 0, 1, 5, 18 in accordance with coder estimates of crowd size at each rank. We point out that these values are close to the ones which Abelson and Tukey (1959:228) recommend when information exceeds rank order knowledge and increasing intervals can be assumed.

^d Kerner index was coded 0 to 2.

^e Number of observations in correlations with the composite severity scales.

An alternate possibility, however, is that communities with particular structural and demographic features will tend to specialize in obtaining one or another form of outside assistance. In particular, for a given level of severity (as measured by the extent of violence), we suggest that large communities will be less likely than small places to receive state police aid. The reasons for this assertion are the following: (1) because of their sizable police forces, large cities are less likely to require external assistance of any sort; (2) in many states the state police have a primarily rural and small town jurisdiction; (3) considering the amount of assistance that would be necessary to effectively reinforce local police authorities in a large community when they cannot quell a disturbance, a substantial redeployment of state troopers, from many jurisdictions, would be required to provide sufficient manpower. For these reasons, when external assistance is requested by large cities we expect the National Guard to be mobilized, rather than the state police to be called.

An analogous difficulty regarding the inclusion of organizational response items in a severity scale involves the possibility of anticipatory deployment of external personnel. Following the assassination of Martin Luther King, for example, National Guard troops were dispatched to many cities *in the expectation* of violence and turmoil. Consequently, it is possible that the item "called National Guard," rather than having disorder severity as a pure

stimulus, is contaminated instead by other considerations.¹¹

To convey more concretely the import of the foregoing objections to the inclusion of organizational response items in a severity scale, dummy variables for "called National Guard" and "called state police" were regressed against our measure of disorder severity and against terms for city size, region, and time period.¹² The entries in column (1) of Table 3 are unstandardized regression coefficients corresponding to the dependent variable "called state po-

¹¹ In fairness to Wanderer, it should be noted that the post-Martin Luther King-assassination period was not included in his study, which was restricted to disturbances during 1967.

¹² There is a statistical problem in using a dichotomous dependent variable because the assumption of homoscedasticity is no longer valid. The least squares estimators of the regression coefficients still will be unbiased but their standard errors will be biased and inconsistent. One alternative is to use the two-stage method described by Goldberger (1964:248-50). This procedure was applied here with the first stage predictions restricted to the ranges (.1, .9), (.06, .94) and (.03, .97), which has the effect of permitting observations at the end points of an interval to contribute, respectively, 1.6, 2.1 and 3.0 times the weight of an observation at the midpoint. No difference in substantive findings arose from these manipulations. OLS results are presented in the text because the two-stage procedure provides slightly different parameter estimates depending on the first-stage range selected, and there is no rationale to guide a particular choice. Alternate methods such as probit and logit analysis are computationally cumbersome and unlikely to produce different results, given the stability of findings under the two-stage procedure.

Table 3. Regressions of Social Control Response Items on Severity, City Size, Region and Time Period

Independent Variable	Unstandardized Regression Coefficient ^a			
	Dependent Variable ^b			
	(1) Called State Police		(2) Called National Guard	
Constant	.949**	(5.44)	.134	(0.95)
Severity ^c	.042**	(6.33)	.063**	(11.80)
City Size (log)	-.071**	(-4.94)	-.014	(-1.17)
South ^d	-.013	(-0.28)	.227**	(5.61)
t ₂ ^e	.118	(1.74)	-.062	(-1.11)
t ₃ ^f (Post-Martin Luther King-Assassination period)	-.016	(-0.33)	.104**	(2.62)
t ₄ ^g	-.065	(-0.97)	-.061	(-1.12)
t ₅ ^h	-.041	(-0.61)	-.005	(-0.08)
R ²	.17		.37	
No. of observations	300		300	

* Significant at $p < .05$.

** Significant at $p < .01$.

^a t-values are shown in parentheses.

^b Dependent variable coded 1 if social control agent was called, 0 otherwise.

^c Scale values are coded 0, 1, 4, 12.

^d Coded 1 if southern city, 0 otherwise.

^e Dummy term coded 1 if disorder occurred during August 1967–March, 1968, and coded zero otherwise. Deleted term is for January–July, 1967.

^f Dummy term for April, 1968.

^g Dummy term for May–July, 1968.

^h Dummy term for August–December, 1968.

lice.” The significant negative coefficient for city size indicates that, holding severity constant, large cities were, indeed, less likely to obtain assistance from the state police than were small communities. Use of the item “called state police” to define a severity level would therefore make small communities appear to have had more serious outbursts, and large cities less serious disorders, than is suggested by descriptive information on the amount of violence and by quantitative data on crowd size, number of arrests and number of injuries.

In the National Guard equation (column 2), the significant coefficient corresponding to the post-Martin Luther King-assassination period indicates that inclusion of this organizational response item in a severity scale would make the disturbances following the murder appear more turbulent than is warranted on the basis of our severity index. This finding supports the anticipatory deployment contention. With respect to the term for South, its significance in the regression suggests that, holding the

extent of violence and other factors constant, a southern state was more likely than a northern one to provide this manner of law enforcement assistance to locales contending with hostile outbursts. In summary, we find that the social control items contained in Wanderer’s severity scale are intimately related to other community characteristics. If used to measure severity, they will provide an inaccurate description of the amount of violence and destruction that actually transpired.

Reinforcement Effects and Time Trend

The variables in this study which bear the greatest sociological significance are ones which refer to structural and demographic features of a community. The findings with respect to these factors can inform us about how the severity of hostile outbursts is conditioned by the way our cities are organized and governed and by the pervasiveness of the deprivations to which Negro residents are subjected. Most of the community characteristics that we

shall examine change only slowly during a brief time interval, such as the period covered by this study (1967–68); therefore, we will treat them as constant in time and employ cross-sectional procedures. What we shall be investigating, then, is the presence of a severity value that is community specific and relatively stable over time; both properties deriving from its conceptualization as a function of community demography and social organization.

Before addressing this issue, we discuss some *volatile* aspects of a community's severity value. This matter is of importance because we wish to acquire a comprehensive understanding of the determinants of severity and, also, because controls will be necessary for the responsible factors in order to obtain unbiased estimates of the community effects. One possible source of volatility relates to the presence of multiple disturbances in a city during the two-year interval; often they were at different levels of severity. While this may be simply a consequence of random variation about a community's "characteristic value," it also could reflect the influence of systematic factors. In particular, as we suggested in the introduction, a reinforcement process might operate whereby an outbreak of violence alters the expected severity of a subsequent disorder in the same city. This would happen, for instance, if the police were to increase their preparation in riot control procedures following an initial

outburst (thereby lowering the expected severity of later disorders), or if insensitive police actions during the first incident were to leave a residue of bitterness and hostility in the black community (in which case the intensity of subsequent violence might be raised). In either case, the expected severity of a disturbance would be a function of the history of prior racial turmoil in the city. A second potential source of volatility relates to the presence of a time trend. Outbreaks of exceptionally severe disorders following the assassination of Martin Luther King would constitute an example of such temporal variation.

Evidence for both contentions can be found in Table 4. The entries in column (1) report mean severity rank by time period¹³ for the first disturbance in a community; in column (2) analogous figures are presented for disturbances subsequent to the first one. These values suggest that disorder severity was a relatively

¹³ The time periods were specified with two considerations in mind: to place roughly equal numbers of cities in each interval and to group disorders in a way that would heighten the impact of substantive events. T_1 reflects primarily, the many incidents which followed the major Newark disorder; t_2 is a residual category; t_3 contains the post-Martin Luther King-assassination disorders; t_4 and t_5 divide the summer of 1968 disturbances. The latter two periods are presented separately because of the different effect each has in the regression models (Table 5).

Table 4. Disorder Severity by Ordinal Position of the Disturbance in a City and by Time Period, 1967–68

Period	First Disturbance in City ^a		Subsequent Disturbances in City	
	(1) Mean Severity ^b	Number of Disorders	(2) Mean Severity ^b	Number of Disorders
Jan.–July, 1967 (t_1)	.782	78	.913	46
Aug., 1967–March, 1968 (t_2)	.750	16	.825	20
April, 1968 (t_3) ^c	.510	51	1.270	37
May–July, 1968 (t_4)	1.000	13	.789	26
Aug.–Dec., 1968 (t_5)	.923	13	.659	22
N		171		151

^a Includes only cities for which a first disorder occurred in 1967–1968.

^b Untransformed scale values (0–3) were used to reduce the effect of very high severity scores. The pattern of results is unchanged but the effects more pronounced if transformed severity values (0–12) are used.

^c Post-Martin Luther King-assassination period.

stable phenomenon until the assassination of Martin Luther King. In the weeks following his murder, the severity of a first disorder in a city declined, while communities with a history of racial turmoil incurred a marked increase in intensity of violence. A reversal of this pattern is apparent in the final time periods: first disorders exhibit a severity increase while later outbreaks in a city show a decline.

Although these effects are striking and suggest the operation of both a time trend and different influences upon first and later disorders in a city, the responsible mechanisms are not discernible from an inspection of Table 4. In order to unravel the determinants of the volatility in disorder severity, we resort to a regression formulation in which the processes outlined above are taken into account, and controls are also incorporated for community differences in disorder-proneness. Controls for the latter factor are necessary because cities with different characteristic severity values may differ as well in their proneness to incur disturbances, and this feature may be confounded with the aforementioned processes. In particular, communities with high severity potentials might tend to ex-

perience many disorders and therefore would probably undergo a first disturbance in an early time period. This situation would produce a spurious time trend unless the determinants of disorder-proneness are explicitly controlled.

The dependent variable in the regression was disorder severity, while the independent variables were dummy terms for time period, number of prior disorders in the city and South, plus a continuous term for nonwhite population size. The latter two variables were included because they have been cited as major determinants of community disorder-proneness (Spilerman, 1970b). One further point regarding model specification deserves comment. Many American cities incurred multiple disturbances during 1967–68. Since each of the incidents constitutes an observation in our analysis, there is a possibility that the residuals from the regression will be serially correlated. This would occur, for example, if certain community characteristics that are determinants of severity were omitted from the regression equation. The error terms for the disorders in a particular city would tend, then, to be either all high or all low, depending on the effect of the

Table 5. Regressions of Disorder Severity^a on Time Period, Number of Prior Disturbances, Nonwhite Population Size and Region

Independent Variable	Unstandardized Regression Coefficient ^b			
	(1)		(2)	
Constant	-6.698**	(-5.09)	-6.772**	(-4.85)
t _a	.033	(0.05)	.019	(0.03)
t _a ^c	.967*	(2.21)	.971*	(2.20)
t _b	1.034	(1.76)	.928	(1.60)
t _b	.311	(0.51)	.384	(0.62)
1 Prior Disorder ^d	-.275	(-0.60)		
2 Prior Disorders ^d	-1.668**	(-2.64)		
3+ Prior Disorders ^d	-2.657**	(-4.05)		
Number of Prior Disorders ^d			-.445**	(-3.74)
Nonwhite Population Size (log)	.892**	(6.25)	.890**	(6.16)
South	-1.146**	(-2.63)	-1.154**	(-2.62)
R ²	.149		.134	
No. of observations	300		300	

* Significant at $p < .05$.

** Significant at $p < .01$.

^a Scale values of severity are coded 0, 1, 4, 12.

^b t-values are in parentheses.

^c Post-Martin Luther King-assassination period; see Table 4 for exact specification of the time period terms. Deleted term is t_a.

^d During 1961–68.

omitted factor. In either case the residuals would be correlated, and this will invalidate tests of hypotheses with respect to the regression coefficients (Kmenta, 1971: 281). However, an examination of the residuals (Appendix I) failed to reveal autocorrelated errors, and ordinary least squares was used.

The results reported in Table 5 provide evidence for each of the preceding contentions regarding the determinants of volatility in disorder severity. With respect to a temporal trend, the entries in column (1) reveal that the post-Martin Luther King-assassination disturbances in April, 1968, were unusually severe, net of the other variables in the equation. On our 12-unit scale, a disturbance at that point in time tended to be approximately one unit more severe than one in the reference interval (t_1). This effect appears to have spilled over into the early summer months of 1968; although owing, possibly, to the few incidents in that period, the coefficient for t_4 is not statistically significant.

The two community characteristics that were included in the regression because of their known influence on disorder frequency (nonwhite population size and a dummy term for South) have effects on severity which are identical to the ones reported for them in the disorder-proneness study (Spilerman, 1970b:643). Both severity and frequency vary directly with nonwhite population size (a large population provides the human resources for many disturbances and for severe ones). Also, severity and frequency both were substantially lower in the South; according to the specification of equation (1), the average severity of a disturbance in this region was more than one scale unit below that of a non-southern incident, net of the other factors. In the disorder-proneness study, we speculated that the regional difference might reflect lower expectations on the part of southern Negroes regarding the likely rate of improvement in their conditions (and, hence, less frustration from observing the actual rate of progress) and a greater fear of repression and retribution. This same explanation would account for disorders being less severe in

the South since the salient point, again, is that there would be fewer potential riot participants in cities in this region.

Perhaps the most intriguing finding concerns the contribution from prior outbreaks. With the occurrence of each incident, the expected severity of a subsequent disorder in the same city declined. It is noteworthy that the contribution from one prior outbreak is not as large as the marginal contribution from two, or from three or more, prior outbreaks. I interpret this to mean that participant exhaustion may have had more to do with the decline in severity than did improved police preparation in response to previous racial turmoil in the city. Under the latter process, a first incident should have had the largest effect, with additional police training and preparation stimulated by subsequent disorders making progressively smaller marginal contributions to the reduction in severity. However, the regression results reveal the reverse pattern, one that is more understandable in terms of an explanation which emphasizes cumulative exhaustion and growing disinterest on the part of potential participants to engaging in yet another disturbance. This interpretation is highly speculative, of course; presumably both processes operated in varying degrees, and a more detailed analysis than we are prepared to undertake here would be necessary to disentangle their separate effects. Nevertheless, irrespective of which interpretation one prefers, the empirical finding is quite clear: severity declined as a function of the number of prior outbreaks in a city. This is a very important point because other investigators (Downes, 1968; 1970; Morgan and Clark, 1973) have chosen to characterize each city by a single severity value corresponding to its most severe incident.¹⁴

¹⁴ The procedure which Downes followed in assigning severity values to cities is not evident from his articles. It was clarified in an exchange of letters with the author. We point out that despite the tendency to lower severity with each additional disorder, this assignment would associate high severity values with high multiple disorder cities. A city with many incidents simply has had more opportunity to incur a severe disturbance.

Table 6. Sensitivity of the Regression Results to Alternate Specifications of the Severity Measure

Independent Variables	Standardized Regression Coefficient						
	(1) Severity 0-3	(2) Severity 0-12	(3) Severity 0-25	(4) Crowd Size ^a	(5) Log Arrests	(6) Log Injuries	(7) Canonical Model ^b
t ₃	.011	.002	.001	.063	.054	.071	.075†
t ₃ ^c	.049	.139*	.161**	.110	.118*	.156**	.127
t ₄	.047	.095	.107	-.068	-.013	.136*	.035
t ₅	.047	.038	.037	.024	-.009	.107	.049
Number of Prior Disorders ^d	-.293**	-.306**	-.300**	-.177*	-.233**	-.256**	-.206
Nonwhite Population Size (log)	.459**	.478**	.464**	.615**	.486**	.507**	.615
South	-.160**	-.153**	-.145**	-.191**	-.125*	-.157**	-.140
R ²	.12	.13	.13	.31	.15	.17	.37
No. of Observations	300	300	300	194	275	241	169

* Significant at $p < .05$.** Significant at $p < .01$.

† Significance tests not available for individual coefficients in the canonical model.

^a Alternate assignments of values to crowd size ranks produced comparable results.^b Values rescaled so that coefficient for nonwhite population size would be identical to value for this term in the crowd size equation. The entry in the R² row is the square of the canonical correlation coefficient.^c Post-Martin Luther King-assassination period.^d During 1961-68.

Because of the tendency of the dummy terms for each higher number of prior disorders to show effects which decrease in an almost linear fashion, we can replace them by a single variable, the number of prior outbreaks in a city. The coefficients for this more concise model are presented in column (2) of Table 5 and differ only in minor ways from the parameters of the preceding equation. These variables will be the controls in our investigation of the impact of community structure and demography on disorder severity. Before undertaking that analysis, we turn to the question of the robustness of the regression results.

Sensitivity analysis. While we believe that the severity measure accurately depicts the magnitude of violence and destruction that transpired in particular disorders, it is nonetheless true that other researchers, employing alternative methods to assess severity, might have constructed different indices. It behooves us, therefore, to ascertain whether the results we have reported are an artifact of the particular coding scheme that was used or whether they are robust with regard to specification of the severity index. We address this issue in the present section.

One potential source of error relates to our assignment of interval scores to the rank differences. In order to ascertain the sensitivity of the findings to the particular values that were selected, the analysis summarized in Table 5 was repeated with alternate specifications of the rank differences. These results are presented in the form of *standardized* regression coefficients in columns (1) through (3) of Table 6.¹⁵ Standardized coefficients are reported because they are more suitable for comparisons which involve different dependent variables than are unstandardized coefficients; the magnitude of the latter will

¹⁵ The regression coefficients in column (1) correspond to an assignment of the values 0, 1, 2, 3 to the dependent variable. In column (2), the scale values are the ones which were used in our composite severity index so the entries here are beta coefficients for the second model in Table 5. In column (3), the values 0, 1, 6, 25 were assigned to the severity ranks.

vary with the choice of metric for the dependent variable.

With respect to number of prior disorders, nonwhite population size and South, the results appear *not* to be sensitive to the precise specification of the severity measure. In regard to these variables, our conclusions would not be changed if a moderately different severity index were substituted for ours. The results for the time period effects, however, do display sensitivity to the values assigned to the rank differences. In particular, if severity were measured on the 0–3 scale we would conclude that the post-Martin Luther King-assassination disorders were not especially violent, while if it were measured on the 0–25 scale we would envision the events of this period as significantly more violent than we have reported with the 0–12 scale. While we believe that our instrument provides a more accurate representation of the severity levels than either of the alternatives, the time period effects should be seen as less well established than the other findings.

A second potential source of error relates to classification of the individual disturbances into severity categories, a task which was performed in accordance with the criteria described in Table 1. For a portion of the incidents we have available quantitative information on facets of severity—crowd size, number of arrests, number of injuries—and were able to replicate the analysis using these components as dependent variables. The results are presented in columns (4) through (6) of Table 5 and are consistent with the findings obtained with our composite index. Number of prior disturbances and the two determinants of disorder-proneness (nonwhite population size and South) show effects that are very similar to the ones already reported for them. With respect to the time period terms, t_3 is significant in two of the three equations and t_4 is significant in one equation. This provides supporting evidence for the contention that the post-assassination disorders were more severe than incidents in the other time periods. It should also be noted that the fact

that these results parallel the ones obtained with the composite index means that the unidimensional conceptualization of severity is not obscuring relationships between components of this construct and the other factors.

Finally, a canonical correlation model was estimated taking as observations those disturbances for which we have data on all three severity components. The substantive perspective underlying use of this model here involves viewing severity as an unobserved construct for which we have available three indicators: crowd size, number of arrests and number of injuries. This formulation therefore utilizes information on the three severity facets simultaneously in forming the "dependent variable."¹⁶ It is unlike our composite measure in that the weights assigned to the components combine them in a linear fashion, in that the weights are estimated by making use of their relationships to the "independent variables," and in that non-quantitative information on the incidents is not utilized. Despite these differences the coefficients of the independent variables in the canonical model are quite consistent with the preceding findings.¹⁷ Although we lack significance tests for the individual variates, they are similar in sign and in magnitude to the coefficients obtained with the other formulations. We conclude that the results reported in Table 5 are not idiosyncratic of the severity index which was used. Under an assortment of alternative specifications of severity and under different analytic procedures the same substantive assessment would have been reached.

¹⁶ The canonical model does not distinguish between "dependent" and "independent" variables and simply forms the linear combinations in the two sets of variables which maximizes the correlation between them. For details on the procedure, see Van de Geer (1971, ch. 14). For the purpose of clarity in our substantive argument, we retained the traditional labels.

¹⁷ The canonical weights assigned to the severity components (dependent variables) were .68, .20 and .27, corresponding to crowd size, log (arrests) and log (injuries). Because of the greater importance of crowd size in the linear combination, the entries in column (7) of Table 6 were rescaled with reference to that equation.

Community-Based Deprivations and Disorder Severity

In the introductory section, we presented a rationale for investigating the impact of Negro living conditions in a community on the severity of its disorders. We indicated that while the kinds of discontent which derive from community-based deprivations have not been found to be related to the *frequency* of hostile outbursts, there are theoretical considerations and results from other empirical studies (Wanderer, 1968; Downes, 1968; 1970; Morgan and Clark, 1973) which suggest that this may not be the case with disorder severity; that once a disturbance has begun, the frustrations which have accumulated among Negroes as a result of their circumstance in the community may well be expressed in the intensity of the aggression.

To the extent that the frustrations which provoked Negroes to riot during the 1960s were a consequence of local deprivations, we would expect the variation across cities in disorder severity to correspond to the variation in the indicators of the relevant deprivations, once other salient factors have been controlled. This raises the question of which conditions were responsible for the discontent expressed in the rioting. The presence of city differences in important determinants of Negro well-being is not a sufficient reason for concluding that a corresponding variation will exist in the frustration level of inhabitants in different ghettos. Many potential sources of discontent are only that—potential sources—until attention is called to them and they are invested with symbolic import and racial significance. (Examples are Negro-white disparities in various social areas, which form a basis for reference group explanations of frustration.) There are other community characteristics whose values in different cities are likely to induce corresponding variations in the level of discontent, irrespective of whether or not they become foci of attention. For instance, there probably is greater discontent where median Negro income is low than where it is high, because of the

enormous importance of this factor for access to a variety of institutions and desirable life styles. However, this does not mean that the greater frustration in poor ghettos necessarily will be articulated in severity of rioting; the disorders of the 1960s may have been reactions to entirely different provocations than community conditions.

Because we are not prepared to assert which inequities were especially galling to Negroes or whether they were oriented in this period to a particular reference group, our strategy will be to postulate a number of plausible ways by which frustration may derive from community conditions and then ascertain the relation between measures of the relevant factors and disorder severity. A detailed discussion of this procedure has been presented elsewhere (Spilerman, 1970b:639-41); consequently, the argument only is summarized here and the reader is referred to the earlier report for details. In essence, we have selected community characteristics which can serve as indicators for a social disorganization explanation, for reference group explanations and for a thesis which associates the severity of rioting with an unresponsive municipal political structure.

Social disorganization. According to this perspective on the causes of collective aggression, individuals who are weakly integrated into their community, in the sense of having few associational ties or little personal identification with it, are less encumbered by the constraints which would dissuade others from participating in a destructive outburst. One formulation of this thesis refers to the disorienting effects of rapid population change. A locale which has experienced a substantial influx of new residents would have acquired many persons who are unacquainted with the institutionalized procedures for seeking redress of grievances; at the same time, these individuals would have little investment in solving problems in a manner which avoids rancor and conflict in the community (Coleman, 1957:20-1). Frustration is not the animus here; rather, it is the absence of social links which normally permit informal control to be exer-

cised and prevent disputes from polarizing and degenerating into hostility and violence. A second version of the social disorganization thesis stresses the negative association with community that is likely to characterize the attitudes of residents in the worst ghettos because of their continual exposure to crime, filth and dilapidated housing. As indicators of the first formulation, we used the census variables percent change in total population and percent change in nonwhite population.¹⁸ As indicators of the second formulation, we employed the variables percent of nonwhites residing in dwellings constructed before 1950 and percent of nonwhites living in housing with substandard plumbing.

Political structure. During periods of rapid change in the status of a minority, such as occurred for Negroes during the 1960s, issues frequently arise which require the representation of its views in the municipal government. Also, if bitter disputes involving the group are to be resolved without confrontation and violence, there is a need for city officials to be oriented toward compromise and accommodation. While we lack performance measures on how racial disputes were processed in the many cities which experienced disorders during 1967-68, there is evidence that certain electoral procedures and political structures make for greater responsiveness to the sensitivities of diverse constituents, and we have measures of the presence of these arrangements. In particular, Lieberman and Silverman

¹⁸ Although we are examining events which occurred during 1967-68, the community characteristics were drawn largely from the 1960 Census of Population. Despite the fact that 1970 census data are a couple of years closer in time to the disturbances, the earlier census year is preferable because our hypotheses refer to the impact of conditions which have been in existence for some period of time. It is also the case that most of the community variables are stable in the sense that the correlation over cities between their 1960 and 1970 values is high. In a few instances, this is not the case; percentage change in total population, percentage change in nonwhite population, and the unemployment rates for the racial groups can be very different in successive census years. In these instances, both the 1960 and 1970 values of the variables were used in the analysis.

(1965) and Wilson (1960:25-7) have argued that a municipal government will be more representative of community composition when council members are elected from established districts, rather than at-large, and when the council districts are small; the rationale being that opportunity is thereby increased for a numerically small but geographically concentrated group to elect its own members. It has also been suggested (Coleman, 1957:14-6; Alford and Scoble, 1965) that a mayor-council structure and partisan elections will enhance governmental responsiveness to the diverse and conflicting interests of a socially heterogeneous community. In our analysis we included dummy variables for presence of nonpartisan elections and for mayor-council government and continuous variables for population per councilman and proportion of the city council elected at-large.

Deprivation explanations. These approaches to explaining frustration may be classified according to whether or not the presence of a reference group is postulated. *Absolute* deprivation explanations attribute the inter-city variation in level of Negro discontent to community differences in social and economic opportunity for ghetto residents. The presumption here is that where many persons earn low incomes or are employed at unsatisfying tasks, discontent will be more widespread. Since it focuses upon the economically most disadvantaged population segment in a community, this is an instance of an underclass explanation of the sources of violence and aggression (Downes, 1968:513-4). As indicators of the level of absolute deprivation of Negroes, the following variables were used: percent of nonwhite males employed in low status occupations (household workers, service workers, laborers); the nonwhite male unemployment rate; nonwhite median family income; and nonwhite median education.

Relative deprivation explanations posit the existence of a reference group or an objective standard against which individuals compare their status or their progress. The level of frustration for the underprivileged is usually specified as a func-

tion of the size of the gap between the two populations on relevant variables. One possible reference group for Negroes would be whites in the same community. To measure Negro circumstance relative to this group, the absolute deprivation indicators were divided by comparable indices of white living standards. Alternatively, in a highly segregated society such as ours, Negroes may have more familiarity with the stylized version of white family life which is depicted in situation shows on television and may compare their own circumstances to this portrayal. In the disorder-proneness study (Spilerman, 1970b: 640), it was argued that the indicators of *absolute* deprivation provide the appropriate measures for this relative deprivation thesis. Finally, these same community characteristics may be associated with yet additional explanations, which argue an expectational or a competition thesis.¹⁹ While such complexities are discussed in the preceding report (Spilerman, 1970b:639-41), they are not elaborated upon here since the empirical results will not require ascertaining which of these explanations is to be given greatest credence.

Significance of the community characteristics. In order to ascertain whether disorders tended to be more severe where the objective measures of Negro circumstance in a community indicate greater disadvantage, it is necessary to include in the analysis other major determinants of severity that are correlated with the community factors of interest (Blalock, 1964: 48). Controls were introduced for the variables listed in Table 5 (second model). The importance of adjusting for these effects can be motivated in the following

¹⁹ With regard to the latter theme, Lieberman and Silverman (1965) suggest that racial violence may be more common where Negro and white males earn proximate incomes, occupy similar occupational statuses and, generally, are interchangeable in the social and economic life of the community. According to this explanation, *small* racial disparities would be associated with a high level of tension. For convenience, the percent nonwhite variable, which also has been interpreted as an indicator of interracial competition (Blalock, 1957), is included in this cluster (Table 7).

Table 7. Correlations between Disorder Severity and Aspects of Community Structure^a

Community Attribute	(1) Zero-Order Correlation with Disorder Severity ^b	(2) Partial Correlation, Controlling for Region, Nonwhite Population, Temporal Effects and Number of Previous Disturbances ^c
Region and Nonwhite Population Size^d		
South (Dummy)	-.062	-.151** ^h
Nonwhite Population (log x)	.270**	.339** ^h
Indicators of Social Disorganization^d		
Percent Change in Total Population, 1950-60	-.093	-.016
Percent Change in Total Population, 1960-70	-.053	.008
Percent Change in Nonwhite Population, 1950-60	.048	.099
Percent Change in Nonwhite Population, 1960-70	.001	.035
Percent of Nonwhites Living in Housing Built before 1950	.083	-.014
Percent of Nonwhites Living in Housing with Substandard Plumbing	.130*	.018
Indicators of Absolute Deprivation^d		
Percent of Nonwhite Males Employed in Traditionally Negro Occupations ^f	-.139*	-.084
Nonwhite Male Unemployment Rate, 1960	.068	.044
Nonwhite Male Unemployment Rate, 1970	.047	.027
Nonwhite Median Family Income	.060	.034
Nonwhite Median Education	.021	-.065
Indicators of Relative Deprivation^d		
Percent of Nonwhite Males Employed in Traditionally Negro Occupations Divided by White Figure	-.105	-.049
Nonwhite Median Family Income Divided by White Income	.074	.063
Nonwhite Unemployment Rate Divided by White Rate, 1960	.028	.031
Nonwhite Unemployment Rate Divided by White Rate, 1970	-.016	.012
Nonwhite Median Education Divided by White Education	.109*	.005
Percent Nonwhite ^g (\sqrt{x})	.148**	.033
Indicators of Political Structure^e		
Population per Councilman	.175**	-.019
Percent of City Council Elected At-Large	-.089	-.040
Presence of Nonpartisan Elections	-.066	-.022
Presence of Mayor-Council Gov't.	.110*	.018

* Significant at $p < .05$.

** Significant at $p < .01$.

^a Number of observations equals 300.

^b Disorder Severity coded (0-12).

^c Control variables specified by equation (2) of Table 5. A separate regression was run for each community characteristic, containing it and the controls.

^d Source: U. S. Census of Population (1963; 1973).

^e Source: Municipal Yearbook (1965).

^f Service workers + household workers + laborers.

^g See footnote 19 regarding inclusion of this variable with the indicators of relative deprivation.

^h Controls are for other variables in equation (2) of Table 5.

way: because of the Negro revolt character of the disturbances in the 1960s, the term for Negro population size measures the availability of participants for large (and severe) disorders; holding this variable constant allows us to compare communities having different sized pools of potential participants. The term for South permits an additive regional adjustment in the relationship between the community variables and disorder severity; it is introduced in recognition of the very different cultural traditions of the geographic regions in race relations.²⁰ (We already have seen that the regional effect is to depress severity in the South.) In an analogous fashion, the controls for number of previous disturbances and for time period adjust for any obscuring effects arising from these volatile determinants of disorder severity.

In Table 7 we report zero-order correlations between each of the community characteristics and disorder severity (column 1) and partial correlations (column 2) controlling for the variables in Table 5. (The latter entries derive from 21 regressions, each containing the controls and

²⁰ We emphasize that the two variables, nonwhite population size and South, were introduced into the investigation of volatility in disorder severity for a different reason than they are entered here. Formerly, they served as controls for community disorder-proneness. Had other variables been found to be determinants of disorder-proneness, nonwhite population size and South would still be added at this point for the reasons cited in the text.

a single deprivation indicator.) We see that while there are several significant zero-order effects, none remains significant once the control variables are entered into the equation. Again, these results are not an artifact of the particular interval values that were assigned to the severity ranks or of the manner in which the disturbances were categorized. The analysis was replicated taking as dependent variables the two alternate interval assignments (see Table 6) and the three quantitative components of severity (crowd size, number of arrests, number of injuries). This exercise produced results that are virtually identical with the ones reported here.²¹

Another approach to evaluating the importance of the explanations which associate disorder severity with Negro deprivation in a community is to assess the joint contribution from each cluster of variables toward accounting for the unexplained variation in the dependent variable. The terms in each cluster listed in Table 7

²¹ In the five replications, there were two instances in which a community characteristic remained significant in the presence of the controls. Percent change in nonwhite population was significant when severity was coded 0-3; nonwhite median education was significant in the log (arrests) equation. Because significance in each case was barely attained at the level $p < .05$ and because there was no corroborating evidence from other variables in a cluster, these results are discounted in the discussion. In no instance was an entire cluster significant as judged by an F-test on the added R^2 .

Table 8. Percent of Variance in Disorder Severity Accounted for by Different Variable Clusters

Variable Cluster ^a	(1)	(2)	(3)
	Percent of Total Variance Explained by Cluster and Controls ^b	Percent of Total Variance Explained by Nonwhite Population When Entered after Cluster and Controls ^b	Percent of Total Variance Explained by Cluster When Entered after Nonwhite Population and Other Controls ^b
Nonwhite Population ^c	13.4	—	—
Social Disorganization	6.0	9.5	1.8
Absolute Deprivation	4.2	10.6	1.4
Relative Deprivation	6.7	7.5	.8
Political Structure	6.4	7.2	.2

^a See Table 7 for a description of the variables included in each cluster.

^b In this table "controls" refer to all variables in Table 5, column 2, except nonwhite population.

^c This cluster refers to the equation of Table 5, column 2.

were therefore entered into a regression equation containing the controls. These results are reported in Table 8. In no instance does a cluster add as much as two percentage points of explained variation to the 13.4 percent accounted for by the control variables (column 3); also, in every case, the added R^2 is insignificant at the .10 level, as judged by a conventional F-test.

We stress that this result is not a consequence of the deprivation indicators and nonwhite population size sharing the same variation.²² In no case does the significance of the population term in a regression fail to reach the .01 level in the presence of either a single deprivation measure or a variable cluster. Indeed, while none of the clusters, entered after the controls, increased the R^2 by as much as two percentage points (over the initial 13.4 points), the nonwhite population term alone, entered after the other controls and any cluster of deprivation indicators, adds a minimum of 7.2 percentage points to the explained variation (column 2).²³

²² Only one of the 21 zero-order correlations between log (nonwhite population) and a deprivation indicator exceeds .5 in magnitude: $r(\log[\text{nonwhite population}], \text{population/councilman}) = .78$.

²³ In addition to the additive regressions reported in the text, we examined several interaction models to ascertain whether unusually severe disturbances tended to occur where there is *both* high deprivation and a large Negro population. In one formulation, log(nonwhite population) was added to an equation containing the other controls listed in Table 5 (equation 2) and the interaction term Dep x log(nonwhite population), where Dep represents a deprivation measure listed in Table 7. In every instance (21 equations), the interaction term dropped to insignificance ($p > .05$), while the population variable was significant at the .01 level. In a second formulation, the two variables Dep and Dep x log(nonwhite population) were added to an equation containing the controls. As judged by an F-test on the added R^2 , in all but one instance these terms were insignificant at the .05 level. The sole case of a significant interaction involved the variable low nonwhite occupational status. Since the sign of this interaction was negative (counter to the postulated thesis) and since the other indicators of absolute deprivation were insignificant, we discount this finding. The interaction results were invariant across the three interval-level specifications of the dependent variable.

Our analysis therefore indicates that in the period of the 1960s, the severity of a disturbance had little basis in community organization or economic structure. Holding constant a measure of the size of the pool of potential participants and several determinants of the volatility in severity, it is *not* the case that an outbreak of racial violence tended to be more severe where Negro status is low (in absolute terms or relative to one of several reference groups), where community disorganization is extensive, or where the structure of the municipal government suggests it would be unresponsive to the interests of Negro constituents.²⁴ Instead, as we have reported with respect to the determinants of disorder-proneness (Spilerman, 1970b; 1971), the only stable community characteristics that are related to severity are nonwhite population size and a contextual term for South.

These results are at variance with the findings by Morgan and Clark (1973) who argue that disorder severity in the mid-1960s was a function of the grievance level of Negroes in a community. In particular, they report that severity was raised

²⁴ A parallel analysis also was carried out with a few variables which tap police organization and training. Although we lacked detailed data on police preparation in riot control tactics in the various cities, information on a few police characteristics is reported in the Municipal Yearbook (1966). A presence/absence code was constructed for the following factors: existence of a special riot control unit; existence of a prepared plan for riot control; and use of dogs in riot control.

When these variables were entered subsequent to the controls, all were found to be statistically insignificant. (This finding is consistent with our suggestion that improved police preparation as a result of a disturbance may have had less to do with the severity decline than did participant exhaustion or lessened interest in further rioting.) Yet, the notion that police tactics and training have little impact on how quickly a disorder is contained is difficult to accept. Because our indicators are few in number and not particularly sensitive to the quality of police preparation, because they relate to police organization in the early 1960s before disorder control became a major issue, and because our primary interest here concerns the relation between severity and objective measures of Negro frustration in a community, these results are mentioned only *en passant*.

by racial inequality in housing conditions, but depressed by inequality in occupational status. We find their analysis less than persuasive²⁵ for the following reasons. (1) Their assertions are based on only 23 observations. This is a small sample, particularly for establishing a counterintuitive result such as the occupational effect. (2) They confounded disturbances of very different types. Although their explanatory variables were justified as indicators of Negro grievances in a community, the disorders they analyzed include incidents in which the aggression was perpetrated by whites, as well as instances of Negro aggression (Morgan and Clark, 1973:612). It is unclear, however, what the rationale is for analyzing the severity of white-instigated violence in terms of Negro grievances; at a minimum, the relationship with severity would not be the same for the two types of disorders so they should not have been mixed. (3) Morgan and Clark failed to include proper controls for the size of the potential par-

ticipant pool, which is necessary to ascertain the contribution from the grievance indicators net of city differences in available manpower for mounting a severe disturbance. They did incorporate a term for city size²⁶ but this is not the correct control for potential participants. Where rioting is principally by Negroes, adjustment should be made for the size of this population group (or its relevant age cohort); where the aggression is by whites, the size of that group should be controlled.

Conclusions

We have sought in this investigation to ascertain whether certain structural arrangements or demographic features of a community were responsible for especially severe disturbances during the 1960s. In previous studies (Spilerman, 1970b; 1971), we reported that the disturbance *locations* were unrelated to a number of objective indicators of Negro well-being in a locale. As a result, it was suggested that explanations of the causes of the riots must be sought in frustrations which carried nationwide salience, and the areal distribution of the incidents should be understood in terms of mechanisms which promoted geographic diffuseness in the impact of provocations. Our findings with respect to the determinants of disorder severity underscore that assessment. The severity of a disturbance, as well as its location, appears not to have been contingent upon Negro living conditions or their social or economic status in a community. Not surprising, it is also the case that the effects of the control variables—nonwhite population size and South—were much the same in the two studies: large ghetto populations provided the participants for frequent and for severe disturbances; also, net of this factor, a southern city tended to have fewer and less violent outbursts, possibly because Negroes in that region

²⁵ While this is not the place to review Morgan and Clark's analysis of the determinants of disorder *frequency*, because that topic is intermixed in their paper with the severity study, a few salient comments seem in order. (1) Their attempt to select among explanations according to the magnitudes of correlation coefficients (Morgan and Clark, 1973:616-7) is in error. With $N=42$ observations (cities), the zero-order correlations in their Table 2 are not statistically different from one another, nor are the partial correlation coefficients different. In other words, in their data set, there is no basis for preferring one variable to another on statistical grounds. Also, I would point out that Morgan and Clark neglect to include a term for South which, as I have reported, (Spilerman, 1971:429) enhances the relation between disorder frequency and Negro population size. (2) Considering their reason for introducing city population size—to measure the "opportunities . . . for social contacts that could precipitate a disorder" (Morgan and Clark, 1973:616)—they have used the wrong variable. The appropriate measure of disorder-precipitating contacts between whites and Negroes would be $Tp(1-p)$, where T equals city population size and p equals proportion Negro in the population. (3) The matter of mixing disorders of different types (discussed in the text) is also material to this analysis, particularly in regard to the meaning of the variable *Negro population size* in instances of white-instigated aggression.

²⁶ In our data set, incidentally, this variable turns out to be a weaker predictor of riot severity than nonwhite population size. While our principal specification of the severity determinants (Table 5, equation 2) explains 13.4 percent of the variation in severity, if the nonwhite population term is replaced by $\log(\text{city size})$ the R^2 value drops to 9.4 percent.

held lower expectations regarding improvements in their circumstances and were more fearful of retribution from participating in racial protest.

Taken together, these studies suggest that despite considerable differences in Negro circumstance from one city to the next, this consideration did not find expression in the two aspects of the disturbance process that we have examined. Although we would not claim that local conditions never influenced disorder-proneness or disorder severity, we do assert the absence of a systematic tendency for either of these facets of the racial turmoil to be associated with the extent of Negro deprivation in a community. This assessment is neither unreasonable nor counter-intuitive when viewed against other characteristics of the disturbances and against trends which were operative during the period. In particular, the incidents tended to cluster in time following a few dramatic events such as the massive Newark disorder in July, 1967, and the assassination of Martin Luther King in April, 1968. Also, the entire time interval during which disorders occurred in large numbers was itself concentrated within a few years in the mid-1960s. It is difficult to conceive of the kinds of developments in individual communities which could account for this sudden and practically simultaneous occurrence of hundreds of outbursts.

We also can enumerate trends which functioned to produce a geographically uniform pattern of behavior by Negroes. For one, black consciousness and black solidarity were very real phenomena during the 1960s, having been stimulated by the imaginative and appealing tactics of civil rights activists in desegregating retail establishments in the South and placing Negroes on the voter rolls. For another, various civil rights bills were before Congress during much of the decade; these were salient to Negroes in all communities and would have served to heighten their racial awareness and racial identification. Yet, the factor I would stress as being responsible in a most essential way for the outbreaks having occurred in great numbers and for

community conditions having been irrelevant to the disorder process is the wide availability of television and its network news structure.

By bringing scenes of civil rights marches, demonstrations and sit-ins into every ghetto, television contributed in a fundamental way to the creation of a black solidarity that would transcend the boundaries of community. Of more immediate relevance to the outbursts, the extensive media coverage accorded to many of the incidents, with the actions of participants depicted in full relief, served to familiarize Negroes elsewhere with the details of rioting and with the motivations of rioters. Observing the behavior of persons who face similar deprivations and must contend with the same discriminatory institutions as oneself—in short, individuals with whom the viewer could identify—provided a model of how he, too, might protest the indignities of his circumstance. By conveying the intensity and emotion of a confrontation, television provided an essential mechanism for riot contagion; also, as a result of its national network structure, the provocations which arose in diverse settings were made visible in the ghettos of every city.

The importance of television as a vehicle for the propagation of violent acts is not restricted to racial disorders. There is considerable evidence that skyjackings, prison riots, bomb threats and aggressive crimes of other sorts have been spread by television and the other mass media.²⁷ Indeed, a question which eventually will have to concern this nation is the determination of a policy to guide the reporting of destructive and potentially contagious events. However, the treacherous issue of media regulation is not a topic which need concern us here.

APPENDIX I

AUTOCORRELATION IN THE DISTURBANCES

The results reported in Table 5 were estimated under the assumptions of the

²⁷ For references and additional discussion on this subject, see Spilerman (1975).

classical linear regression model. In particular, we require in this model that $E(e_{cj}e_{ci}) = 0$ for $i \neq j$, where e_{cj} is the error term corresponding to the severity of disorder j in city c . However, with time-series data it is frequently the case that the residuals from successive observations are correlated. For instance, factors not included in the regression equation that operated to influence the severity of the $(i-1)$ -st incident may have persisted and affected the severity of the i -th incident as well. In this situation, although the least squares estimators of the regression coefficients will be unbiased, the estimators of their variances will not have this property and conventional tests of hypotheses may lead to incorrect inferences.

The severity data do not permit use of the Durbin-Watson statistic (Kmenta, 1971:295) which is commonly employed in ascertaining serial correlation. The difficulty is that our data consist of pooled cross-sectional and time-series information and the time-series component (sequence of severity values for a city) is very short, never exceeding nine observations. Moreover, the observations are not at equidistant time points. The Durbin-Watson test cannot be applied to data having these properties, nor is any rigorous procedure known to us. Two, somewhat heuristic, alternative tests were used instead.²⁸

Method 1. We assume that the error terms for each city follow a first-order autoregressive scheme:

$$e_{cj} = \rho_c e_{c,j-1} + u_{cj}, \tag{A-1}$$

$j = 2, \dots, J_c; c = 1, \dots, C$

with $E(u_{cj}u_{ci}) = 0$ for $i \neq j$. This specification frequently is made in the econometrics literature and amounts to stating that the correlation between error terms is greatest for disorders which are adjacent in time. For tractibility we also assume that $\rho_c = \rho$, i.e., the autoregressive process is identical in all cities. Treating (A-1) as a regression equation, the least squares estimator of ρ is given by (Kmenta, 1971: 512)

$$\hat{\rho} = \frac{\sum_{c=1}^C \sum_{j=2}^{J_c} \hat{e}_{cj} \hat{e}_{c,j-1}}{\sum_{c=1}^C \sum_{j=2}^{J_c} \hat{e}_{c,j-1}^2} \tag{A-2}$$

where \hat{e}_{cj} is the residual from ordinary least squares applied to the main equation (model 1 in Table 5) and J_c equals the number of disorders in city c .

This procedure provided the estimate $\hat{\rho} = -.038$ which, by a conventional t -test, is not significantly different from zero at the .10 level.

Method 2. We again assume that serial correlation of the residuals can be specified by a first-order autoregressive scheme (equation A-1) and that $\rho_c = \rho$. Equation (1) of Table 5 may be written in the form

$$y_{cj} = a + b_1 t_{cj} + b_2 PD_{cj} + b_3 C_c + e_{cj} \tag{A-3}$$

where t_{cj} denotes a column vector of time interval dummies which correspond to the j -th disorder in city c ; PD_{cj} denotes a column vector of terms for the number of previous disorders; C_c represents a column vector of community characteristics; and the b_i 's are row vectors of appropriate sizes containing coefficients. The subscript j has been suppressed in the last column vector since the community characteristics are taken to be constant during the time period under consideration.

If equation (A-3) is lagged so that the terms refer to the $(j-1)$ -st disorder in city c and if this equation is multiplied by ρ and the resulting expression subtracted from (A-3) (see Kmenta, 1971:289 for an example of these calculations), we obtain after simplifying

$$y_{cj} = a(1-\rho) + \rho y_{c,j-1} + b_1 t_{cj} - \rho b_1 t_{c,j-1} + b_2 PD_{cj} - \rho b_2 PD_{c,j-1} + b_3(1-\rho) C_c + (e_{cj} - \rho e_{c,j-1}). \tag{A-4}$$

The salient features about (A-4) are that ρ appears explicitly as the coefficient of $y_{c,j-1}$, and the residuals equal u_{cj} (see A-1) and are therefore serially uncorre-

²⁸ I wish to acknowledge a very helpful discussion with Art Goldberger on this topic.

lated. Ordinary least squares estimators of the coefficients and their standard errors are asymptotically unbiased and may be used with a large sample to estimate ρ and test its significance. Neglecting one-disorder cities and first disorders in multiple disorder cities, this procedure provided the estimate $\hat{\rho} = -.066$ with a t-value of -0.61 , which is not significantly different from zero at the .10 level. Thus, neither approach to assessing the significance of ρ supports the presence of serial correlation.

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ON "QUALITY OF LIFE" *

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Two traditional approaches to conceptualizing quality of life are distinguished: the individualist which, emphasizes the position and activities of individuals; and the transcendentalist, which emphasizes the overall order of society. Both of these approaches are shown to be inadequate because they presuppose the logical separation of individual and society. A third approach, which conceives of individuals and society generating each other via a continuing process of negotiation is proposed. Such an approach leads to a "quality of life" defined in terms of the outcomes of these negotiations; at a single point in time these are called the sovereignties of individuals and settings. Sovereignties are thus conceptualized as patterns of commitment made by individuals among settings, and conversely. It is suggested that these patterns of commitment be measured as the joint allocation of money, time, skill and sentiment by individuals and settings. Assessment of quality of life in chronic illness is used as an example.

In the last ten years, the problem of defining and measuring "quality of life" has become more and more a problem explicitly considered in public discourse. The trend in considerations entering into public policy debates has been to focus more and more on quality of life issues across a broad range of "functional" areas: health, housing, crime, "environment" and so on. Simultaneously, social scientists have begun to concern themselves with the technical

issues involved in measuring quality of life, in collecting information which will make such measurement possible and in contributing to the formulation of policies based upon the notion that "quality of life" is something to be pursued as a matter of public policy, through public means.

Despite this quickening of interest on the part of social scientists,¹ relatively little attention has been paid to the larger intellectual problems involved in making some technical assessment of quality of life. Rather, discussion and research have been pursued within a fairly narrow frame of

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¹ For example, the recent spate of "social indicators" literature (e.g., Bauer, 1966; Duncan, 1969a; 1969b; Campbell and Converse, 1972; Wilcox et al., 1972). Dunn (1974) has reviewed and criticized many of the assumptions underlying this work. For other approaches to similar problems, see Bradburn, 1969; Strauss, 1975.