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Civil-Disorder-Indicator Studies: Some Aspects of Riot Susceptibility

by
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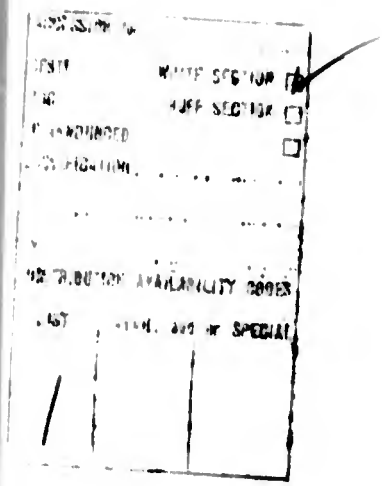

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FOREWORD

Mass civil disobedience resulting in violence, looting, and arson is new to the American scene on the scale that was experienced in 1967. These riots, which have been stated to be a form of protest by an aggrieved minority group, were studied by the National Advisory Commission on Civil Disorder in order to determine their causes and to recommend ways of preventing them.

In this study it is accepted that there are legitimate grievances but that these are of such magnitude that no complete solution will be possible in practice for a long time. In the meantime, short-term programs are needed to sense and avert impending riots.

This study is concerned with an early phase of such a program, namely, the examination of recent riot experience in the US in a search for clues concerning the relative riot susceptibility of different communities. The results of this work, although very provocative, are only tentative.

This paper should be of value to military and civilian analysts in the further development of civil disturbance indicators. The following outline gives the future work proposed for this study:

(a) To extend and refine the work that has been done on riot susceptibility in the light of additional data for 1968.

(b) To select a few key cities for detailed study in an attempt to develop indicators of the imminence of riot outbreak.

(c) To examine the possible effectiveness of various measures for averting riots through the use of gaming and simulation techniques applied to hypothetical disorder situations.

Richard M. Longmire
Head, Office of Public Safety

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To seek methods for estimating the relative susceptibility to riot of different US communities on the basis of recent experience with civil disorders.

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During the past two summers the US has experienced an ever-increasing number of riots. The susceptibility to riot probably exists to some degree in any community where there is a sufficiently large minority group with grievances for which they feel themselves unable to obtain redress through peaceful means. Although there are many minority groups in the US, it was decided to focus this study on civil disorders related to the Negro minority group, since it is the largest minority group with serious grievances and a substantial countrywide distribution. The disorders that occurred in 1967 provided the bulk of the data for the study.

Discussion

The communities where disorders occurred were examined first from two aspects: geographical distribution and size of minority group. It was found that nearly all disorders, whether in big cities or small ones, occurred within the boundaries of the municipal divisions known as Standard Metropolitan Statistical Areas (SMSAs). In general, an SMSA includes a core city of more than 50,000 population and the county in which it is located, plus other counties that exhibit strong ties with the city. It was also noted that, with one exception, if there was no disorder in the core city of an SMSA, no disorders occurred in other communities in the SMSA. Thus it appeared that a study of riot susceptibility could be simplified considerably without much loss in generality by concentrating attention on metropolitan areas only.

It was noted that disorders involving the Negro minority group did not occur in an SMSA in 1967 unless its core city contained at least 5 percent Negro population. However, for SMSAs in this category, there appeared to be a marked difference between frequency of riots in the 11 states of the South (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia) and the rest of the country. For the South,

SUMMARY

15 out of 68 SMSAs, or 22 percent, experienced disorders as compared with 69 out of 100, or 69 percent, for non-Southern SMSAs.

It was possible to fit simple equations of the form $y = a + bx^c$ to the observed riot frequency data for 1967 for both Southern and non-Southern states, where y represents riot frequency in an SMSA, x its annual payroll in manufacturing, and a, b, c are computed constants.

In this very limited sense, the total annual payroll in manufacturing of an SMSA may be used as an index to represent its riot susceptibility in 1967. However, annual payroll is not in any way considered to be a direct cause of riots; rather, frustrations resulting from rising but unattained expectations create a mood conducive to riot and may well be highest in those areas where annual payroll is highest. The reasoning would be as follows: (a) frustrations due to rising expectations should be highest where the difference between average white income and average Negro income is greatest; (b) the income of Negroes has not kept pace with that of whites; (c) consequently, of two communities with a population of about the same size and similar structure, the one with the higher annual payroll should also be the one with the greater difference between average white and Negro income and thus contain the greater degree of Negro frustration. If Negro income becomes roughly equal to white income, annual payroll may no longer be well correlated with riot frequency.

With the aid of the derived equations, the SMSAs were grouped into classes according to probability of riot occurrence. Although it is recognized that many factors can intervene to cause riot frequency to differ from experience in 1967, these groupings may provide at least a rough indication of the extent of violent disorders that may be expected during 1968 and later years.

Civil-Disorder-Indicator Studies:

Some Aspects of Riot Susceptibility

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ABBREVIATIONS

AAAS	American Association for the Advancement of Science
H.R.	House Report
P_L	probability of large riot
P_T	probability of riot, either large or small (total)
SMSAs	Standard Metropolitan Statistical Areas

INTRODUCTION

Background

During the past few summers, the US has been plagued by an increasing number of riots or civil disorders. In 1967 there were close to 200 incidents that could be classified as civil disorders, ranging in severity from minor disturbances such as one in Washington, D. C.,[1] where a group of youths broke a few windows, to the week-long rampages of lawlessness that devastated large sections of Newark and Detroit.

If law enforcement agencies and municipal authorities could be forewarned of the imminence of riot outbreak, they could take measures to forestall the outbreak entirely or at least reduce its severity. There are two aspects to the problem of sensing civil disorders: where are they likely to occur, and when? The "where" part of the problem entails an examination of the relative riot susceptibility of different communities, which could perhaps serve as a guide to the magnitude of the need for long-term programs to reduce this susceptibility. The "when" part concerns the development of indicators of an impending riot, to permit timely averting action to be taken. This introductory study has merely examined some aspects of the problem relating to the riot susceptibility of a community.

The susceptibility to riot probably exists to some degree in any community where there is a sufficiently large minority group with grievances, either real or imagined, for which they feel themselves unable to obtain redress through peaceful means. Although there are many minority groups in the US with grievances, e.g., the Indians, the Puerto Ricans in New York, and the Mexicans in some Southwestern states,[2] Negroes are the largest minority group with serious grievances and a substantial countrywide distribution. Thus it was decided to focus first on civil disorders related to the Negro minority group, with the idea that the geographically more limited problems related to other smaller groups could be addressed separately in a subsequent study if necessary. (It may turn out that the problems are not entirely separable, in view of the fact that Stokely Carmichael stated at a rally in Los Angeles on 18 Feb 68 that Negroes, Mexican-Americans, and Puerto Ricans must unite if they are to survive in the white world.)[3]

Objective

The aim of this study is to examine the frequency and geographic distribution of recent riots in the US in a search for methods of estimating the relative susceptibility to riot of different US communities.

Data Base

The disorders that occurred in 1967 provided the data base for the study. Information on incidents that appeared to be of sufficient seriousness to warrant being called "civil disorders" was gathered from hearings before the Permanent Subcommittee on Investigations, 90th Congress,[1-6] from newspaper files, from the Report of the National Advisory Commission on Civil Disorders[7] (hereinafter referred to as the Riot Commission Report), and from other unclassified sources.

Because there were no uniform criteria in the different sources used for describing an incident as a "riot," "civil disorder," or "racial disturbance," the data were difficult to analyze. Some of the incidents that were reported as civil disorders by one source were found to be far less significant when more information was obtained from additional sources. For example, the incident in Washington that was referred to earlier was listed as a major riot by one source.[4] It was evident that some attempt should be made to classify the disorders according to severity. For the purposes of this study, a classification was adopted—which will be subject to refinement and modification as further work is done—whereby a disorder was listed simply as being either large or small. To provide some quantitative concept for these terms, it was arbitrarily decided to define them as follows for the time being.

Large Disorder. (a) At least 100 people were involved in some violent activity; (b) at least five arrests were made and more than two people were injured; (c) arson or vandalism occurred, with or without looting, involving at least three buildings.

Small Disorder. At least 25 people were involved in some violent activity at the height of the disturbance.

Any disorder that appeared to be less severe than a "small" disorder, as defined above, was omitted from the data base. There was not sufficient information on many of the incidents to apply the classification criteria objectively. In general, if an incident was reported as a civil disorder without information on its severity, it was arbitrarily included in the data base as a small disorder.

It may be noted that the Riot Commission Report listed disorders in three categories: "major," "serious," and "minor." For the most part, the incidents listed as major or serious are included in the "large" category as defined above. However, the occurrence of looting appeared to be a necessary condition for a disorder to be listed as "serious" by the Riot Commission. For example, a disorder at Sacramento[1,4] that lasted nearly a week, with sniping, vandalism, arson, and injuries to seven officers and nine civilians, was shown as "minor" in the Riot Commission Report, as was a disorder at Hartford, Conn.,[1,4] extending over several nights, with vandalism, arson, 36 arrests, and injuries to 16 officers and 2 civilians. Both of these incidents were considered "large" in this report.

It is recognized that the classification "large" as defined above covers a wide range of severity of violence. Incidents at the low end of the scale could probably be handled by local forces, whereas, at the high end, state or Federal assistance might be required. It is evident that an improved method of classifying disorders according to severity is needed, and it is proposed that this problem be examined in a subsequent study.

A list of the communities where disorders occurred may be compiled from App A. This appendix omits the small disorders not included in the data base. Incidents of white harassment of civil rights marchers and scattered bombings of Negro homes or churches were also excluded if there was no retaliatory violence. Such incidents occurred primarily in small communities in the Southern states. Some examples from App A are:

Isolated bombings of Negro homes in Natchez, Miss., in February 1967.

Negro church burned in Hainesville, Ala., 13 Mar 67.

White harassment of civil rights march to Baton Rouge, La., in August 1967 as it passed through Hammond, Holden, Satsuma, and Denham Springs.

Negro church bombed in Laurel, Miss., 15 Nov 67.

This type of harassment has generally been endured passively by the Negro. However, in view of the increasingly militant mood of the Negro, similar incidents could serve to trigger a violent response in the future.

Another type of disorder that is not included in this study is the student protest demonstration that is nonviolent or has no racial overtones. Nevertheless, it must be kept in mind that student unrest appears to have reached an unusual level of activity over the past year, not only in the US but throughout Europe as well. For example, in the US, "Students, disgruntled over a variety of issues, staged 71 demonstrations on 62 college campuses last October and November."[8] Moreover, riotous demonstrations by students have occurred in France, Spain, Italy, England, Holland, Czechoslovakia, Germany, and Poland.[9,10] It is possible that some Negro colleges in the US may experience serious disorders in the near future because, in addition to the unrest prevalent throughout colleges in general, there are added grievances related to civil rights. In fact, in the period April 1967 to February 1968, comparatively serious disturbances occurred at the following predominantly Negro colleges:

Tennessee A&M State University, Nashville, April 1967[4]
Texas Southern University, Houston, May 1967[4]
Central State College, Wilberforce, November 1967[11]
Alcorn A&M College, Port Gibson, February 1968[12]
North Carolina College at Durham, February 1968[13]
South Carolina State College, Orangeburg, February 1968[14]

GEOGRAPHICAL DISTRIBUTION OF DISORDERS

The list of incidents for 1967 as compiled for study includes 67 large and 103 small disorders, a total of 170, as compared with the total of 164 reported by the Riot Commission. The difference arises partly from the fact that the Riot Commission cutoff date was September 1967, rather than the end of the year, and partly from a difference in judgment in a few cases as to what should be included as a disorder.

When the cities and towns where disorders occurred were examined individually, there did not seem to be any obvious relation between size of community and outbreak of disorder, since disorders occurred in communities ranging in size from Marin City, Calif. (1960 population—3000) to New York City (1960 population—7,782,000). However, when the incidents were plotted on a map of the US, it was evident that there was a clustering of incidents in and near big cities.

Metropolitan Areas

A convenient frame of reference for examining characteristics relating to large cities is the SMSA as defined for official US government use by the Bureau of the Budget.[15] Each SMSA (with a few exceptions) includes a core city with a population of more than 50,000, the county in which the city is located, and other counties that exhibit strong ties with the city according to certain specific criteria. (A more complete description is given in App A.) The 219 SMSAs, as of 31 Dec 64, are shown on the map in Fig. 1. New SMSAs are established periodically as warranted by population increases in urbanized centers. Five SMSAs were added in 1965: Bloomington-Normal, Ill.; Fayetteville, N. C.; Oxnard-Ventura, Calif.; Tallahassee, Fla.; and Wilmington, N. C.

The SMSAs are listed by state in App A, together with the following information:

(a) Total SMSA annual payroll, 1963.

(b) Estimated total SMSA population, January 1968.

(c) Total population and percent Negro population in 1960 for core city of SMSA, as well as for other cities in SMSA with population over 25,000 and at least 1 percent Negro population in 1960.

(d) Beginning date of disorders.

(e) Remarks on minor incidents that were not included in the list of disorders for analysis.

Fig. 1—Standard Metropolitan Statistical Area (SMS

ropolitan Statistical Area (SMSAs) in the US[15]

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TABLE 1

Riot Occurrence in 1967

State	Large riots		Small riots	
	In SMSA	Not in SMSA	In SMSA	Not in SMSA
Alabama	1	0	1	1
Alaska	0	0	0	0
Arizona	1	0	1	0
Arkansas	0	0	0	0
California	5	0	11	0
Colorado	0	0	2	0
Connecticut	3	0	6	0
Delaware	1	0	0	0
District of Columbia	0	0	1	0
Florida	2	0	3	1
Georgia	2	0	1	0
Hawaii	0	0	0	0
Idaho	0	0	0	0
Illinois	6	0	9	1
Indiana	1	0	3	0
Iowa	1	0	2	0
Kansas	1	0	1	1
Kentucky	0	0	2	0
Louisiana	1	0	0	0
Maine	0	0	0	0
Maryland	0	1	0	0
Massachusetts	1	0	0	0
Michigan	7	0	5	0
Minnesota	1	0	1	0
Mississippi	1	0	0	0
Missouri	2	0	3	0
Montana	0	0	0	0
Nebraska	1	0	0	0
Nevada	0	0	0	0
New Hampshire	0	0	0	0
New Jersey	4	0	9	3
New Mexico	0	0	0	0
New York	7	1	11	1
North Carolina	2	0	1	0
North Dakota	0	0	0	0
Ohio	6	0	10	1
Oklahoma	0	0	0	0
Oregon	1	0	0	0
Pennsylvania	2	0	4	1
Rhode Island	1	0	0	0
South Carolina	0	0	0	0
South Dakota	0	0	0	0
Tennessee	1	0	2	0
Texas	2	0	1	0
Utah	0	0	0	0
Vermont	0	0	0	0
Virginia	0	0	1	0
Washington	0	0	1	0
West Virginia	0	0	0	0
Wisconsin	1	0	1	0
Wyoming	0	0	0	0
Total	65	2	93	10

When the disorders that occurred in 1967 were plotted on a map similar to Fig. 1, a pattern of riot occurrence was clearly evident. Nearly all the disorders, large or small, in big cities or small ones, occurred within SMSAs. This may be readily seen from Table 1, in that only 2 large and 10 small disorders out of a total of 170 incidents occurred in communities not currently included within the boundaries of an SMSA. Moreover, it was also noted that, with one exception (Massillon, located in the Canton, Ohio, SMSA), if no disorders occurred in the core city of an SMSA, no disorders occurred in other communities in the SMSA.

It is to be expected that there will be occasional minor disorders in small communities that are not within SMSAs, which may perhaps escalate to serious proportions in special circumstances. However, from the available data for 1967, it appears that serious riot occurrence is essentially a big-city problem and that a study of riot susceptibility may be simplified considerably, without much loss in generality, by concentrating attention on metropolitan areas only.

CHARACTERISTICS OF METROPOLITAN AREAS WITH DISORDERS

Negro Population

If it is accepted that recent civil disorders are a form of protest by an aggrieved minority group, it would be natural to look for their occurrence in areas containing more than some minimum size of minority population. Thus it was decided to examine the proportion of Negroes in the population of the core cities of SMSAs where a disorder occurred.

The percentage of Negroes in the population was available for cities of 25,000 or over from the 1960 census data.[15] These figures are given in App A. A breakdown of SMSAs with disorders in 1967 according to percentage of Negro population in 5 percentile groups is given in Table 2.

TABLE 2

Percentage of Negroes in Communities with Disorder in 1967

Negro pop. in core city of SMSA (1960), %	SMSAs	SMSAs with disorder (1967)	Percent SMSAs with disorder
Less than 5	61	5[a]	8
5– 9.9	59	30	51
10–14.9	19	11	58
15–19.9	20	14	70
20–24.9	15	5	33
25–29.9	15	7	47
30–34.9	12	2	17
35–39.9	14	8	57
40 and over	9	2	22
Total	224	84	—

[a]Listed in Table 3.

The five disorders that occurred in cities with less than 5 percent Negro population are shown in Table 3.

In virtually every major city in the US over the past 10 to 20 years, the Negro proportion of the population has increased. This trend is illustrated in Fig. 2 for 12 cities selected from the Riot Commission Report. New Britain, Rockford, Portland, and Tucson were not included in the report. However, it

is reasonable to expect that the rates of growth of their Negro population would not differ substantially from those of Boston, Seattle, and Minneapolis, shown in Fig. 2. Thus estimates of the percentage of Negro population in 1967 may be made as follows: Tucson, 6 percent; New Britain, 6 percent; Rockford, 7 percent; Minneapolis, 5 percent; Portland, Ore., 7 percent.

TABLE 3

Disorders in Cities with Less Than 5 Percent Negro Population in 1960

City	Negro pop. (1960), %	Size of disorder
Tucson, Ariz.	3	Small
New Britain, Conn.	3	Small
Rockford, Ill.	4	Large
Minneapolis, Minn.	2	Large
Portland, Ore.	4	Large

It is not intended to imply that the presence of 5 percent Negro population in a city is a sufficient condition for a riot to occur. It is merely hypothesized that on the basis of 1967 data a disorder involving the Negro minority group is not likely to occur in any city in which that group does not constitute at least 5 percent of the population. This suggests that civil disorders involving the Negro minority are not to be expected in 1968 in the states of Alaska, Hawaii, Idaho, Maine, Montana, New Hampshire, New Mexico, North Dakota, South Dakota, Utah, and Wyoming, since these states do not contain a single SMSA that might be expected to have as high as 5 percent Negro population by 1968. (Albuquerque, N.M., and Ogden, Utah, may perhaps be approaching this figure.)

The above hypothesis, of course, is not very meaningful for the states in the South, where practically every community has greater than 5 percent Negro population. For the purposes of this study, the term "South" will be used to include the 11 states listed under the term "Deep South" in a 1967 publication of the Department of Health, Education and Welfare.[16] They are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia.

For SMSAs with more than 5 percent Negro population there appeared to be a marked difference between the South and the rest of the country in frequency of riots. From App A it may be determined that in 1967 disorders were experienced in 15 out of 68 SMSAs, or 22 percent, in the South, as compared with 69 out of 100, or 69 percent, for non-Southern SMSAs.

SMSA Annual Payroll and Riot Occurrence

Many studies have been made of the causes of the riots, among them the Riot Commission Report[7] and two papers delivered at the 1967 meeting of the American Association for the Advancement of Science.[17,18] Statements have also been made on this subject by influential Negro leaders such as Senator

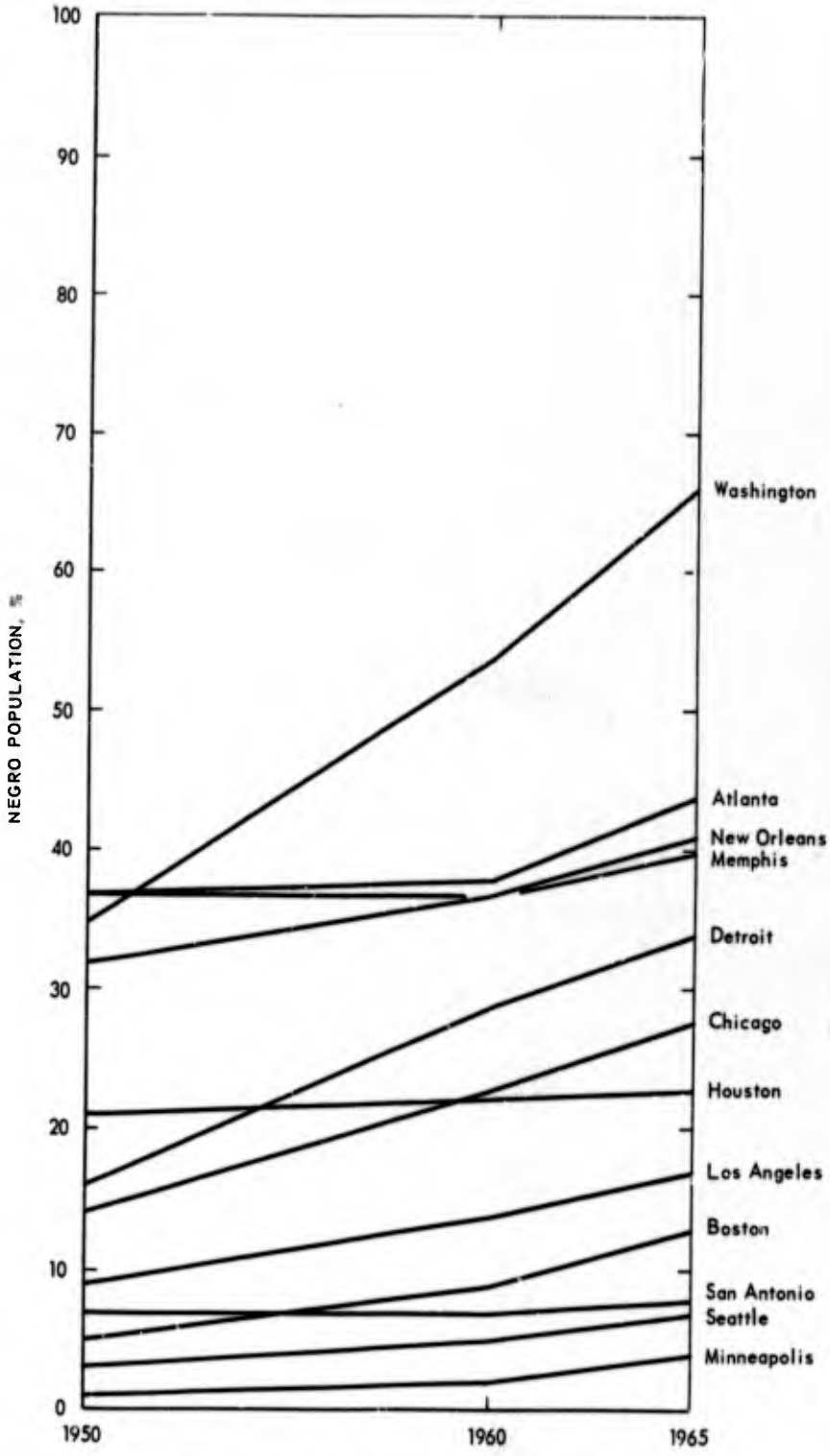

Fig. 2—Change in Percentage of Negro Population for Selected US Cities, 1950–1965

Edward Brooke[19] and Mr. Roy Wilkins.[20] The consensus appears to be as follows:

(a) The riots are a violent protest against intolerable ghetto conditions.

(b) The "intolerable" conditions consist of poor, crowded housing; poor educational facilities; high unemployment or underemployment; and discriminatory police practices.

(c) In addition to the poor physical conditions, the ghetto dwellers suffer from feelings of rejection, humiliation, and frustration at their inability to escape from the ghetto because of economic factors and discrimination.

It would perhaps seem natural to look for a direct relation between likelihood of riot occurrence and one or more of the intolerable conditions listed. A few points will serve to demonstrate that such an approach would be unrewarding.

(a) The above-mentioned conditions have existed for many generations, yet very few riots occurred until after 1965.

(b) Detroit was considered to be one of the most progressive cities from the point of view of civil rights—in the parks it provided, in the quality of schools, in the number of Negro schoolteachers, in the ability to vote without the slightest intimidation—yet Detroit had one of the worst riots.[21]

(c) New Haven was hit by riots despite its reputation as a model city for urban renewal and antipoverty programs.[22]

(d) The region of greatest poverty is the South, yet the riot frequency for SMSAs in the South was substantially lower than for non-Southern SMSAs in 1967.

(e) The typical rioter in 1967 was not uneducated but was generally a teenager or young adult who had graduated from high school and was somewhat better educated than the average inner city Negro.[7]

(f) The Lemberg Center for the Study of Violence conducted a study in 1967 to determine whether there are basic differences in community attitudes that could explain why riots break out in some places and not in others. Six cities were selected for study. Three of these had experienced riots in 1966: Cleveland, Dayton, and Boston. With these were paired three cities of approximately the same size and population characteristics that had not had riots in 1966—Pittsburgh with Cleveland, Akron with Dayton, and San Francisco with Boston. The study showed high levels of dissatisfaction in all six cities; in fact, since the study was done, San Francisco, Pittsburgh, and Akron have all had riots.[23]

In view of the above points, it would appear that although the intolerable ghetto conditions create an environment conducive to riot, some additional factor has brought about an increase in violent civil disorders from 2 in 1965[4] to 18 in 1966[4] to 170 in 1967.

A major new development since 1965 that could affect the behavior of Negroes, especially the younger element, has been the emergence of young, articulate, educated, militant leaders who have adopted a policy of violence as the only way for the Negro to achieve equal status in a predominantly white society.[24] The more radical of these leaders, e.g., Mr. Carmichael and Mr. Brown, appear to be openly advocating violence. The situation is summed up by Tomlinson[25] as follows:

The climate which fosters riots is endemic in American society and in the Northern urban centers particularly. The Los Angeles riot took the lid off by disinhibiting a riot response to the conditions of Negro life that had always existed. . . .Support, or at least sympathetic understanding of the purpose of riots, characterizes a large segment of the Negro population. Within this segment are imbedded a group of sophisticated, activist young people who have provided the riot with political interpretation of purpose. They have created a riot ideology, and this ideology has infected the thinking of other less sophisticated but equally disaffected individuals.

It is maintained that the recent preaching of a riot ideology operating on the universal Negro dissatisfaction has created a countrywide militant mood such that any community with an adequately large Negro population is susceptible to riot. Since not every community with over 5 percent Negro population had a riot in 1967 (although some had more than one) and since the relative riot frequency was much lower in Southern than in non-Southern states, there are undoubtedly differences in the degree of riot susceptibility of individual communities. Before undertaking any detailed study of individual cities or SMSAs, it was decided to search for an index that would serve as a rough indicator of riot susceptibility. This could perhaps then be used to estimate the approximate magnitude of the countrywide civil disorder problem and to pinpoint individual cities that might warrant detailed study.

One of the reasons advanced for the greater frequency of riots in the northern states is that the Negro has made greater progress there than in the South and is now experiencing the frustrations of rising, but unfulfilled, expectations.[20] Wage levels in non-Southern areas are in general substantially higher than in the South, probably due to a greater degree of industrialization. For example, median family incomes as reported for 1959 are shown in the accompanying tabulation.[15]

Area	Median family income, dollars
Northeastern	6191
North Central	5892
West	6348
South	4465

It is assumed that a low wage level is not in itself a cause of frustration provided everyone in the community is at the same low level, but that frustration results when there is a marked disparity between the average income of one segment of the population and another in the same community. In other words, it seems reasonable to assume that Negro frustrations would be high in areas where their average income was substantially below that of the white community, regardless of the actual level of income.

There is evidence to indicate that not only are average Negro wage levels lower than those of whites but that they rise more slowly. For example:

Despite the general prosperity enjoyed today [1967], Negroes continue to lag far behind white persons in both income and rate of employment.[16]

Even given similar employment, Negro workers with the same education as white workers are paid less. . . .The differentials are so large and so universal at all educational levels that they clearly reflect the patterns of discrimination which characterize hiring and promotion practices in many segments of the economy. For example, in 1966, among persons who had completed high school, the median income of Negroes was only 73 percent that of whites.[7]

Negroes are more prone to change jobs, are more likely to be shifted towards low-earnings industries, and are more adversely affected in employment and income by the impact of the business cycle. The cumulative effect of these phenomena is to contribute to the relative decline in the earnings level of Negro men.[26]

Income and wealth inequality appear to be increasing in recent years. The incomes of Negroes are no longer advancing relative to those of whites.[27]

It was observed previously that riot occurrence is primarily a big-city problem. This is not unexpected, since the more people that are frustrated, the greater the likelihood that an incident will occur that will touch off a riot. However, size of population alone does not seem to be the sole factor determining riot susceptibility. For example, riots were reported in only 1 out of 19 SMSAs in Texas with over 5 percent Negro population, whereas 8 out of 9 SMSAs in Michigan in a similar range of population size and racial composition experienced disorders in 1967.

The additional factors involved may be related in part to the relative degree of frustration in various communities. If one of the causes of frustration is difference in income, it would be of interest to compare the average difference between Negro and white incomes in similar occupations for different communities. Data of this type are not readily available. However, since a large proportion of Negro wage earners seem to be in non-white-collar jobs, perhaps an examination of Negro and white incomes in manufacturing could reveal the magnitude of the discrepancy that exists in different communities.

The statements cited above suggest that if there is an increase in the average wage level of white workers in a community, this increase is not matched by an equal rise in the average wage level of Negro workers. That is, as the total annual income of the community increases, the disparity between Negro and white incomes tends to increase, which should result in an increase in the level of frustration of the Negro community.

Since the total annual payroll is related both to the size of the community and, as noted above, the size of the disparity between Negro and white incomes, it was decided to check for a possible relation between riot frequency in an SMSA and total payroll, specifically the total annual payroll in manufacturing. The most recent payroll data available were for 1963, so that there is a 4-year separation between these figures and the riot data. It has been assumed that although the absolute payroll figures for 1967 would undoubtedly differ from those for 1963, the relative values would be roughly the same.

Initially, both population and payroll were tested for correlation with riot frequency with the aid of regression analysis. Frequency of riots was taken into consideration since many SMSAs experienced more than one disorder in 1967. Details of the method are given in App B. As might have been expected,

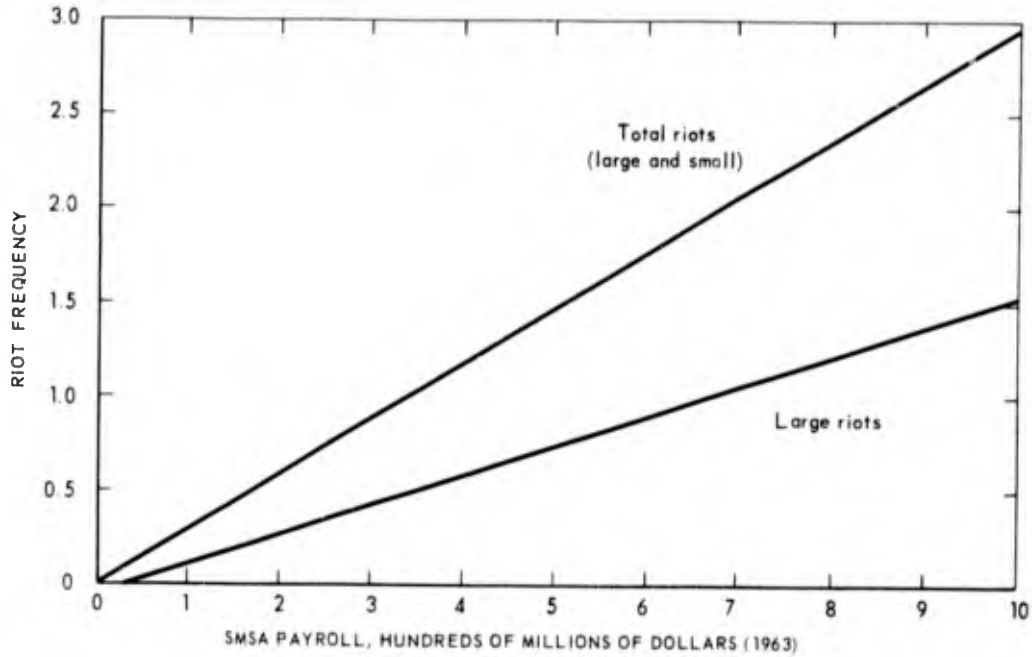

Fig. 3—Riot Frequency in Southern SMSAs in 1967

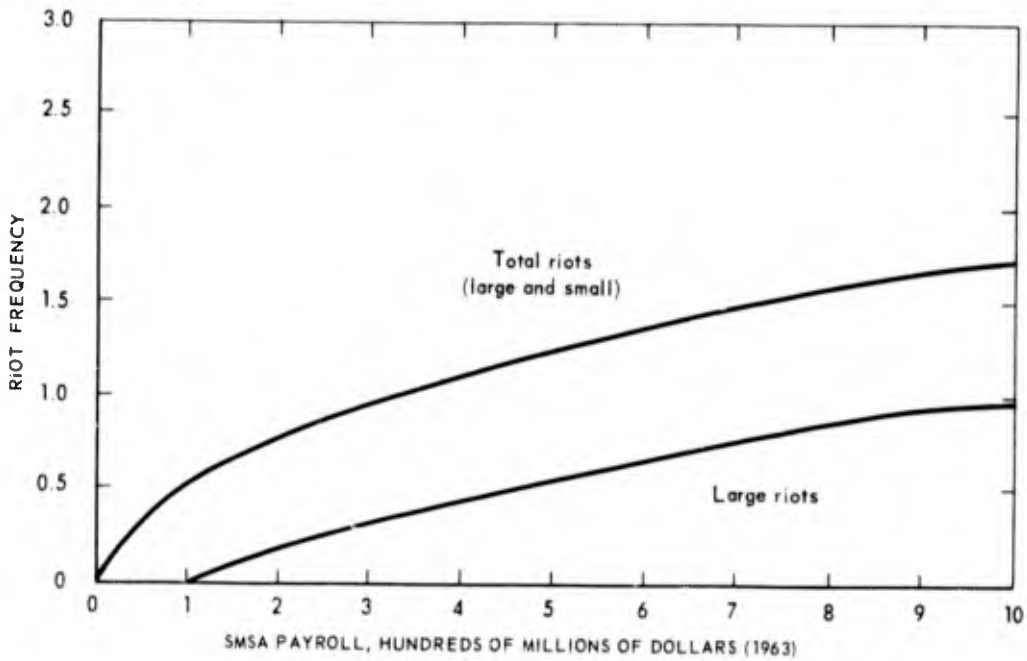

Fig. 4—Riot Frequency in non-Southern SMSAs in 1967

there was a high degree of correlation between annual payroll and population of an SMSA. Thus it appeared redundant to consider both factors simultaneously, and for reasons discussed in App B, annual payroll in manufacturing was selected as the sole indicator in the final analysis.

It was found that the average riot frequency in 1967 for SMSAs could be represented as simple functions of their annual payroll in manufacturing. The equations of best fit to the observed data are:

$$Y_{LS} = 0.162\,(X - 0.12) \quad (1)$$

$$Y_{TS} = 0.293\,X \quad (2)$$

$$Y_{LN} = 0.485\,(X^{1/2} - 1) \quad (3)$$

$$Y_{TN} = 0.55\,X^{1/2} \quad (4)$$

where Y_{LS} = number of large riots, South
Y_{TS} = number of total riots, South
Y_{LN} = number of large riots, non-South
Y_{TN} = number of total riots, non-South
X = annual payroll in manufacturing for SMSA in hundreds of millions of dollars

The curves for the above equations are plotted in Figs. 3 and 4.

Results

The analysis brings out the following points concerning the Negro-dominated civil disorders that occurred in 1967 in communities within SMSAs:

(a) Disorders did not occur in an SMSA unless its core city had at least 5 percent Negro population.

(b) The riot frequency in SMSAs in the South was much lower than in SMSAs of corresponding population size in non-Southern states.

(c) Average riot frequency for an SMSA could be represented as a simple function of its total annual payroll in manufacturing.

DISCUSSION

In an examination of riot susceptibility, the underlying hope is that the experience of the past may be used to develop methods for predicting what might happen in the future. It is recognized that a year's experience does not provide a valid basis for extrapolating into the future. However, there are several factors that should be kept in mind:

(a) Although the federal government and many individual communities are taking active measures to alleviate the conditions that help to create a ghetto environment, the problems are of such magnitude that there is little hope of resolving them satisfactorily for many years.

(b) The militant mood generated over the past 2 years shows no signs of abating, judging from the reaction to the assassination of Dr. King in April 1968.

(c) It may be argued that plans being made by municipal, state, and federal agencies will lead to improved methods for coping with future disorders more effectively and thus should serve to reduce their frequency and severity. On the other hand, it may also be argued equally logically that changes in capability to respond to riots would merely lead to changes in methods used by rioters; for example, hit-and-run guerrilla tactics rather than large-scale mob violence.

(d) The view has sometimes been expressed that the occurrence of a riot in a community provides it with immunity from riots for a while. The evidence does not support this view. In fact, riot occurrence thus far in 1968 suggests that the very opposite is likely to be true. Detroit had a large riot in 1967 and another so far in 1968; Chicago had a large riot in 1966, several riots in 1967, and a large riot in 1968; Cincinnati had a large riot in 1967 and again in 1968.

On balance, there would seem to be little basis for optimism that the total countrywide riot experience in 1968 will be any less severe than in 1967.

If Eqs 1 to 4 had been derived from riot frequency data over a number of years of substantially similar countrywide levels of activity, they might be used to obtain an estimate of the expected number of riots during a year in an SMSA with a given annual payroll in manufacturing and over 5 percent Negro population. Although they cover 1 year's experience only (1967), it is suggested that they could be used to obtain a rough approximation of the scope of the problem for 1968, in view of the previous discussion that the level of civil disorder in 1968 can hardly be expected to be less than in 1967.

If it is assumed that riots occur as independent events in a continuum of time and that the expected number for 1 year in a given SMSA remains constant (the average of the experience of several similar years), the frequency of

TABLE 4

Expected Riot Occurrence in Non-Southern SMSAs in a Year Similar to 1967

P_L					
0.73	0.55	0.37	0.24	0.10	0
P_T					
0.88 (1)	0.78 (2)	0.67 (3)	0.56 (4)	0.50 (5)	0.39 (6)
Baltimore, Md.	Akron, Ohio	Albany-Schenectady-Troy, N. Y.	Davenport–Rock Island–Moline, Iowa-Ill.	Anderson, Ind.	Atlantic City, N. J.
Boston, Mass.	Cincinnati, Ohio-Ind.-Ky.	Bridgeport, Conn.	Erie, Pa.	Ann Arbor, Mich.	Bakersfield, Calif.
Buffalo, N. Y.	Columbus, Ohio	Canton, Ohio	Fort Wayne, Ind.	Charleston, W. Va.	Bloomington-Normal, Ill.
Cleveland, Ohio	Dayton, Ohio	Denver, Colo.	Lancaster, Pa.	Des Moines, Iowa	Champaign-Urbana, Ill.
Milwaukee, Wis.	Flint, Mich.	Grand Rapids, Mich.	Lansing, Mich.	Evansville, Ind.-Ky.	Colorado Springs, Colo.
Minneapolis–St. Paul, Minn.	Gary-Hammond-E. Chicago, Ind.	Portland, Ore.-Wash.	Lorain-Elyria, Ohio	Harrisburg, Pa.	Decatur, Ill.
Newark, N. J.	Hartford, Conn.	San Diego, Calif.	New Haven, Conn.	Hamilton-Middletown, Ohio	Fresno, Calif.
Paterson-Clifton-Passaic, N. J.	Indianapolis, Ind.	Springfield-Chicopee-Holyoke, Mass.-Conn.	New London–Groton-Norwich, Conn.	Huntington-Ashland, W. Va.-Ky.-Ohio	Las Vegas, Nev.
Pittsburgh, Pa.	Jersey City, N. J.	Syracuse, N. Y.	Omaha, Nebr.-Iowa	Jackson, Mich.	Lawton, Okla.
San Francisco–Oakland, Calif.	Kansas City, Mo.-Kans.	Toledo, Ohio-Mich.	Peoria, Ill.	Johnstown, Pa.	Lexington, Ky.
St. Louis, Mo.-Ill.	Louisville, Ky.-Ind.	Washington, D. C.	Phoenix, Ariz.	Kalamazoo, Mich.	Lima, Ohio
	Providence-Pawtucket-Warwick, R. I.-Mass.	Wilmington, Del.	Reading, Pa.	Muncie, Ind.	Oxnard-Ventura, Calif.
	Rochester, N. Y.	Youngstown-Warren, Ohio	Rockford, Ill.	Muskegon–Muskegon Heights, Mich.	Santa Barbara, Calif.
	Seattle-Everett, Wash.		Sacramento, Calif.	New Bedford, Mass.	St. Joseph, Mo.
			San Bernardino-Riverside-Ontario, Calif.	New Britain, Conn.	Springfield, Ill.
			South Bend, Ind.	Norwalk, Conn.	Stockton, Calif.
			Steubenville-Weirton, Ohio-W. Va.	Oklahoma City, Okla.	Tacoma, Wash.
			Trenton, N. J.	Racine, Wis.	Terre Haute, Ind.
			Utica-Rome, N. Y.	Saginaw, Mich.	Topeka, Kans.
			Waterbury, Conn.	Springfield, Ohio	Tucson, Ariz.
			Wichita, Kans.	Stamford, Conn.	Vallejo-Napa, Calif.
			York, Pa.	Tulsa, Okla.	Wheeling, W. Va.-Ohio
				Waterloo, Iowa	

TABLE 5

Expected Riot Occurrence in Southern SMSAs in a Year Similar to 1967

P_L				
0.61	0.37	0.20	0.06	0
P_T				
0.82 (1)	0.57 (2)	0.33 (3)	0.16 (4)	0.05 (5)
Atlanta, Ga.	Beaumont–Port Arthur Tex.	Augusta, Ga.	Amarillo, Tex.	Abilene, Tex.
Dallas, Tex.	Birmingham, Ala.	Baton Rouge, La.	Asheville, N. C.	Albany, Ga.
Houston, Tex.	Fort Worth, Tex.	Charlotte, N. C.	Austin, Tex.	Fayetteville, N. C.
	Memphis, Tenn.-Ark.	Chattanooga, Tenn.-Ga.	Charleston, S. C.	Lafayette, La.
	Nashville, Tenn.	Greensboro–High Point, N. C.	Columbia, S. C.	Midland, Tex.
	New Orleans, La.	Greenville, S. C.	Columbus, Ga.	San Angelo, Tex.
	Richmond, Va.	Huntsville, Ala.	Corpus Christi, Tex.	Tallahassee, Fla.
		Jacksonville, Fla.	Durham, N. C.	Wichita Falls, Tex.
		Knoxville, Tenn.	Fort Smith, Ark.-Okla.	
		Miami, Fla.	Ft. Lauderdale–Hollywood, Fla.	
		Mobile, Ala.	Gadsden, Ala.	
		Newport News–Hampton, Va.	Galveston–Texas City, Tex.	
		San Antonio, Tex.	Jackson, Miss.	
		Tampa-St. Petersburg, Fla.	Lake Charles, La.	
		Winston-Salem, N.C.	Little Rock–North Little Rock, Ark.	
			Lubbock, Tex.	
			Lynchburg, Va.	
			Macon, Ga.	
			Monroe, La.	
			Montgomery, Ala.	
			Norfolk-Portsmouth, Va.	
			Odessa, Tex.	
			Orlando, Fla.	
			Pensacola, Fla.	
			Pine Bluff, Ark.	
			Raleigh, N. C.	
			Roanoke, Va.	
			Savannah, Ga.	
			Shreveport, La.	
			Texarkana, Tex.-Ark.	
			Tuscaloosa, Ala.	
			Tyler, Tex.	
			Waco, Tex.	
			W. Palm Beach, Fla.	
			Wilmington, N.C.	

occurrence from year to year should form a Poisson distribution. In that case, if the expected number in a year were given by r, the probability that no riot would occur in a year would be given by e^{-r}. It follows that the probability that at least one riot would occur would be given by $1 - e^{-r}$.

Within the limitations of these assumptions, Eqs 1 to 4 were used to derive "expected" values (as defined above) for riot frequency in an SMSA in 1 year, based only on the annual payroll in manufacturing, which were then used to compute the probability of occurrence of at least one riot in the SMSA in 1 year.

For ease of treatment, all SMSAs whose core city was estimated to have at least 5 percent Negro population in 1968 (including those that had 3 or 4 percent Negro population in 1960) were grouped into classes according to payroll range, in millions of dollars, as follows:

(a) Non-South payroll ranges: 0 to 100, 100 to 200, 200 to 300, 300 to 500, 500 to 1000, 1000 to 2000, over 2000.

(b) South payroll ranges: 0 to 20, 20 to 100, 100 to 200, 200 to 400, 400 to 800.

The midpoint of the annual payroll ranges for each group was taken as representative of the payroll for each SMSA in the group (except for the over $2 billion group in the non-South). Expected riot frequency r in a year, for both large and total riots, was computed for each group with Eqs 1 to 4, using the midpoint annual payroll for each group. The probability of at least one large riot, P_L, and of at least one riot regardless of size, P_T, was then computed for each group from $1 - e^{-r}$.

The five largest SMSAs are New York, Chicago, Los Angeles–Long Beach, Detroit, and Philadelphia. For these, each with an annual payroll over $3 billion, Eqs 3 and 4 provide an expected number of large riots of at least 2.3 and of at least 3.3 total riots, which would indicate that there is more than a 90 percent chance that any one of these SMSAs will have at least one large riot, and more than a 95 percent chance of a disorder regardless of size, in a year similar to 1967. Thus this group of five SMSAs appears to be so high on the scale of riot susceptibility as developed in this study that the non-occurrence of civil disorder in any one of them in 1968 would be unusual. In other words, the question appears to be not so much whether a riot will occur, but when.

The probabilities of riot occurrence in the remaining SMSAs, for both large and total riots, are shown for the various groups in Tables 4 and 5. It is recognized that this is only a coarse first approximation and that additional data over a period of years would undoubtedly uncover differences in riot susceptibility among various cities in any one group, especially since the behavior of individuals cannot be predicted precisely, purely on the basis of environmental statistics.

It may also be noted that for a broad countrywide picture of the possible extent of riot activity in a year similar to 1967, the probabilities in Tables 4 and 5 may be interpreted as applying to the entire group. For example, of the 22 SMSAs in Group 4 in Table 4, 24 percent, or about 5, may be expected to have at least one large riot, and 56 percent, or about 13, may be expected to have a riot regardless of size.

Other communities of over 25,000 population in the SMSAs which might be affected by disorders if a riot should occur in the core city may be noted by inspection from App A.

PROPOSED STUDY CONTINUATION

Riot Susceptibility

Thus far the study has examined the riot susceptibility of US cities to obtain a broad picture of where the most serious trouble spots are likely to be, and attention has been focused on the core cities of metropolitan areas. A distinction has been made between areas in the South and the rest of the country. However, a study in greater depth is needed to sharpen the criteria that have been used to compare riot susceptibility of different metropolitan areas. For example, the scope and nature of police-community relations programs in specific cities are generally felt to affect the susceptibility to riot of a community. More study is needed to determine whether, and to what extent, this may be so.

Moreover, since riot occurrence in the core city of a metropolitan area appears to be one of the major factors determining whether disorders will occur in other communities in the metropolitan area, it would be desirable to select a few large metropolitan areas for detailed study to examine the relations between all the disorders occurring within the metropolitan area. Los Angeles, Chicago, Detroit, New York, and Newark would perhaps serve this purpose.

The work proposed above is essentially a continuation of an examination of riot susceptibility in greater depth. As data on riots become available for 1968, the hypotheses resulting from an analysis of 1967 data alone need to be checked.

Riot Indicators

A companion study is needed to examine the feasibility of developing indicators to provide advance warning of a riot. Since it was noted that a prime indicator of disorder occurrence in the smaller communities of a metropolitan area appears to be the occurrence of a riot in the core city of the area, attention will be focused on a few selected core cities of SMSAs in this study.

Future riots may be planned or unplanned. If they are planned, it is expected that informers, or infiltration of dissident groups by law enforcement agencies, would provide the best indications as to when a riot is likely to occur. However, as concluded in the Riot Commission Report (Ref 7, p 9), "The urban disorders of the summer of 1967 were not caused by, nor were they the consequence of, any organized plan or conspiracy."

When a disorder is unplanned, it is triggered by an unpredictable event, e.g., a routine arrest. Thus there appears to be little hope of finding indicators

that will pinpoint the date of occurrence of an unplanned riot. Any indicators would likely be of a type that provide evidence of changes in tension or unrest in a community. Such indicators fall into well-known categories: for example, complaints to municipal authorities, considerable activity by black-power agitators, and rumors. All these factors, singly or together, result in increasing tension, which often seems to be brought to a head in sultry weather.

In cities made up of a large minority population, complaints are generally the same: alleged police brutality; lack of channels of communication for seeking remedial action for complaints; lack of employment opportunity or, should employment opportunities exist, lack of proper training for these job opportunities; bad housing; poor educational facilities; inadequate welfare provisions; and breaking of promises to better these shortcomings.

Agitation by black-power advocates helps to stir up a deeper emotional reaction to the conditions found in ghetto areas, resulting in destructive rather than constructive feelings and actions.

Rumors appear to play a large part in affecting the degree of unrest in a community; e.g., the Watts disorder of 1965 appears to have turned violent when a false report was spread that the police had beaten up a pregnant Negro woman. The nature and prevalence of rumors may well be a useful indicator of approaching disorders. It is perhaps worth noting that many rumors are currently (March 1968) prevalent in Detroit,[28] a city which had a serious riot in 1967. Many ghetto inhabitants believe there will be a white invasion this summer. Simultaneously, the white community also is full of rumors to the effect that the ghetto inhabitants plan to invade the white suburbs.

In the ghetto, where most communication is by word-of-mouth, there are constant rumors of police brutality, which are especially incendiary.

Underlying these indicators of tension that could result in riots (given the appropriate psychological moment and triggering event), there is a profound feeling that the ghetto inhabitant is heir to broken promises, promises to remedy the wrongs within his environment. In post-riot cities this complaint may be the most significant indicator of deep unrest. Considerable cuts in the Office of Economic Opportunity funds, in addition to cuts in many other programs, may well engender this feeling of betrayal.

All the indicators mentioned are related to racial tension, unhappiness, widespread discontent, and increasing interest in black-power tenets, including that which asserts the inadequacy of nonviolent means as an instrument to effect desirable changes.

However, a method has not yet been evolved to determine the researchability of these indicators. A start will be made by examining relevant data for Newark, N.J., for a period of several months before the 1967 riot erupted to determine how often such indicators were reported and whether the frequency of these indicators had any relevance to the imminence of the riot. As the methodology is developed and validated, the investigation could be extended to other major cities.

Measures for Averting Riots

If appropriate indicators can be found which will provide advance warning of a riot, it is considered that the warning time should be used by law enforcement

agencies to undertake measures toward averting the riot. Examples of possible measures are increased efforts to disseminate facts concerning rumors through the news media and instructions to police for extra caution to avoid a potentially provoking incident.

If a riot does not occur in a given community, where one appeared likely, there is no way of proving whether any given action was the cause of averting the riot; maybe it would not have occurred in any case. Nevertheless it would appear prudent for civil authorities to explore likely measures that could be tried in emergency situations. In this context, gaming and simulation techniques, when applied to hypothetical disorder situations, could be useful in examining the possible effectiveness of various preventive measures.

As a part of this study, it would be useful to examine the feasibility of developing an objective measure of severity of civil disorders according to some scale that would permit an estimate to be made of the magnitude of various types of forces, police or military, required to control a disorder of a given severity. The approach used by Gurr[29] might provide a useful starting point for this task.

EPILOGUE

This paper as written was completed in April 1968. However, since its publication was delayed until the end of 1968 it was considered desirable to to compare the disorder data for 1968 with the expected riot occurrence in SMSAs in a year similar to 1967 as indicated in Tables 4 and 5.

It is worth noting at this point that two differing opinions have been expressed concerning the relative severity of riot occurrence in 1968 compared with 1967. The following quotation from the Washington Star [30] represents one view, namely that 1968 riot experience has not been as severe as that of 1967.

Data on Riots Raises Hopes Worst Is Over

The United States may have passed the peak of its deadly epidemic of racial rioting. That hopeful possibility is suggested by Justice Department statistics on urban disorders during the 'long hot summer' just ended. Many had feared that the summer of 1968 would be the worst yet. It turned out to be considerably less violent than 1967. . . .But even when the April deaths are added to those which took place in July and August, the 1968 toll was markedly lower than that of 1967.

The second view, that 1968 was worse than 1967 in riot experience, is illustrated by the following extract from an article in U.S. News and World Report,[31] entitled "Report on '68 Riot Session."

The riot record of 1968 already is the worst in American history—and now it is threatening to grow even worse before this year is over. . . . Mass violence, it seems, is now becoming a year-round activity instead of just a summer occurrence as in the past. With autumn barely begun, 1968 already has produced more racial disorders and more property damage than all of 1967—the worst previous year for rioting. The record shows 313 disorders by the end of August compared with 164 in all of last year. This is according to the only official figures available—those kept by the US Justice Department. Some other counts are higher. The Lemberg Center for the Study of Violence, at Brandeis University, reports 526 incidents of violence this year, up to August 31—compared with 249 all last year. The Lemberg Center counts incidents not included by the Justice Department.

Mere numbers of incidents are not sufficient to determine the trend in severity of the riot situation without some quantitative scale of violence with which to grade the incidents. An attempt was made in this paper to categorize

incidents into two classes, large and small, and to set a minimum level of violence for an incident to be counted at all. This classification is admittedly inadequate, but until much more effort can be applied to develop a more comprehensive grading system, it can at least provide a coarse picture of the severity of the riot situation.

When the criteria used in this paper were applied to the incidents that had been reported in 1968 up to 10 October, an overall total of 227 incidents was obtained (50 large and 177 small), as compared with 170 for 1967 (67 large and 103 small). Even though there has been a decrease of about 25 percent in large disorders, it does not necessarily follow that the riot situation is improving. The large increase in the number of small riots suggests rather that the potential for riot is not decreasing but that perhaps law enforcement forces are becoming more efficient in coping with disorders and have been able to prevent some small ones from growing into big ones.

It has been reported that there have been fewer riot deaths in 1968 than in the corresponding period in 1967. However, this does not necessarily represent any improvement in the conditions leading to riot since the decrease may be largely due to a policy of restraint adopted by many law enforcement agencies this year in dealing with rioters. For example, during the April riots in Washington, D.C., police were under orders to avoid gunfire, and troops were sent into action with unloaded weapons. In contrast with the overall decrease in riot deaths, there has been little change in the number of deaths of law enforcement officers. At least 8 policemen were killed and 47 wounded in late summer gunfire, as compared with 9 law officers killed in riots in the first 8 months of 1967.

In the body of the paper, it is argued that 1968 riot experience could be expected to be at least as severe as that of 1967, and Tables 4 and 5 present a basis for determining the possible countrywide distribution of riots in SMSAs on the hypothesis that the annual payroll in manufacturing of an SMSA could serve as an index of its riot susceptibility, provided that a sufficiently large dissatisfied minority group was present.

To test how well the riot data for 1968 fit the picture given by Tables 4 and 5, a tabulation was made of each SMSA that experienced at least one riot in 1968. It may be noted that no riots were reported as occurring in any of the 52 SMSAs not listed in these tables. First it was noted, as expected, that at least one large riot occurred in each of the 5 largest SMSAs. The percentage of SMSAs in each column of Tables 4 and 5 that experienced either a large riot or a riot of any size was then compared with the probability of occurrence of at least one large riot (P_L) and of at least one riot of any size (P_T) in an SMSA for each column as given at the top of Tables 4 and 5. The results for SMSAs in the South and non-South areas are given in Table 6.

It may be noted that the proportion of each group of SMSAs in both the South and non-South areas that experienced at least one large disorder in 1968 agrees very closely with the previously computed probability of occurrence of at least one large riot in any SMSA in the group. Moreover, the observed proportion of SMSAs in each group that experienced at least one disorder of some size in 1968 appears to agree closely with the computed values for P_T, except that there appears to be a marked increase in the number of the smaller SMSAs in the South that experienced a small disorder.

The riot data in Table 6 represent a very incomplete analysis and are presented here only to illustrate that the hypothesis advanced in the body of the paper appears to have considerable merit. In other words, with the assumptions that riots would not occur in SMSAs whose core city had less than

TABLE 6

Riot Experience in SMSAs in 1968

a. Non-Southern SMSAs

Item	Column number in Table 4					
	1	2	3	4	5	6
SMSAs in group	11	14	13	22	23	22
P_L (computed)	0.73	0.55	0.37	0.24	0.10	0.0
Fraction of group with at least 1 large riot in 1968	0.82	0.43	0.54	0.23	0.09	0.0
P_T (computed)	0.88	0.78	0.67	0.56	0.50	0.39
Fraction of group with at least 1 riot in 1968	1.00	0.71	0.69	0.50	0.61	0.41

b. Southern SMSAs

Item	Column number in Table 5				
	1	2	3	4	5
SMSAs in group	3	7	15	35	8
P_L (computed)	0.61	0.37	0.20	0.06	0.0
Fraction of group with at least 1 large riot in 1968	0.0	0.43	0.20	0.06	0.0
P_T (computed)	0.82	0.57	0.33	0.16	0.05
Fraction of group with at least 1 riot in 1968	0.67	0.57	0.73	0.37	0.37

5 percent Negro population, that the countrywide riot potential in 1968 would be at least as great as in 1967, and that the annual payroll in manufacturing for an SMSA could serve as an index of its riot susceptibility according to the equations given in the paper, the distribution of riot occurrence for 1968 in SMSAs throughout the country could have been predicted with some accuracy early in 1968.

The question naturally arises, what about 1969? The following considerations will have a bearing on the answer.

(a) Recent studies by the Lemberg Center in 10 cities have found some loss in enthusiasm for rioting among Negro adults—but not among teenagers.

(b) The effectiveness of law enforcement forces in coping with disorders should continue to improve.

(c) The increasing use of firearms by rioters will probably lead to stronger force application by law enforcement officers.

(d) An excerpt from a recent study by Urban Coalition and Urban America Incorporated, as quoted in U. S. News and World Report[32] under the title, "In the Aftermath of Rioting," reads as follows:

> Black and white Americans remain far apart in their perception of slum ghetto problems and the meaning of civil disorder. . .The nation has not reversed the movement apart. . .Blacks and whites remain deeply divided in their perceptions and experiences of American society. . .The mood of the Blacks is not moving in the direction of patience.

The above considerations suggest that although there is little reason to hope that the potential for violence will be any less in 1969 than in 1968, there may well be a decrease in numbers of large riots, especially in the upper end of the severity spectrum where the need for state or Federal assistance might arise. This view has also been expressed in somewhat similar terms in a communication from the Directorate for Civil Disturbance Planning and Operations[33] to the Office of the Chief of Research and Development, Department of the Army, namely, "While deliberate, premeditated violence by extremists may be increasing, the actual potential for large-scale riot violence appears to have abated somewhat."

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APPENDIXES

Appendix A

CIVIL DISORDER DATA FOR SMSAs (1967)

Definition of an SMSA

To permit all federal statistical agencies to use the same areas for the publication of general-purpose statistics, the Bureau of the Budget has established what are known as Standard Metropolitan Statistical Areas (SMSAs).[15]

The definition of an SMSA is based on specific population criteria and metropolitan characteristics. These may be briefly summarized as follows:

Population Criteria.

(a) Each SMSA must include at least one city of 50,000 or more, or two cities having contiguous boundaries with a combined population of at least 50,000.

(b) If each of two or more adjacent counties has a city of 50,000 or more and the cities are within 20 miles of each other, they are included in the same SMSA.

Metropolitan Characteristics.

(a) At least 75 percent of the labor force in the county or counties forming the SMSA must be nonagricultural.

(b) The county must have 50 percent or more of its population living in contiguous minor civil divisions with a density of at least 150 persons per square mile, in an unbroken chain of minor civil divisions with such density radiating from a central city in the SMSA.

The complete title of an SMSA identifies the core city or cities and the state or states in which the SMSA is located. In addition to the name of the largest city, the SMSA title may include up to two other names, provided the additional city has at least 250,000 inhabitants or has a population of one-third or more of that of the largest city and a minimum population of 25,000. A complete description of each of the 224 SMSAs in the US, as of 31 Dec 65, is given in The County and City Data Book.[15]

Civil Disorder Data for 1967

The occurrences of civil disorders in 1967 according to location and date of beginning of disorder are listed in Columns 7 to 9 of Table A1 in relation to SMSAs. Columns 1 to 6 contain the reference data for SMSAs listed in the accompanying tabulation.

Column	Data
1	Listing of SMSAs by state[15]
2	Total SMSA payroll for all employees in manufacturing in 1963, in millions of dollars[15]
3	Total estimated SMSA population as of 1 Jan 68[34]
4	The core city or cities in the SMSA together with all other cities with population over 25,000 and at least 1 percent Negro population in 1960[15]
5	City population in 1960[15]
6	Percent Negro in city population in 1960[15]

TABLE A1

Civil Disorder Data for 1967 as Related to SMSAs

SMSA[a] (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Birmingham, Ala.	362	745	Birmingham	341	40	7/23	—	Small disorder in Prattville[1] June 11, not in SMSA
	—	—	Bessemer	33	57	—	—	Incidents in Alabama not included as civil disorders:
Gadsden, Ala.	63	94	Gadsden	58	21	—	—	Civil rights demonstration in Birmingham 2/23;[35] white-owned cafe burned in Birmingham 8/2;[36] demonstration in Prattville 3/8;[37] Negro church burned in Ft. Deposit 3/13;[38] Negro church burned in Haynesville 3/13;[38] Negro home bombed in Mobile 6/28[39]
Huntsville, Ala.	87	243	Huntsville	72	14	—	—	
Mobile, Ala.	101	408	Mobile	203	32	—	—	
	—	—	Prichard	47	47	—	—	
Montgomery, Ala.	31	216	Montgomery	134	35	—	6/12	
Tuscaloosa, Ala.	39	123	Tuscaloosa	63	30	—	—	
Phoenix, Ariz.	254	895	Phoenix	439	5	7/23[4]	—	
	—	—	Mesa	34	2	—	—	
Tucson, Ariz.	51	335	Tucson	213	3	—	7/23[4]	
Little Rock–North Little Rock, Ark.	68	324	Little Rock	108	24	—	—	
	—	—	North Little Rock	58	23	—	—	
Fort Smith, Ark.-Okla.	48	154	Fort Smith	53	8	—	—	
Pine Bluff, Ark.	25	90	Pine Bluff	44	40	—	—	
Anaheim–Santa Ana–Garden Grove, Calif.	687	1280	Anaheim	104	0	—	—	7 additional cities over 25,000 in 1960 in Anaheim SMSA, each with less than 1% Negro population
	—	—	Garden Grove	84	0	—	—	
	—	—	Santa Ana	100	2	—	—	

[a]No SMSAs in following states as of 31 Dec 65: Alaska, Vermont, and Wyoming.

TABLE A1 (continued)

SMSA, (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Bakersfield, Calif.	38	342	Bakersfield	57	14	—	—	Incidents in California not included as civil disorders: Minor disturbance at Sacramento 5/2;[6] minor disturbance at Monrovia 8/17[6]
Fresno, Calif.	75	423	Fresno	134	8	—	7/15[4]	
Los Angeles–Long Beach, Calif.	4940	7070	Los Angeles	2479	14	10/19[40]	6/12,[41] 7/6[41]	Los Angeles–Long Beach SMSA includes 25 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Long Beach	344	3	—	7/26[4]	
	—	—	Pasadena	116	12	—	7/26[41]	
	—	—	Santa Monica	83	5	—	—	
	—	—	Compton	72	39	—	—	
	—	—	Pomona	67	1	—	—	
	—	—	Beverly Hills	31	2	—	—	
	—	—	Monrovia	27	9	—	—	
Oxnard-Ventura, Calif.	49	350	Oxnard	40	5	—	—	
	—	—	San Buenaventura	29	1	—	—	
Sacramento, Calif.	272	796	Sacramento	192	6	7/25[4]	—	
San Bernadino–Riverside-Ontario, Calif.	239	1119	Riverside	84	5	—	—	
	—	—	San Bernardino	92	9	7/31[4]	—	
	—	—	Ontario	47	1	—	—	
	—	—	Redlands	27	2	—	—	
San Diego, Calif.	453	1296	San Diego	573	6	—	5/21[41]	San Diego SMSA includes 3 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	National City	33	4	—	—	

San Francisco–Oakland, Calif.	1357	3137	San Francisco	740	10	5/14,[4] 7/26[41]	—	San Francisco–Oakland SMSA includes 7 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Oakland	368	23	—	7/25[6]	
	—	—	Berkeley	111	20	—	—	
	—	—	Richmond	72	20	—	—	
	—	—	Redwood City	46	1	—	—	Small disorder 7/26 in Marin City[41] in San Francisco SMSA, population 3,000 in 1960
	—	—	San Mateo	70	2	—	—	
	—	—	Alameda	64	5	—	—	
	—	—	Daly City	45	1	—	—	Small disorder in East Palo Alto[41] 7/30, in San Francisco SMSA, population 17,000 in 1960
	—	—	Menlo Park	27	13	—	—	
San Jose, Calif.	740	984	San Jose	204	1	—	—	San Jose SMSA includes 3 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Palo Alto	52	2	—	—	
Santa Barbara, Calif.	52	251	Santa Barbara	59	3	—	—	
Stockton, Calif.	84	287	Stockton	86	9	—	—	
Vallejo-Napa, Calif.	26	249	Vallejo	61	16	—	5/21,[41] 7/31[6]	
Colorado Springs, Colo.	20	188	Colorado Springs	70	4	—	—	
Denver, Colo.	462	1123	Denver	494	6	—	7/30,[41] 8/11[6]	Denver SMSA includes 3 cities over 25,000 in 1960 with less than 1% Negro population
Pueblo, Colo.	58	131	Pueblo	91	2	—	—	
Bridgeport, Conn.	420	368	Bridgeport	157	10	—	7/25[6]	Bridgeport SMSA includes 1 city over 25,000 in 1960 with less than 1% Negro population
Hartford, Conn.	590	637	Hartford	162	15	7/12[4]	8/5,[42] 9/19[43]	
Meriden, Conn.	45	57	Meriden	52	2	—	—	
New Britain, Conn.	172	142	New Britain	82	3	—	7/23[4]	
New Haven, Conn.	253	359	New Haven	152	15	8/19[4]	9/18[44]	
New London–Groton-Norwich, Conn.	209	199	New London	34	7	—	Unknown[7]	
	—	—	Norwich	38	2	—	—	
Norwalk, Conn.	109	119	Norwalk	68	8	—	—	
Stamford, Conn.	163	218	Stamford	93	8	—	—	
Waterbury, Conn.	223	200	Waterbury	107	7	7/27[4]	—	
Wilmington, Del.-Md.-N.J.	469	481	Wilmington	96	26	7/28[4]	—	Minor disturbance at Seaford.[7] Del., not included as civil disorder

TABLE A1 (continued)

SMSA (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Washington, D.C.,-Md.-Va.	324	2720	Washington	764	54	—	8/1[41]	
	—	—	Rockville, Md.	26	6	—	—	
	—	—	Alexandria, Va.	91	11	—	—	
Fort Lauderdale–Hollywood, Fla.	44	485	Fort Lauderdale	84	23	—	—	Incident in Florida not included as civil disorders:
	—	—	Hollywood	35	6	—	—	Minor incident at Deerfield Beach,[7] date unknown
Jacksonville, Fla.	102	520	Jacksonville	201	41	—	—	
Miami, Fla.	193	1120	Miami	292	22	—	—	Miami SMSA includes 2 cities with population over 25,000 and less than 1% Negro in 1960
	—	—	Coral Gables	35	6	—	—	
	—	—	Hialeah	67	1	—	—	
Orlando, Fla.	125	383	Orlando	88	23	—	—	
Pensacola, Fla.	76	231	Pensacola	57	33	—	—	
Tallahassee, Fla.	6	74	Tallahassee	48	33	—	—	
Tampa–St. Petersburg, Fla.	189	912	Tampa	275	17	6/11[4]	—	Small disorder at Lakeland 7/20;[41] estimated 1968 population 44,500, not in SMSA
	—	—	St. Petersburg	181	13	—	Unknown[7]	
	—	—	Clearwater	35	16	—	6/4[41]	
West Palm Beach, Fla.	73	301	West Palm Beach	56	27	—	7/31[4]	Large disorder 7/30 at Riviera Beach[4] in West Palm Beach SMSA, population 19,000 in 1960
Albany, Ga.	18	94	Albany	56	36	—	—	Not included in list of civil disorders: some rock-throwing, Atlanta, 4/23[47]
Atlanta, Ga.	539	1285	Atlanta	487	38	6/17,[41] 10/22[45]	7/1[46]	
	—	—	Marietta	26	15	—	—	
	—	—	East Point	36	13	—	—	
Augusta, Ga.-S.C.	136	249	Augusta	71	45	—	—	

Columbus, Ga.-Ala.	54	270	Columbus, Ga.	117	27	—	—	
	—	—	Phenix City, Ala.	28	37	—	—	
Macon, Ga.	49	210	Macon	70	44	—	—	
Savannah, Ga.	75	194	Savannah	149	36	—	—	
Honolulu, Hawaii	81	596	Honolulu	294	0.4	—	—	
Boise, Idaho	14	100	Boise	34	0.6	—	—	
Bloomington-Normal, Ill.	26	84	Bloomington	36	3	—	—	Small disturbance at Cairo, Ill.,[41] beginning 7/18; not in SMSA; population 8000
Champaign-Urbana, Ill.	20	150	Champaign	50	9	—	—	
	—	—	Urbana	27	5	—	—	
Chicago, Ill.	5472	6840	Chicago	3550	23	7/26,[4] 9/14,[48] 9/20[49]	5/21,[41] 5/30,[41] 8/2,[50] 11/21	Chicago SMSA includes 12 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Chicago Heights	34	19	—	—	
	—	—	Evanston	79	12	—	—	For Rock Island and Moline, Ill., see Davenport SMSA, Iowa
	—	—	Elgin	49	3	—	7/29,[4] 8/4[51]	
	—	—	Aurora	64	4	9/22[52]	—	
	—	—	Joliet	67	7	—	—	
	—	—	Waukegan	56	8	—	7/24[41]	
	—	—	Harvey	29	7	—	—	
	—	—	Highland Park	26	2	—	—	
	—	—	Maywood	27	19	—	6/14,[41] 9/23[52]	
Decatur, Ill.	92	126	Decatur	78	8	—	—	
Peoria, Ill.	278	350	Peoria	103	9	8/2[4]	—	Peoria SMSA includes 1 city over 25,000 in 1960 with less than 1% Negro population
Rockford, Ill.	273	273	Rockford	127	4	7/28[4]	—	
Springfield, Ill.	68	158	Springfield	83	7	—	—	For Alton and East St. Louis, see St. Louis, Mo., SMSA
Anderson, Ind.	183	134	Anderson	49	9	—	—	
Gary-Hammond-E. Chicago, Ill.	722	607	East Chicago	58	24	—	—	For New Albany, see Louisville, Ky., SMSA
	—	—	Gary	178	39	—	7/27[6]	
	—	—	Hammond	112	2	—	—	

TABLE A1 (continued)

SMSA (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Evansville, Ind.-Ky.	146	231	Evansville	142	7	—	—	
Fort Wayne, Ind.	247	260	Fort Wayne	162	7	—	7/20[6]	
Indianapolis, Ind.	751	1043	Indianapolis	476	21	—	—	
Muncie, Ind.	110	118	Muncie	69	8	—	—	
South Bend, Ind.	244	280	South Bend	132	10	7/25[4]	8/8[53]	
Terre Haute, Ind.	61	163	Terre Haute	72	6	—	—	
Cedar Rapids, Iowa	149	159	Cedar Rapids	92	1	—	—	Not included in list of civil disorders: Minor disturbance in Cedar Rapids, 7/28[6]
Davenport–Rock Island–Moline, Iowa–Ill.	273	349	Davenport, Iowa	89	2	—	—	
	—	—	Rock Island, Ill.	52	5	—	—	
	—	—	Moline, Ill.	43	1	—	—	
Des Moines, Iowa	135	283	Des Moines	209	5	—	7/2,[41] 7/16[41]	Window-breaking in Des Moines, 7/23[54]
Dubuque, Iowa	70	89	Dubuque	57	0.1	—	—	
Sioux City, Iowa-Nebr.	42	118	Sioux City	89	1	—	—	
Waterloo, Iowa	119	133	Waterloo	72	7	7/8[4]	—	
Topeka, Kans.	40	152	Topeka	119	8	—	—	For Kansas City, see Kansas City, Mo., SMSA, small disorder at Great Bend, 8/6;[6] not in SMSA
Wichita, Kans.	287	400	Wichita	255	8	7/27[4]	5/2[41]	
Lexington, Ky.	66	168	Lexington	63	26	—	—	For Ashland, Ky., see Huntington-Ashland, W. Va., SMSA
Louisville, Ky.-Ind.	543	807	Louisville, Ky.	391	18	—	4/10,[6] 7/27[6]	
	—	—	New Albany, Ind.	38	4	—	—	
Baton Rouge, La.	115	270	Baton Rouge	152	30	4/30[55]	—	Incidents in Louisiana not included as civil disorders: Minor incident at Baton Rouge, 8/13[6]
Lafayette, La.	8	102	Lafayette	40	28	—	—	
Lake Charles, La.	53	139	Lake Charles	63	22	—	—	

Monroe, La.	31	115	Monroe	52	44	—	—	White harassment of civil rights marchers at Hammond, 8/13;[6] Holden, 8/15;[56] Satsuma, 8/16;[6] and Denham Springs, 8/18[57]
New Orleans, La.	283	1082	New Orleans	628	37	—	—	
Shreveport, La.	46	294	Shreveport	164	34	—	—	Bomb exploded outside Negro home, Port Allen, 7/19[58]
Lewiston-Auburn, Maine	48	71	Lewiston	41	0.1	—	—	
Portland, Maine	64	146	Portland	73	0.5	—	—	
Baltimore, Md.	1184	1995	Baltimore	939	35	—	—	Small disturbance at Baltimore, 8/5,[6] not included as civil disorder; for Rockville, Md., see Washington, D.C., SMSA, large riot at Cambridge, 7/24,[4] not in SMSA
Boston, Mass.	1769	2645	Boston	697	9	6/24	—	Boston SMSA includes 9 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Cambridge,	108	5	—	—	
	—	—	Chelsea	34	1	—	—	
	—	—	Everett	44	2	—	—	
	—	—	Lynn	94	1	—	—	Small disturbance at Wareham, 8/7,[6] not included as civil disorder
	—	—	Malden	58	1	—	—	
	—	—	Medford	65	2	—	—	
Brockton, Mass.	72	186	Brockton	73	2	—	—	
Fall River, Mass.-R. I.	88	146	Fall River	100	0.4	—	—	
Fitchburg-Leominster, Mass.	92	93	Fitchburg	43	0.4	—	—	
	—	—	Leominster	28	0.6	—	—	
Lawrence-Haverhill, Mass.-N.H.	214	214	Lawrence	71	0.4	—	—	
	—	—	Haverhill	46	0.6	—	—	
Lowell, Mass.	103	187	Lowell	92	0.4	—	—	
New Bedford, Mass.	105	149	New Bedford	102	3	—	—	
Pittsfield, Mass.	114	78	Pittsfield	58	2	—	—	
Springfield-Chicopee-Holyoke, Mass.-Conn.	370	521	Springfield	174	8	—	—	Springfield-Chicopee-Holyoke SMSA includes 2 cities over 25,000 with less than 1% Negro population in 1960
	—	—	Chicopee	62	1	—	—	
	—	—	Holyoke	53	1	—	—	
Worcester, Mass.	267	342	Worcester	187	1	—	—	

TABLE A1 (continued)

SMSA (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Ann Arbor, Mich.	189	211	Ann Arbor	67	5	—	7/25[6]	Not included in list of civil disorders: Minor disturbance, Albion, 7/24;[6] minor disturbance, Niles, 7/25;[6] minor disturbance, Warren, 6/11[6]
Bay City, Mich.	62	112	Bay City	54	1	—	—	
Detroit, Mich.	3847	4090	Detroit	1670	29	7/23[4]	—	Detroit SMSA includes 17 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Pontiac	82	17	7/23[41]	—	
	—	—	Roseville	50	1	—	—	
	—	—	Inkster	39	34	—	—	
	—	—	Highland Park	38	21	—	—	Small disorder in Mt. Clemens on 7/25[4] in Detroit SMSA; population 21,000 in 1960
	—	—	Hamtramck	34	14	—	—	
Flint, Mich.	563	481	Flint	197	18	7/25[4]	—	
Grand Rapids, Mich.	393	507	Grand Rapids	177	8	7/23[41]	—	Grand Rapids SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
Jackson, Mich.	107	137	Jackson	51	9	—	8/19[59]	
Kalamazoo, Mich.	171	188	Kalamazoo	82	6	7/23[4]	—	
Lansing, Mich.	220	346	Lansing	108	6	8/8[4]	6/16[41]	
Muskegon–Muskegon Heights, Mich.	164	151	Muskegon	46	8	—	Week of 7/23[41]	
Saginaw, Mich.	191	215	Saginaw	98	17	7/25[4]	—	
Duluth-Superior, Minn.-Wis.	61	262	Duluth, Minn.	107	0.5	—	—	
	—	—	Superior, Wis.	34	0.1	—	—	
Minneapolis–St. Paul, Minn.	1056	1658	Minneapolis	483	2	7/19[4]	—	Minneapolis–St. Paul SMSA includes 5 cities over 25,000 with less than 1% Negro population in 1960
	—	—	St. Paul	313	3	—	7/21[6]	

Jackson, Miss.	51	260	Jackson	144	36	5/12[4]	—	Incidents not included as civil disorders: Isolated bombing of Negro homes in Natchez;[60] bombing of Negro church in Laurel, 11/15;[61] Negro boycott of stores with occasional vandalism in Hattiesburg, 7/22–8/25;[4] minor disturbances in Clarksdale, 7/17,[6] and Lexington, 7/29;[6] harassment of Meredith March at Grenada, 6/8[62]
Kansas City, Mo.-Kans.	685	1236	Kansas City, Mo.	476	18	—	7/9[4]	Minor disturbance, Kansas City, 8/5,[42] not included as civil disorder
	—	—	Kansas City, Kans.	122	23	—	—	Kansas City SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Independence, Mo.	62	1	—	—	
St. Joseph, Mo.	57	86	St. Joseph	80	3	—	—	
St. Louis, Mo.-Ill.	1666	2313	St. Louis, Mo.	750	29	—	Unknown[7]	St. Louis SMSA includes 4 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Alton, Ill.	43	2	—	7/27[41]	
	—	—	East St. Louis, Ill.	82	44	7/27,[41] 9/11[63]	—	
	—	—	Kirkwood, Mo.	29	3	—	—	
	—	—	Webster Groves, Mo.	29	4	—	—	
Springfield, Mo.	51	140	Springfield	96	2	—	—	
Billings, Mont.	15	86	Billings	53	0.4	—	—	
Great Falls, Mont.	16	84	Great Falls	55	0.6	—	—	
Lincoln, Nebr.	46	171	Lincoln	129	2	—	—	Minor disturbance at McCook, 8/1,[6] not included as civil disorder
Omaha, Nebr.-Iowa	207	530	Omaha, Nebr.	302	8	4/1[4]	—	
	—	—	Council Bluffs, Iowa	56	1	—	—	
Las Vegas, Nev.	25	255	Las Vegas	64	15	—	—	
Reno, Nev.	13	127	Reno	51	2	—	—	

TABLE A1 (continued)

SMSA (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Manchester, N.H.	72	114	Manchester	88	0.2	—	—	
Atlantic City, N.J.	35	185	Atlantic City	60	36	—	—	For Camden, N.J., see Philadelphia SMSA
Jersey City, N.J.	633	607	Jersey City	276	13	—	7/17[64]	Jersey City SMSA includes 3 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Hoboken	48	3	—	—	
	—	—	Bayonne	74	3	—	—	
Newark, N.J.	1614	1890	Newark	405	34	7/12[4]	—	Small disorders not in SMSAs: Asbury Park, 7/12,[6] population 17,800; Bridgeton, 7/21,[41] population 21,000; New Brunswick, 7/17,[64] population 40,000
	—	—	Irvington	59	?	—	7/15[65]	
	—	—	Montclair	43	24	—	7/16[66]	
	—	—	East Orange	77	25	—	7/14[65]	
	—	—	Orange	36	23	—	7/12[6]	
	—	—	Elizabeth	108	11	—	7/16[65]	Disturbances considered too minor to include as civil disorders: Atlantic City, 8/17;[6] Camden, 8/12;[68] Nutley, week of July 20;[6] Palmyra, 7/28;[69] Rahway, 7/29;[6] Somerville, 7/16;[6] Jamesburg, date unknown[7]
	—	—	Plainfield	45	22	7/14[67]	—	
	—	—	Nutley	30	2	—	—	
	—	—	Rahway	28	10	—	7/14[65]	
	—	—	Westfield	31	4	—	—	
	—	—	Linden	40	6	—	—	
	—	—	Bloomfield	52	1	—	—	
	—	—	West Orange	40	1	—	—	
	—	—	Belleville	35	2	—	—	
Paterson-Clifton-Passaic, N.J.	1053	1340	Paterson	144	15	—	7/17[4]	Paterson-Clifton-Passaic SMSA includes 2 additional cities over 25,000 in 1960 with less than 1% Negro population
	—	—	Passaic	54	9	7/27[4]	—	
	—	—	Clifton	82	0.2	—	—	
	—	—	Hackensack	31	13	—	—	
	—	—	Englewood	26	27	7/21[4]	—	
	—	—	Garfield	29	1	—	—	
	—	—	Ridgewood	25	1	—	—	
Trenton, N.J.	244	303	Trenton	114	22	—	Unknown[70]	
Albuquerque, N.M.	47	316	Albuquerque	201	?	—	—	

Albany-Schenectady-Troy, N.Y.	395	705	Albany	130	8	7/27[4]	—	
	—	—	Schenectady	82	2	—	—	
	—	—	Troy	67	3	—	—	
Binghamton, N.Y.-Pa.	259	302	Binghamton	76	2	—	—	
Buffalo, N.Y.	1104	1343	Buffalo	533	13	6/27[4]	—	Buffalo SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Niagara Falls	102	7	—	6/28[39]	
	—	—	Lackawanna	30	10	—	7/30[6]	
	—	—	Lockport	26	2	—	—	
Rochester, N.Y.	838	834	Rochester	319	7	7/23[4]	5/2[6]	
Syracuse, N.Y	424	626	Syracuse	216	5	8/16[4]	—	
Utica-Rome, N.Y.	219	350	Utica	100	3	—	—	
	—	—	Rome	52	3	—	—	
								Disorders not in SMSAs: Small: Newburgh, 7/29[40] (population 1960, 30,979, 16% Negro) Large: Poughkeepsie, 7/28[4] (population 1960, 38,330, 9% Negro)
								Not included in list of civil disorders: Gang fight, Ithaca, 8/26;[71] minor disturbance, Tarrytown, 8/4[6]
New York City, N.Y.	6850	11,581	New York City	7782	14	7/23[4]	4/4,[72] 6/15,[73] 9/4[74]	New York SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	White Plains	50	12	—	—	
	—	—	Long Beach	26	3	—	—	
	—	—	New Rochelle	77	13	—	7/27[41]	Disorders in New York SMSA in communities of less than 25,000: Nyack (large, 10/5;[76] small, 7/19;[40]), Peekskill (small, 7/27[4]), Spring Valley (small, 8/11[6]), Wyandanch (small, 8/1[40])
	—	—	Mt. Vernon	76	20	7/25[75]	—	
	—	—	Rockville Centre	26	5	—	—	
	—	—	Yonkers	191	4	—	—	
	—	—	Hempstead	35	22	—	—	
	—	—	Freeport	34	7	—	—	
Asheville, N.C.	70	143	Asheville	60	19	—	—	Not included in civil disorders: Some rock-throwing in Wadesboro, 7/22[40]
Charlotte, N.C.	152	382	Charlotte	202	28	—	—	
Durham, N.C.	60	179	Durham	78	36	—	7/19[41]	
Fayetteville, N.C.	15	148	Fayetteville	47	36	—	—	
Greensboro–High Point, N.C.	195	297	Greensboro	120	26	7/17[41]	—	
	—	—	High Point	62	18	—	—	
Raleigh, N.C.	38	208	Raleigh	94	23	—	—	
Wilmington, N.C.	24	92	Wilmington	44	38	—	—	
Winston-Salem, N.C.	187	216	Winston-Salem	111	37	11/2[77]	—	

TABLE A1 (continued)

SMSA (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Fargo-Moorhead, N. Dak.-Minn.	12	117	Fargo	47	0.1	—	—	
Akron, Ohio	639	661	Akron	290	13	—	—	Not included in list of civil disorders: Minor disturbance, Dayton, 7/26;[6] Minor disturbance, Painesville, 8/17[6]
	—	—	Barberton	34	4	—	—	
Canton, Ohio	344	363	Canton	114	10	—	—	Akron SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Alliance	28	10	—	—	
	—	—	Massillon	31	9	4/15[4]	—	
Cincinnati, Ohio-Ind.-Ky.	989	1383	Cincinnati, Ohio	503	22	6/12,[4] 7/3[4] 7/27[4]	—	Cincinnati SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Covington, Ky.	60	6	—	—	
	—	—	Newport, Ky.	63	3	—	—	
Cleveland, Ohio	1908	2013	Cleveland	876	29	—	4/5,[6] 4/16[6]	Cleveland SMSA includes 7 cities over 25,000 in 1960 with less than 1% Negro population
	—	—	E. Cleveland	38	2	—	—	
	—	—	Shaker Heights	36	1	—	—	
Columbus, Ohio	511	891	Columbus	471	16	—	Unknown[7]	Small disorder at Sandusky, 8/2,[41] not in SMSA (population 32,000, 10% Negro)
Dayton, Ohio	719	825	Dayton	262	22	6/14[4]	9/20[49]	Columbus SMSA includes 1 city over 25,000 with less than 1% Negro population
Hamilton-Middletown, Ohio	195	227	Hamilton	72	6	—	7/29[4]	Dayton SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Middletown	42	11	—	6/14[41]	
Lima, Ohio	93	172	Lima	51	10	—	7/23[41]	
Lorain-Elyria, Ohio	214	264	Lorain	69	6	—	7/27[41]	
	—	—	Elyria	44	9	—	—	
Springfield, Ohio	101	142	Springfield	83	14	—	7/27[41]	

Steubenville-Weirton, Ohio-W. Va.	206	170	Steubenville, Ohio	32	11	—	—	
	—	—	Weirton, W. Va.	28	5	—	—	
Toledo, Ohio-Mich.	486	673	Toledo	318	13	7/25[68]	—	
Youngstown-Warren, Ohio	477	532	Youngstown	167	19	—	7/22[41]	
	—	—	Warren	60	11	—	—	
Lawton, Okla.	4	108	Lawton	62	9	—	—	
Oklahoma City, Okla.	153	609	Oklahoma City	324	12	—	—	Oklahoma City includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Midwest City	36	2	—	—	
Tulsa, Okla.	174	450	Tulsa	262	9	—	—	
Eugene, Ore.	101	201	Eugene	51	0.4	—	—	
Portland, Ore.-Wash.	393	922	Portland	373	4	7/30	—	
	—	—	Vancouver	32	1	—	—	
Salem, Ore.	44	147	Salem	49	0.3	—	—	
Allentown-Bethlehem-Easton, Pa.	518	512	Allentown	108	0.7	—	—	Small disorder at New Castle, Pa., 7/28;[41] not in SMSA, population 44,790 in 1960, 5% Negro
	—	—	Bethlehem	75	1	—	—	
	—	—	Easton	32	4	—	—	
Altoona, Pa.	54	143	Altoona	69	1	—	—	
Erie, Pa.	221	255	Erie	138	5	7/31[4]	7/18[4]	
Harrisburg, Pa.	165	382	Harrisburg	80	19	—	—	
Johnstown, Pa.	128	266	Johnstown	54	5	—	—	
Lancaster, Pa.	255	286	Lancaster	61	4	—	—	
Philadelphia, Pa.-N.J.	3311	4770	Philadelphia	2003	26	6/13[41]	7/26[78]	
	—	—	Pottstown, Pa.	26	6	—	—	
	—	—	Norristown, Pa	39	12	—	—	
	—	—	Chester, Pa.	64	33	—	—	
	—	—	Camden, N.J.	117	23	—	7/29[6]	

TABLE A1 (continued)

SMSA (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Pittsburgh, Pa.	1926	2352	Pittsburgh	604	17	—	8/6[79]	
	—	—	McKeesport	45	8	—	—	
	—	—	West Mifflin	27	5	—	—	
	—	—	Wilkinsburg	30	2	—	—	
	—	—	Aliquippa	26	21	—	—	
Reading, Pa.	255	288	Reading	98	4	—	—	
Scranton, Pa.	115	226	Scranton	111	0.6	—	—	
Wilkes-Barre–Hazleton, Pa.	165	345	Wilkes-Barre	64	1	—	—	
	—	—	Hazleton	32	0.1	—	—	
York, Pa.	224	304	York	54	9	—	—	
Providence-Pawtucket-Warwick, R.I.-Mass.	596	872	Providence	207	5	7/31[41]	—	Providence-Pawtucket-Warwick SMSA includes 3 additional cities over 25,000 with less than 1% Negro population in 1960
	—	—	Pawtucket	81	0.6	—	—	
	—	—	Warwick	68	0.4	—	—	
	—	—	E. Providence	42	2	—	—	
Charleston, S.C.	48	303	Charleston	66	51	—	—	
Columbia, S.C.	57	309	Columbia	97	30	—	—	Minor disturbance at Columbia, 5/12,[6] not included as civil disorder
Greenville, S.C.	177	279	Greenville	66	30	—	—	
Sioux Falls, S. Dak.	37	98	Sioux Falls	65	0.3	—	—	
Chattanooga, Tenn.-Ga.	194	296	Chattanooga	130	33	—	—	
Knoxville, Tenn.	176	400	Knoxville	112	18	—	7/28[6]	
Memphis, Tenn.-Ark.	241	773	Memphis	498	37	—	7/27[41]	
Nashville, Tenn.	226	534	Nashville	171	38	4/8[68]	—	

Abilene, Tex.	14	128	Abilene	90	5	—	—	
Amarillo, Tex.	22	172	Amarillo	138	6	—	—	
Austin, Tex.	26	265	Austin	187	13	—	—	
Beaumont–Port Arthur, Tex.	234	320	Beaumont	119	29	—	—	
	—	—	Port Arthur	67	31	—	—	
	—	—	Orange	26	23	—	—	
Brownsville-Harlingen–San Benito, Tex.	15	150	Brownsville	48	0.3	—	—	
	—	—	Harlingen	41	2	—	—	
Corpus Christi, Tex.	47	289	Corpus Christi	168	6	—	—	
Dallas, Tex.	617	1418	Dallas	680	19	—	—	Dallas SMSA includes 2 cities over 25,000 with less than 1% Negro population in 1960
	—	—	Denton	27	7	—	—	
	—	—	Garland	38	4	—	—	
El Paso, Tex.	62	356	El Paso	277	2	—	—	
Fort Worth, Tex.	322	649	Fort Worth	356	16	—	—	Fort Worth SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
Galveston–Texas City, Tex.	72	165	Galveston	67	27	—	—	
	—	—	Texas City	32	20	—	—	
Houston, Tex.	720	1802	Houston	938	23	5/16,[4] 8/15[4]	7/23[41]	Houston SMSA includes 1 city over 25,000 with less than 1% Negro population in 1960
	—	—	Baytown	28	7	—	—	
Laredo, Tex.	3	80	Laredo	61	0.3	—	—	
Lubbock, Tex.	25	190	Lubbock	129	8	—	—	
Midland, Tex.	4	69	Midland	63	10	—	—	
Odessa, Tex.	14	93	Odessa	80	6	—	—	
San Angelo, Tex.	8	75	San Angelo	59	5	—	—	
San Antonio, Tex.	102	848	San Antonio	588	7	—	—	Minor disturbances not included as civil disorders: San Antonio, 8/19[6] Texarkana, Ark., date unknown[7]
Texarkana, Tex.-Ark.	26	100	Texarkana, Ark.	22	Unknown	—	—	
	—	—	Texarkana, Tex.	30	26	—	—	
Tyler, Tex.	34	98	Tyler	51	22	—	—	
Waco, Tex.	48	156	Waco	98	18	—	—	
Wichita Falls, Tex.	15	128	Wichita Falls	102	8	—	—	
Ogden, Utah	28	127	Ogden	70	2	—	—	
Provo-Orem, Utah	49	122	Provo	36	0.1	—	—	
Salt Lake City, Utah	187	547	Salt Lake City	189	0.8	—	—	

TABLE A 1 (continued)

SMSA[a] (1)	SMSA payroll (1963), millions of dollars (2)	SMSA est. pop. (Jan 68), thous (3)	Cities in SMSA (4)	Population (1960), thous (5)	Negro pop. (1960), % (6)	Large disorder beginning date (7)	Small disorder beginning date (8)	Remarks (9)
Lynchburg, Va.	87	126	Lynchburg	55	20	—	—	Alexandria, Va., included in Wash., D.C., SMSA
Newport News–Hampton, Va.	157	287	Newport News	114	34	—	—	
	—	—	Hampton	89	21	—	—	
Norfolk-Portsmouth, Va.	82	676	Norfolk	305	26	—	—	
	—	—	Portsmouth	115	34	—	—	
	—	—	Chesapeake	74	26	—	—	
	—	—	Virginia Beach	85	15	—	—	
Richmond, Va.	257	514	Richmond	220	42	—	—	
Roanoke, Va.	71	184	Roanoke	97	17	—	6/23[41]	Minor disturbance at Roanoke, 7/27,[6] not included as civil disorder
Seattle-Everett, Wash.	855	1235	Seattle	557	5	—	7/27[41]	
	—	—	Everett	40	0.5	—	—	
Spokane, Wash.	76	270	Spokane	182	1	—	—	
Tacoma, Wash.	99	353	Tacoma	148	4	—	—	
Charleston, W. Va.	160	240	Charleston	86	10	—	—	For Weirton, W. Va., see Steubenville-Weirton, Ohio, SMSA
Huntington-Ashland, W. Va.-Ky.-Ohio	146	260	Huntington, W. Va.	84	6	—	—	
	—	—	Ashland, Ky.	31	3	—	—	
Wheeling, W. Va.-Ohio	93	178	Wheeling	53	3	—	—	
Green Bay, Wis.	82	141	Green Bay	63	0.1	—	—	For Superior, Wis., see Duluth-Superior, Minn., SMSA
Kenosha, Wis.	150	118	Kenosha	68	1	—	—	
Madison, Wis.	83	275	Madison	127	1	—	—	
Milwaukee, Wis.	1272	1386	Milwaukee	741	8	7/30[4]	5/5[80]	Milwaukee SMSA includes 3 cities over 25,000 with less than 1% Negro population in 1960
Racine, Wis.	147	164	Racine	89	5	—	—	

[a]No SMSAs in following states as of 31 Dec 65: Alaska, Vermont, and Wyoming.

Appendix B

REGRESSION ANALYSIS OF 1967 RIOT DATA FOR US SMSAs

The SMSAs selected for study consisted of the 84 SMSAs that experienced at least one disorder in 1967, together with the 84 SMSAs whose core city had at least 5 percent Negro population in 1960 but no disorder. The South (68 SMSAs) and the remainder of the country (100 SMSAs) were examined separately in the analysis.

Basically, it was attempted to relate frequency of large riots and total riots to SMSA annual payroll in manufacturing and population. The sample correlation between payroll and population was found to be 0.86 for the South and 0.97 for the non-South. Hence, as it would appear to be redundant to use both payroll and population simultaneously as possible measures of riot frequency, it was decided to investigate the merits of each, then choose one of the two and use it alone.

TABLE B1

Observed Riot Frequency in 1967 Compared with SMSA Annual Payroll

Payroll interval midpoint, hundreds of millions of dollars	South			Non-South		
	SMSAs	Average no. of large riots	Average no. of total riots	SMSAs	Average no. of large riots	Average no. of total riots
0.25	28	0.000	0.040	9	0.00	0.25
0.75	16	0.125	0.375	7	0.00	0.43
1.25	5	0.140	0.140	10	0.10	0.50
1.75	9	0.330	0.670	12	0.17	0.58
2.25	4	0.330	0.670	12	0.50	1.08
2.75	2	0.000	0.000	7	0.86	1.14
4.00	1	0.500	0.500	13	0.54	1.00
7.50	3	1.000	2.000	14	0.62	1.39
15.00	0	—	—	11	0.91	2.82
30.00	0	—	—	2	1.50	3.00
60.00	0	—	—	3	2.67	9.67

The SMSAs were first grouped into classes according to annual payroll in $100 million units. Table B1 lists the midpoints of the class intervals, together with the average occurrence of riots in each class.

A similar breakdown was made into classes according to population. The results are not included here since they are not germane to the final analysis as indicated in the following paragraphs.

An examination of these results suggested for both South and non-South states a frequency-indicator relation of the form $y = a + bx^c$, where x corresponded to the indicator, y corresponded to riot frequency, and the exponent c had a value between about 0.4 and 1.2 (a value of 1 corresponding to a straight line).

A computer program was used to determine values for a, b, and c that would maximize the fit of the above equation to the observed data, in that the largest possible amount of variability in riot frequency would be accounted for. This was done for both the South and non-South states, for large riots and total riots, and for annual payroll and population. For the South the maximum fit was much tighter for both large and total riots when payroll was used as the indicator than when population was used; accordingly, it was decided to use payroll as the riot-susceptibility indicator for the South. For the non-South there appeared to be little difference between maximum fits for payroll and population; thus, for consistency, it was decided to use annual payroll for the non-South as well.

Having chosen annual payroll as the preferred sole indicator of riot frequency, it was decided after visual inspection of the data and from general reasoning that the number of total riots should be zero for a payroll equal to zero and that the number of large riots should be zero for SMSAs with annual payroll less than about $12 million in the South and about $100 million in the non-South states. These constraints were introduced and a least-squares (regression) fit of an equation of the above form was obtained for the South and non-South large and total riots.

For the South, the fitted values of the exponent c were so close to 1, and for the non-South so close to $\frac{1}{2}$, that these were rounded off to 1 and $\frac{1}{2}$ respectively. The equations thus obtained for representing the average riot occurrence in SMSAs in 1967 according to annual payroll are as follows:

$$Y_{LS} = 0.162\,(X - 0.12)$$
$$Y_{TS} = 0.293\,X$$
$$Y_{LN} = 0.485\,(X^{1/2} - 1)$$
$$Y_{TN} = 0.55\,X^{1/2}$$

where Y_{LS} = number of large riots, South
Y_{TS} = number of total riots, South
Y_{LN} = number of large riots, non-South
Y_{TN} = number of total riots, non-South
X = SMSA annual payroll in hundreds of millions of dollars

The graphs of these equations are shown in Figs. 3 and 4. Some sample expected numbers of riots based on these fitted equations are given in Table B2.

The number of riots, either total riots or large ones only, in a given area during a given time, is close to being a Poisson-distributed random variable. In that event, if the expected number of riots during a year were r, the probability of no riots in 1 year would be given by e^{-r}. The probability of exactly k riots in 1 year would be given by:

$$P(k) = \frac{r^k}{k!}\,e^{-r}$$

In the analysis in the body of the paper, the above equations, which represent 1967 experience, are used to obtain expected values of riot frequency for an SMSA based on its annual payroll alone.

TABLE B2

Expected Riots in SMSAs According to Annual Payroll

(As computed from "best fit" curves)

Payroll, hundreds of millions of dollars	South		Non-South	
	Large riots	Total riots	Large riots	Total riots
0	0	0	0	0
0.5	0.06	0.15	0.0	0.39
1.0	0.14	0.29	0.0	0.55
2.0	0.30	0.59	0.19	0.78
5.0	0.79	1.46	0.57	1.23
10.0	1.60	2.93	0.99	1.74

As a first approximation, on the assumption that riot susceptibility in 1968 will remain at least as high as in 1967, the fitted curves may be used to obtain an "expected" value for the number of riots for a given SMSA, and thus determine the corresponding probability that no riot will occur in that SMSA during 1968.

Some sample values of e^{-r} are shown in the accompanying tabulation.

Item	Value									
r	0.05	0.1	0.2	0.5	1	1.2	1.5	2	3	5
e^{-r}	0.95	0.90	0.82	0.61	0.37	0.30	0.22	0.13	0.05	0.007

As an illustrative example, computations for the Memphis SMSA would yield the following values:

Annual payroll (from App A), $\$2.41 \times 10^8$

Expected total riots (from Fig. 3), 0.7

Probability of no riot in 1968, about 50 percent

REFERENCES

1. U. S. News and World Report, 14 Aug 67.
2. Congressional Record, 29 Feb 68, pp E1329–31.
3. ——, Senate, 19 Feb 68, p S1422.
4. US Congress, Senate Committee on Government Operations, Permanent Subcommittee on Investigations (90th Congress, 1st Session), "Hearings: Riots, Civil and Criminal Disorders," US Govt Printing Office, Washington, D. C., 1967, Part 1.
5. ——, ——, ——, "Hearings: Riots, Civil and Criminal Disorders," US Govt Printing Office, Washington, D. C., 1967, Part 2.
6. ——, Senate Committee on the Judiciary (90th Congress, 1st Session), "Hearings: H.R. 421, Anti-Riot Bill—1967," US Govt Printing Office, Washington, D. C., 1967, Part 2.
7. Report of the National Advisory Commission on Civil Disorders, Bantam Books, New York, Mar 68.
8. New York Times, 21 Jan 68.
9. Time, 22 Dec 67.
10–13. Washington Post
   10. 12 Mar 68.
   11. 26 Nov 67.
   12. 22 Feb 68.
   13. 16 Feb 68.
14. New York Times, 10 Feb 68.
15. Dept of Commerce, Bureau of the Census, County and City Data Book, 1967, 1967; 1963 Census of Manufacturers, Vol 1, US Govt Printing Office, Washington, D.C., 1966, p vi.
16. Dept of Health, Education and Welfare, "Negro-White Differences in Geographic Mobility," Social Security Bulletin, 30(5): (May 67).
17. Louis H. Masotti, "Violent Protest in Urban Society: A Conceptual Framework," paper presented at American Association for the Advancement of Science annual meeting, Dec 67.
18. Allen D. Grimshaw, "Civil Disturbance, Racial Revolt, Class Assault: Three Views of Urban Violence," paper presented at American Association for the Advancement of Science annual meeting, Dec 67.
19. Congressional Record, Senate, 6 Feb 68, pp 5990–92.
20. U. S. News and World Report, 25 Sep 67.
21. US Congress, Senate Committee on Government Operations, Permanent Subcommittee on Investigations (90th Congress, 2d Session), "Hearings: Riots, Civil and Criminal Disorders," US Govt Printing Office, Washington, D. C., Mar 68, Part 5.
22. New York Times, 21 Aug 67.
23. The Lemberg Center for the Study of Violence, Brandeis University, "A Survey of Racial Attitudes in Six Northern Cities: Preliminary Findings," 1967.
24. U. S. News and World Report, 30 Oct 67.
25. T. M. Tomlinson, "Negro Reaction to the Los Angeles Riot and the Development of a Riot Ideology," paper presented at American Association for the Advancement of Science annual meeting, Dec 67.

26. Lowell E. Gallaway, "Interindustry Labor Mobility among Men, 1957–60," Social Security Bulletin, 29(9): (Sep 66), US Dept of Health, Education and Welfare.
27. B. J. Frieden and R. Morris (eds), Urban Planning and Social Policy, Basic Books Inc., New York, 1968, p 262.
28. Washington Star, 21 Mar 68.
29. T. Gurr, "Explanatory Models for Civil Strife Using Aggregate Data," paper presented at 1967 annual meeting of the American Political Science Association.
30. Washington Star, 18 Sep 68.
31. U. S. News and World Report, 7 Oct 68.
32. ——, 10 Mar 69.
33. Dept of Army, Office, Chief of Staff, Directorate for Civil Disturbance Planning and Operations, Ltr to the Office of the Chief of Research and Development, Dept of Army, 13 Feb 69.
34. Commercial Atlas and Marketing Guide, Rand McNally & Co., Chicago, 1968, 99th ed.
35–40. New York Times
35. 23 Feb 67.
36. 2 Aug 67.
37. 8 Mar 67.
38. 14 Mar 67.
39. 29 Jun 67.
40. 20 Oct 67.
41. U. S. News and World Report, 14 Aug 67.
42–66. New York Times
42. 6 Aug 67.
43. 20 Sep 67.
44. 19 Sep 67.
45. 23 Oct 67.
46. 1 Jul 67.
47. 23 Apr 67.
48. 15 Sep 67.
49. 21 Sep 67.
50. 23 Aug 67.
51. 5 Aug 67.
52. 23 Sep 67.
53. 9 Aug 67.
54. 24 Jul 67.
55. 1 May 67.
56. 16 Aug 67.
57. 19 Aug 67.
58. 20 Jul 67.
59. 22 Aug 67.
60. 28 Feb 67.
61. 16 Nov 67.
62. 18 Jun 67.
63. 12 Sep 67.
64. 18 Jul 67.
65. 16 Jul 67.
66. 17 Jul 67
67. US Congress, Senate Committee on the Judiciary (90th Congress, 1st Session), "Hearings: H.R. 421, Anti-Riot Bill," US Govt Printing Office, Washington, D. C., 1967, Part 1.
68. New York Times, 13 Aug 67.
69. ——, 30 Jul 67.
70. Trenton, N. J., City Police Dept, field reports for International Association of Chiefs of Police, 1967.

71–80. New York Times

71. 27 Aug 67.
72. 4 Apr 67.
73. 15 Jun 67.
74. 5 Sep 67.
75. 26 Jul 67.
76. 5 Oct 67.
77. 3 Nov 67.
78. 27 Jul 67.
79. 7 Aug 67.
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13. ABSTRACT

This study is part of a search for methods of determining where and when riots are likely to occur in US cities. The objectives may be broken down into three phases: to seek methods for determining the susceptibility to riot of a community, to examine the problems involved in developing and testing indicators that may be used to provide advance warning of civil-disorder outbreak, and to explore the effectiveness of methods that might be adopted to avert an impending riot. This paper reports on the first phase of this study.

The data base consists of reported information from nearly 200 incidents in 1967. An analysis was made, in part manually and in part through computer-aided regression analysis, to determine whether any characteristics could be discovered that might be related to riot susceptibility.

Since civil disorders appear to be primarily a big-city problem, the analysis was focused on metropolitan areas. A high degree of correlation was found between total annual payroll in manufacturing and the frequency of riots in a metropolitan area. Subsequently, a model was developed for determining the probability of riot occurrence in a given metropolitan area in terms of its annual payroll in manufacturing.

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