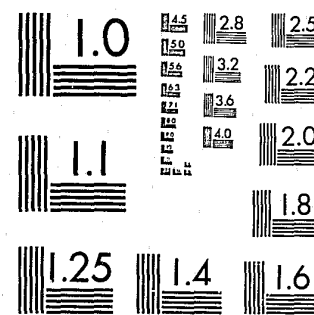


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**VARIATIONS IN IMPRISONMENT RATES
IN MISSISSIPPI**

A report prepared for:
Mississippi State Senate
Corrections Subcommittee on
Prison Population
Senator Henry J. Kirksey, Chairperson

U.S. Department of Justice 82306
National Institute of Justice

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82306

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EXECUTIVE SUMMARY

Questions to be addressed: To what degree do imprisonment rates vary within Mississippi by circuit court district and by county? To what extent, if any, may these be statistically related to other factors such as crime rates, sentence lengths, probation rates, unemployment rates, per capita income, and racial composition? Are there other related factors that cannot be statistically analyzed?

Summary: Imprisonment rates vary considerably by circuit court district within Mississippi from a low of 91 (per 100,000 population) to a high of 253. No statistically significant relationships (at the .05 level or below, see the Glossary) were found between imprisonment rates and average sentence lengths (considered four separate ways), probation rates, unemployment rates, per capita income, and racial composition. In other words, none of these variables could statistically account for any of the variation in imprisonment rates in the 20 circuit court districts with an acceptable degree of statistical confidence. Crime rates could not be computed for the circuit court districts because, even using the best data available, 25 counties' data are missing and to try to extrapolate these would too weaken already very weak crime statistics.

Imprisonment rates by county vary from a low of 34 to a high of 298. A relatively modest (positive) relationship was found between crime rates and imprisonment rates in the 57 counties for which crime rates were available. This finding is too weak to support definitive interpretation because the statistic itself is relatively low and because the crime rate information is, by the admission of those who gathered it, less than satisfactory. Combining this with a very small positive relationship between percentage black and imprisonment rates (after allowing crime rates to account for as much variation as it could) increases the size of the relationship statistic only slightly, and it is still tainted by the unreliability of the crime rate data.

Unemployment rates, per capita incomes, and violent crime rates were found to have no statistical relationship to imprisonment rates. A positive relationship was found between probation rates and imprisonment rates. One might expect that there would be a negative relationship, which would indicate that greater use of probation was reducing the reliance on imprisonment as a punishment. The positive relationship merely means that those counties that use probation at a higher rate also tend, to a moderate extent, to use imprisonment at a higher rate.

Taken as a whole, the data presented in this report do not offer a causal explanation of the variation in

imprisonment rates within Mississippi. What they do accomplish, by either eliminating or indicating the weakness of some commonly assumed explanations, is to show that the explanation may lie in factors not easily subject to statistical analysis. These are likely to include the discretion exercised at every step in the practice of criminal justice: by law enforcement agents, prosecutors, judges, and corrections officials. While this discretion cannot, and perhaps should not, be totally eliminated, it can be structured to promote the rational, consistent and cost-efficient administration of justice. Of particular importance to this subcommittee would be to explore ways to legislate policies that allow the state to regain control of its prison population. Failing to limit the discretion and failing to provide alternative (and less expensive) punishments puts the state at the mercy of the practices of officials who may not be in a position to assess the impact of what they do on the state as a whole. Such statesmanship is the unique opportunity of the legislature.

GLOSSARY WITH DATA SOURCES

Crime Rate - Crimes reported to law enforcement agencies per 100,000 population. The crimes included are those standardized by the F.B.I.'s Uniform Crime Reports. These are murder, rape, robbery, assault, burglary, larceny, and motor vehicle theft. The crime rates used in this report are an improvement over F.B.I. statistics that was published in 1980 by the Mississippi Statistical Analysis Center of the Criminal Justice Planning Commission.¹ Despite the fact that they are the best available, crime rate statistics should always be regarded with skepticism² and used with disclaimers about their accuracy. As the authors of Mississippi Statistical Analysis Center study put it, "The limitations of unreported crimes, coupled with the lack of sophisticated record keeping by individual law enforcement agencies, cause the data used in the crime analysis to be less than satisfactory,"³ (emphasis added).

The crime data are for 1978 and the population figures are 1975 estimates. These 1975 estimates were used for the computation of imprisonment rates for counties (see below) so that the two figures

would be comparable when analyzed together. The crime data is incomplete for 25 counties, and these were excluded from those statistical analyses which used crime rates.

Imprisonment Rate - Persons imprisoned (under the Department of Corrections supervision) per 100,000 population. It should be noted that this is different from the often used term "incarceration rate" which should include (but usually doesn't) those people who are incarcerated in local and country jails under local supervision. Imprisonment rates also do not include those on probation or parole.

These rates are computed from Department of Corrections figures on inmates by county of conviction (as of July, 1980)⁴ and from 1978 population estimates⁵ for circuit court districts and state totals and 1975 population estimates for the counties⁶ (to be comparable to the crime rate data for counties).

Per Capita Income - Income per person in the area considered. This information is from 1978 data published in 1980 by the Bureau of Economic Analysis.⁷

Probation Rate - Persons on probation per 100,000 population. These rates are computed in the same manner as imprisonment rates (see above) based on Department

of Corrections figures on probation population by county of conviction (as of July, 1980).⁸

R^2 - The proportion of the total variation in one variable that is statistically accounted for by another variable or combination of variables. This can range from 0 to 99.99. . . . Variables may be related in a positive direction (the higher the values of one, the higher the values of the other) or in an inverse relationship (the higher the values of one, the lower the values of the other). R^2 is always a positive figure so the relationship must always be additionally described as positive or negative. R^2 values are only reported when an appropriate level of significance is attained (see below).

Additionally, it must be kept in mind that R^2 values do not represent causal explanations, but merely statistical relationships. A very high R^2 value might conceivably be attained between imprisonment rates and windmills per capita, but there would be no explanatory or theoretical value in such a finding. There must always be theoretical linkages to make statistical relationships meaningful.

Racial Composition - As used in this study, this variable represents the proportion of the population in

the circuit court district or county that is black. The data is from the 1970 U.S. Census.⁹ More recent estimates are available, but, on the advice of demographic experts,¹⁰ these were rejected as unreliable. An update using the 1980 Census data will be possible by the end of 1980.

Significance Level - The probability that a reported statistical relationship could exist by chance. The lower this figure is, the greater the degree of statistical confidence that can be placed in the statistic with which it is associated. For example, if an R^2 statistic is significant at the .01 level, that means that such a finding could happen with a 1% probability that it is merely based on chance. Selection of an acceptable level of significance is arbitrary, but findings are generally reported in social science literature only if they achieve a .05 level of significance or less.

Unemployment Rates - The percentage of the civilian work force that is unemployed. The data used in this report are for 1979 as published in 1980 by the Research and Statistics Department of the Mississippi Employment Security Commission.¹¹

Violent Crime Rates - Violent crimes reported to law enforcement agencies per 100,000 population. These crimes include murder, rape, robbery, and assault. The source is the Mississippi Statistical Analysis Center.¹² All of the reservations associated with the general crime rates (described above) apply to these rates also.

Imprisonment Rates by Circuit Court Districts

Imprisonment rates vary considerably by circuit court districts within Mississippi. They range from a low of 91 per 100,000 population to a high of 253.¹³ This variation presented graphically in Map I. Understanding this variation holds the promise of understanding the various lever points at which the prison population might be subject to control by proactive planning by the legislature. A number of variables that are subject to statistical analysis were examined in an attempt to promote such understanding.

First, current average sentence lengths from the circuit court districts were considered four separate ways. Overall average sentence lengths in the 20 districts vary from 7.89 years to 12.25 years. Average sentences for non-violent offenses vary from 4.33 years to 7.51 years. Average sentences for crimes that involved violence or the threat of it range from 11.70 years to 18.23 years. And average sentences for burglary, larceny, and robbery considered together (which account for well over ½ of all sentences) range from 7.14 years to 12.98 years.¹⁴

While it makes intuitive sense that there might be a statistical relationship between these average sentence lengths and imprisonment rates in the circuit court

IMPRISONMENT RATES BY JUDICIAL DISTRICT

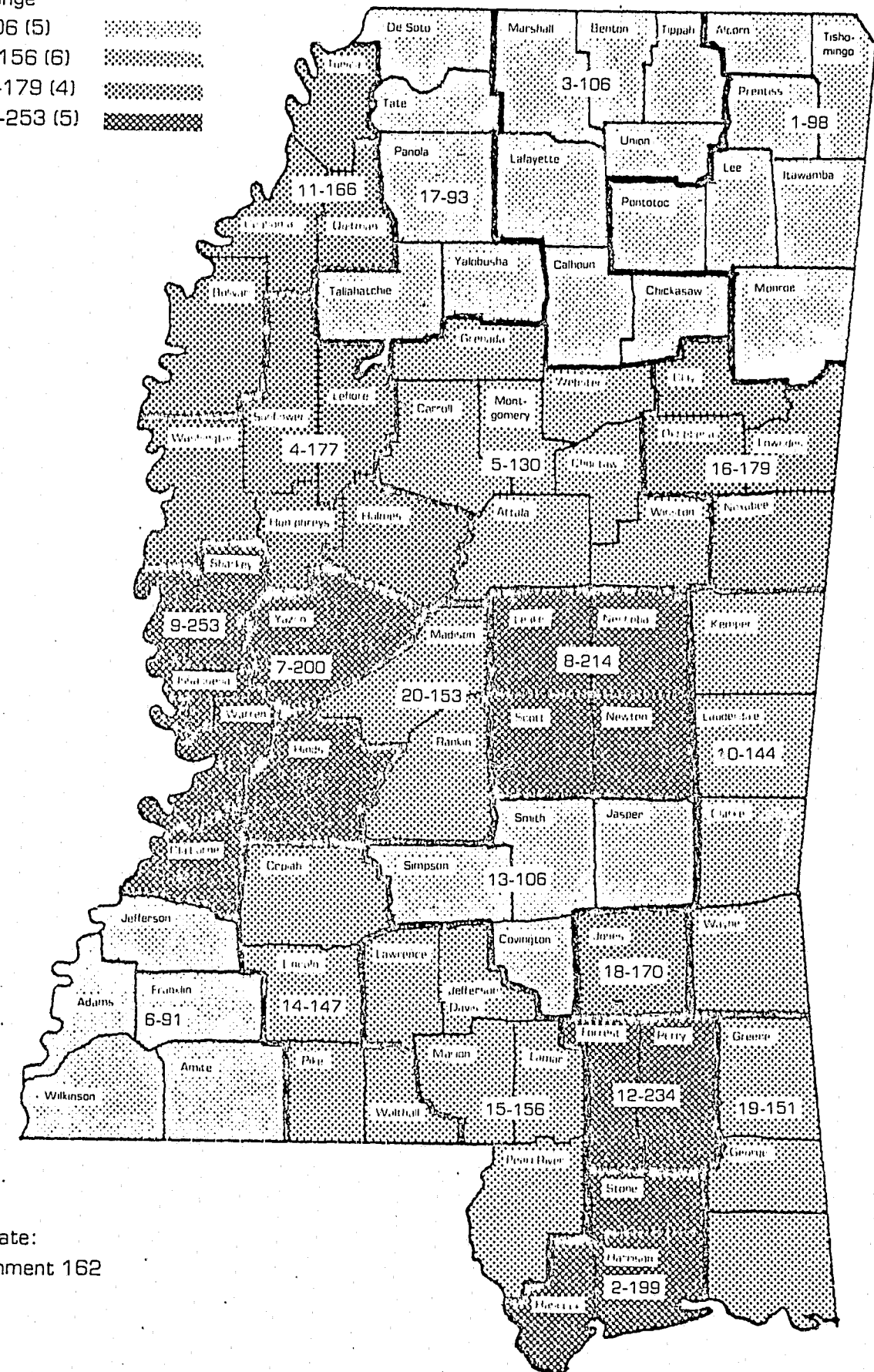
Rate Range

1. 91-106 (5)

II. 130-156 (6)

III. 166-179 (4)

IV. 199-253 (5)



State Rate:

Imprisonment 162

districts, no such statistically significant relationship was found for any of the four ways that sentence lengths were considered. Reliance upon imprisonment as a sentence as opposed to alternatives may be more important in and of itself than the years of the sentences. Still, the variability between the districts indicates the need for further, more detailed study of sentencing patterns to understand these inconsistent practices.

Current probation rates for the court districts vary from 58 per 100,000 to 298.¹⁵ It was anticipated that perhaps there would be a negative relationship--that is, that the higher the probation rate, the lower the imprisonment rate. If this were true, it would indicate that those districts that made greater use of probation would be invoking prison sentences less often. No statistically significant relationship (either positive or negative) was found.

Unemployment rates for the 20 court districts range from 3.97% to 8.62% for 1979.¹⁶ No statistically significant relationship was found between unemployment rates and imprisonment rates. This finding is consistent with national data reported by Jack H. Nagel.¹⁷

Per capita income for the court districts range from \$4713 to \$6013 for 1978.¹⁸ No statistically significant relationship was found between per capita income and imprisonment rates. This too is consistent with national data reported by Jack H. Nagel.¹⁹

Finally, racial composition was considered. On national data, Jack H. Nagel found an R^2 of .4225 (significant at .001) when relating the percentage black of a state's population to its imprisonment rate. (For a discussion of R^2 and significance levels, see the Glossary.) This was the only significant relationship he found among the variables he considered.²⁰ The finding indicates that the greater the proportion of a state's population that is black, the higher its imprisonment rate is likely to be and that this relationship statistically accounts for 42.25% of the variation between the states in imprisonment rates.

However, within Mississippi's court districts, this relationship fails to hold. Based on 1970 census data, the percentages of black population range from 16.1% to 59.4%.²¹ No statistically significant relationship was found between percentage black and imprisonment rates in the court districts.

This finding should not be taken as proof that race is not an issue in understanding Mississippi's prison population. Approximately 70% of the inmate population is black, while less than ½ of those on probation are black.²² Further, there are preliminary indications that, in some circuit court districts, blacks receive significantly longer prison sentences for the same offense than whites do.²³ These are indications

that some degree of bias may be operating in these practices and that the issue deserves detailed study and close examination.

In summary, the attempt to understand the variability of imprisonment rates by court districts has served to eliminate some conceivable variables, but not to establish any. Crime rates, often popularly thought to be related to imprisonment rates (a notion refuted by national studies)²⁴, could not be considered for circuit court districts because the Mississippi data is incomplete for 25 counties and these could not be defensibly extrapolated. For this reason and for the sake of thoroughness, counties are considered as the unit of analysis in the next section.

Imprisonment Rates by Counties

Imprisonment rates by county vary from a low of 34 per 100,000 population to a high of 298.²⁵ This variation is presented graphically in Map II. These rates were analyzed in the same manner as those for court districts. Average sentence lengths were omitted because the low number of cases involved in many counties would render such averages meaningless. Crime rates and violent crime rates were added to the analysis for the 57 counties for which such rates were available.

Unemployment rates in the 82 counties ranged from 2.7% to 12.7% in 1979.²⁶ There was no statistically significant relationship between unemployment rates and imprisonment rates.

IMPRISONMENT RATES BY COUNTIES

- I. 34-83 
- II. 93-137 
- III. 140-174 
- IV. 180-298 

Per capita income in the 82 counties ranged from a low of \$3710 to a high of \$7879 in 1978.²⁷ No statistically significant relationship was found between per capita income and imprisonment rates. Again, these last two findings are consistent with national studies.²⁸

Analyzing the relationship between crime rates and imprisonment rates on a national basis, William Nagel²⁹ and Jack Nagel³⁰ found (in two separate studies) no significant relationship. David Biles found a weak relationship ($R^2 = .105$, significant at .1, a level so weak that it is usually not reported at all).³¹ Still, the association between crime rates and imprisonment rates in the minds of the general population makes it an important issue to examine locally.

Crime rates in the 57 counties for which data is available ranged from a low of 37.6 crimes reported to law enforcement agencies per 100,000 population to a high of 7130.2. Keeping in mind that these crime rates have been pronounced "less than satisfactory" by those who gathered them,³² a relatively modest (positive) statistical relationship was found between crime rates and imprisonment rates for the 57 counties. $R^2 = .156$, significant at the .005 level. This means that crime rates statistically account for 15.6% of the variation in imprisonment rates.

Two points should be made in interpreting this finding. First, the poor quality of the crime rate

data cannot be over-emphasized. Edwin Sutherland and Donald Cressey, in their classic text Criminology, devote a whole chapter to the general unreliability of crime statistics.³³ These particular crime statistics are acknowledged to be unreliable in the document from which they are taken.³⁴ Any statistical finding based upon them should be viewed very cautiously indeed.

The second point to be emphasized about this finding is that even if one granted some credibility to the crime rate data, this R^2 of .156 represents a relatively weak statistical relationship. R^2 values by themselves can never be used to indicate that one variable causes another. There has to be a theoretical connection that proposes such a causal explanation. R^2 values can then be used to shed light on such hypotheses.

One might hypothesize (as some have),³⁵ that there should be a negative (inverse) relationship between crime rates and imprisonment rates because the greater use of imprisonment would deter crime. This finding of a positive relationship for the 57 Mississippi counties fails to support that notion, as have several national studies.³⁶ Alternatively, ignoring the issue of deterrence, one might hypothesize that imprisonment rates merely reflect a reactive, essentially neutral element of the criminal justice process and that, therefore, high imprisonment rates will follow crime rates very closely. According

to this hypothesis, high crime rates should produce high imprisonment rates merely because that is how the system is set up to work. An R^2 of .156 is too weak an association to establish such a hypothesis. One might just as justifiably argue that, to the extent that they are associated at all, higher imprisonment rates are causing higher crime rates by sending criminals to school for crime--the prison.

Turning to racial composition as a variable, the analysis fails to produce a significant relationship between the percentage of the population that is black and the imprisonment rate--when the percentage black is considered alone. However, when considered in combination with the crime rate data (that is, after allowing the crime rate variable to statistically account for as much of the imprisonment rate variability as it would) the percentage black increases the R^2 by .027. The total R^2 for crime rate and percentage black as variables associated with imprisonment rates is .183, significant at .005. This is a very small increase in statistical power, and, because it is in combination with the crime rate data, it suffers from all of the limitations for the use of such data that were described above. Very little understanding of the variability of imprisonment rates by counties is offered by these two findings. The data for the 57 counties on which they are based is presented in Table I.

TABLE I
Imprisonment Rates, Crime Rates, and Percentage Black
for 57 Mississippi Counties

Dependent Variable: Imprisonment Rate

Independent Variable(s): Crime Rate - $R^2 = .156$
significant at .005

Crime Rate and Percentage
Black $R^2 = .183$ significant
at .005

County	Imprisonment Rate	Crime Rate	Population Percentage Black
1. Alcorn	121	2054.3	11.76
2. Amite	53	610.3	50.44
3. Benton	155	388.0	41.96
4. Bolivar	172	1910.3	61.40
5. Calhoun	97	226.6	26.08
6. Carroll	174	425.0	50.77
7. Choctaw	111	366.5	28.03
8. Clarke	63	296.6	35.86
9. Clay	252	1987.7	49.39
10. Coahoma	114	3263.2	64.31
11. Copiah	169	1128.9	50.25
12. Covington	79	906.1	32.60
13. Franklin	49	339.8	38.81
14. George	75	298.5	11.62
15. Hancock	143	2888.5	14.19
16. Harrison	207	5950.7	16.90
17. Hinds	214	5682.1	39.10

Table I - Continued

County	Imprisonment Rate	Crime Rate	Population Percentage Black
18. Holmes	149	1201.3	68.09
19. Humphreys	111	1371.6	64.79
20. Issaquena	298	1150.9	62.04
21. Jackson	173	4404.5	16.21
22. Jasper	62	620.5	46.37
23. Jeff Davis	188	37.6	50.22
24. Jones	172	3236.9	24.50
25. Kemper	134	498.1	54.84
26. Lamar	128	713.8	13.24
27. Lauderdale	153	3031.1	30.75
28. Lawrence	74	710.5	32.15
29. Lee	119	2240.4	20.69
30. Leflore	215	7130.2	57.88
31. Lincoln	150	885.7	30.67
32. Lowndes	199	3674.0	32.67
33. Marion	228	1195.2	31.05
34. Montgomery	82	530.8	44.80
35. Newton	126	963.7	27.32
36. Noxubee	46	115.4	65.77
37. Oktibbeha	161	1513.4	34.79
38. Perry	80	438.9	26.32
39. Pike	137	926.2	43.54
40. Prentiss	43	2497.4	11.69
41. Scott	256	861.7	33.01

Table I - Continued

County	Imprisonment Rate	Crime Rate	Population Percentage Black
42. Simpson	193	568.7	31.37
43. Smith	53	1477.5	21.30
44. Stone	153	1447.4	23.01
45. Sunflower	143	962.9	62.79
46. Tate	63	578.1	47.24
47. Tunica	173	290.7	72.67
48. Union	77	311.6	15.42
49. Walthall	140	863.3	40.70
50. Warren	292	2412.1	40.81
51. Washington	193	6199.6	54.49
52. Wayne	174	1345.1	32.85
53. Webster	185	749.8	22.42
54. Wilkinson	118	235.6	67.56
55. Winston	107	436.8	39.11
56. Yalobusha	75	1116.7	40.40
57. Yazoo	93	2858.0	53.40

Data Sources: Department of Corrections
Mississippi Statistical Analysis Center
U.S. Census Bureau

David Biles found a positive relationship nationally between violent crime rates and imprisonment rates ($R^2 = .324$, significant at the .001 level).³⁷ The violent crime rates for the 57 counties range from a low of 22.6

crimes reported to law enforcement agencies per 100,000 population to a high of 1862.0.³⁸ Unlike Biles's finding, in this case, there was no statistically significant relationship between the violent crime rate and the imprisonment rate.

The strongest statistical relationship of this analysis was found between counties' probation rates (which range from 28 to 341 per 100,000)³⁹ and their imprisonment rates. The $R^2 = .299$, significant at the .0001 level. However, because the relationship is positive (the higher the probation rate, the higher the imprisonment rate), the finding is not particularly helpful in understanding imprisonment rates. Had there been an inverse (negative) relationship, it could have been interpreted to mean that those counties which use probation more tend to rely less on imprisonment. Since it is positive, it merely indicates that, to some modest extent, those counties that imprison at a higher rate also tend to put people on probation at a higher rate.

To summarize the analysis of the county data, it has served primarily to eliminate variables that might have offered clues to understanding the variation in imprisonment rates. Unemployment rates, per capita income, and violent crime rates were found to have no relationship to imprisonment rates. Probation rates were shown to have a positive relationship to imprisonment rates, which is important mainly because it shows

that the relationship is not negative, as one might reasonably expect. Finally, a modest positive relationship was found between crime rates and imprisonment rates. The relationship was too weak and the data too suspect to support any definitive interpretation. The power of the relationship was increased slightly by adding the variable of percentage black, after crime rates accounted for what they would. Still a modest relationship, this total R^2 of .183 continues to suffer from the unreliability of the crime data.

Conclusion

This report is exploratory research. In searching for ways to understand the variations in imprisonment rates, it serves primarily to show that some intuitively likely variables do not aid our understanding--or, in the case of crime rates, aid so little that the unreliability of the basis negates the potential help. Still, even the elimination of variables can be important, by showing which relationships do not hold. The information presented shows that naive expectations about the relationship between crime rates and imprisonment rates cannot be supported and that nationwide patterns between the percentage of the population that is black and imprisonment rates do not hold when jurisdictions within Mississippi are compared.

By eliminating these and the others considered from being major explanatory variables, this research indicates that the important factors may be some that are not subject to easy statistical manipulation. These are likely to include the discretion exercised at every step in the practice of criminal justice: by law enforcement agents, prosecutors, judges, and corrections officials. While this discretion cannot, and perhaps should not, be totally eliminated, it can be structured to promote the rational, consistent, and cost-efficient administration of justice. Of particular importance to this subcommittee would be to explore ways to legislate policies that would allow the state to regain control of its prison population. Failing to limit the discretion and failing to provide alternative (and less expensive) punishments puts the state treasury at the mercy of the practices of officials who may not be in a position to assess the impact of what they do on the state as a whole. Such statesmanship is the unique opportunity of the legislature.

FOOTNOTES

¹Mississippi Statistical Analysis Center, Criminal Justice Planning Commission, "Crime Analysis for the State of Mississippi" (Jackson: 1980).

²For a comprehensive treatment of why, see Edwin H. Sutherland and Donald R. Cressey, *Criminology*, 8th ed. (Philadelphia: J. B. Lippincott, 1970) Chapter 2.

³Mississippi Statistical Analysis Center, op. cit., p. 1.

⁴Unpublished data of the Mississippi Department of Corrections.

⁵Provided by the Mississippi Research and Development Center.

⁶Ibid.

⁷Bureau of Economic Analysis, "Personal Income by Major Sources, 1973-78." (April, 1980).

⁸Unpublished data of the Mississippi Department of Corrections.

⁹Bureau of the Census, U. S. Department of Commerce, "1970 Census of Population: General Population Characteristics, Mississippi" (Washington, D.C.: U. S. Department of Commerce, 1970).

¹⁰Dr. Thomas R. Panko, University of Southern Mississippi and State Senator Henry Kirksey, Jackson, Mississippi.

¹¹Research and Statistics Department, Mississippi Employment Security Commission, "Annual Averages, 1978-79" (Jackson: 1980).

¹²Mississippi Statistical Analysis Center, op. cit.

¹³Computations based on unpublished data of the Mississippi Department of Corrections and census estimates.

¹⁴Unpublished data of the Mississippi Department of Corrections.

¹⁵ Computations based on unpublished data of the Mississippi Department of Corrections and census estimates.

¹⁶ Research and Statistics Department, op. cit.

¹⁷ Jack H. Nagel "Crime and Incarceration: A Reanalysis" Fels Discussion Paper #112 (Philadelphia: University of Pennsylvania, 1977).

¹⁸ Bureau of Economic Analysis, op. cit.

¹⁹ Jack H. Nagel, op. cit.

²⁰ Ibid.

²¹ Bureau of the Census, op. cit.

²² Corrections Digest, Vol. 11, No. 16, pp. 1-3, "Complaints Against Mississippi Prison and Jails Could Cost State and Localities a Bundle," August 15, 1980.

²³ For example, in Circuit Court District Five, the average sentence for blacks convicted of burglary is currently 6.66 years; for whites it is 3.59 years. For Blacks convicted of larceny, the average sentence is 6 years; for whites it is 2.5 years. For blacks convicted of robbery, the average sentence is 24.71 years; for whites it is 15 years. (Based on unpublished data of the Mississippi Department of Corrections for inmates imprisoned as of July, 1980.)

There is national debate over the degree to which a systematic bias against blacks exists in sentencing patterns. For the argument against the existence of the bias, see John Hagen, "Extra-Legal Attributes and Criminal Sentencing: An Assessment of a Sociological Viewpoint," Law and Society Review, 8 (Spring, 1974): 379. For a challenge to this study, see A. L. Lizotte, "Extra-Legal Factors in Chicago's Criminal Courts Testing the Conflict Model of Justice," Social Problems, 25, no. 5 (June, 1978): 564-80.

²⁴ Jack H. Nagel, op. cit. See also William G. Nagel "On Behalf of a Moratorium on Prison Construction," Crime and Delinquency, Vol. 23, No. 2, (April, 1977), pp. 154-172, and David Biles, "Crime and the Use of Prisons," Federal Probation, Vol. 43, No. 2, June, 1979, pp. 39-43.

²⁵ Computations based on unpublished data of the Mississippi Department of Corrections and census estimates.

²⁶ Research and Statistics Department, op. cit.

²⁷ Bureau of Economic Analysis, op. cit.

²⁸ Jack H. Nagel, op. cit.

²⁹ William G. Nagel, op. cit.

³⁰ Jack H. Nagel, op. cit.

³¹ David Biles, op. cit.

³² Mississippi Statistical Analysis Center, op. cit.

³³ Edwin Sutherland and Donald Cressey, op. cit.

³⁴ Mississippi Statistical Analysis Center, op. cit.

³⁵ For example, see James Q. Wilson, Thinking About Crime (New York: Vintage, 1977).

³⁶ Jack H. Nagel, op. cit., William G. Nagel, op. cit., and David Biles, op. cit.

³⁷ David Biles, op. cit.

³⁸ Mississippi Statistical Analysis Center, op. cit.

³⁹ Computations based on unpublished data of the Mississippi Department of Corrections and census estimates.

END