National Criminal Justice Reference Service

ncjrs

This microfiche was produced from documents received for inclusion in the NCJRS data base. Since NCJRS cannot exercise control over the physical condition of the documents submitted, the individual frame quality will vary. The resolution chart on this frame may be used to evaluate the document quality.

1.0	2.8	2.5
	3.2	2.2
	3.6	
1.1	4.0	2.0
		1.8
1.25	1.4	1.6
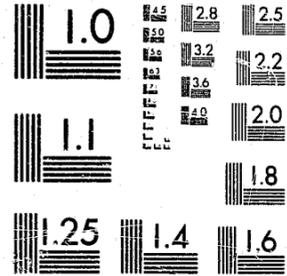
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Microfilming procedures used to create this fiche comply with the standards set forth in 41CFR 101-11.504.

Points of view or opinions stated in this document are those of the author(s) and do not represent the official position or policies of the U. S. Department of Justice.

National Institute of Justice
United States Department of Justice
Washington, D.C. 20531

DATE FILMED

7/24/81

75753

U.S. Department of Justice
National Institute of Justice
Office of Research Programs

nij

American Prisons and Jails

Volume II: Population Trends and Projections

STATE AND FEDERAL PRISON POPULATIONS
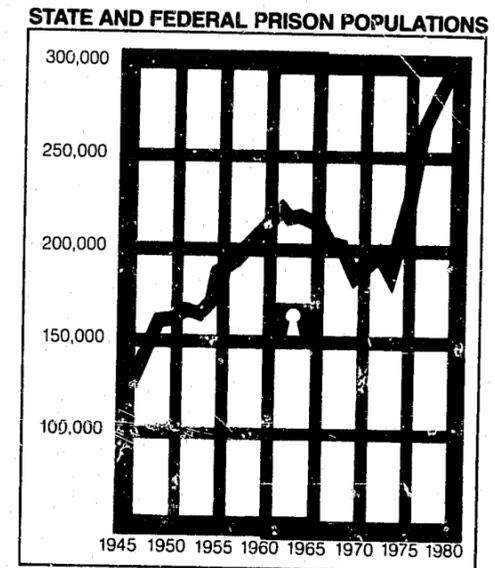
a publication of the **National Institute of Justice**

OVERVIEW OF MATERIALS AVAILABLE FROM THE SURVEY OF AMERICAN PRISONS AND JAILS

On October 15, 1976, the *Crime Control Act of 1976* was enacted into law. The Act included the following mandate:

> "The Institute shall, before September 30, 1977, survey existing and future needs in correctional facilities in the Nation and the adequacy of federal, state and local programs to meet such needs. Such survey shall specifically determine the effect of anticipated sentencing reforms such as mandatory minimum sentences on such needs. In carrying out the provisions of this section, the Director of the Institute shall make maximum use of statistical and other related information of the Department of Labor, Department of Health, Education and Welfare, the General Accounting Office, federal, state and local criminal justice agencies and other appropriate public and private agencies."

The National Institute of Law Enforcement and Criminal Justice, within the Law Enforcement Assistance Administration, was assigned the responsibility for executing the study. In order to respond to the statutory requirement for a report to Congress no later than September 30, 1977, and to address the longer term research issues, a two-phased research project was developed, resulting in the following interim and final reports:

INTERIM REPORTS:

Prison Population and Policy Choices, Volume I: Preliminary Report to Congress and *Volume II: Technical Appendix*, September, 1977. These volumes document the first four months of project activity. The major analyses conducted during that period are also summarized in the final report volumes.

FINAL REPORTS:

American Prisons and Jails, Volume I: Summary Findings and Policy Implications of a National Survey, presents in summary form the major findings of the study and implications for corrections policy. This volume serves both as a self-contained document for the policymaker and a foundation for the more detailed presentation of results in Volumes II, III, IV and V.

American Prisons and Jails, Volume II: Population Trends and Projections, presents a history of the size and composition of inmate populations at the federal, state and local levels of government, defines the models used to project future populations, discusses the significant limitations of those models, and presents state-by-state projection results. The accuracy of these projections is tested for the years for which actual inmate counts have become available.

American Prisons and Jails, Volume III: Conditions and Costs of Confinement, discusses the physical conditions and costs of the institutions surveyed, including an important assessment of institutional capacities based on the application of standards promulgated by the Commission on Accreditation for Corrections, the Department of Justice and other prison and jail standard-setting groups.

American Prisons and Jails, Volume IV: Supplemental Report—Case Studies of New Legislation Governing Sentencing and Release, examines the impact of revisions in sentencing and release policies on inmate population flows. The case studies include investigations of two determinate sentencing statutes, a mandatory sentencing law, parole release guidelines, and a Community Corrections Law.

American Prisons and Jails, Volume V: Supplemental Report—Adult Pre-Release Facilities, discusses the physical conditions, staffing and costs of those institutions that house sentenced prisoners for less than 24 hours a day.

AMERICAN PRISONS AND JAILS
Volume II:
Population Trends and Projections

Principal Author
Kenneth Carlson

Contributions by
Patricia Evans
John Flanagan

Joan Mullen, Project Manager (1979-1980)
Andrew Rutherford, Project Manager (1977-1978)
Kenneth Carlson, Director of Research
Bradford Smith, Director of Data Collection
Richard Ku, Case Study Leader
William DeJong, Patricia Evans, Alice Litter, David Warner, Deborah C. Jackson, Research Associates
Michael Sherman, Research Consultant (Hudson Institute)
John Flanagan, Research Consultant (University of Wisconsin)
Franklin Zimring, Research Consultant (University of Chicago)

Lawrence A. Greenfeld, Project Monitor (National Institute of Justice)

October 1980

U.S. Department of Justice
National Institute of Justice

NATIONAL INSTITUTE OF JUSTICE

Harry M. Bratt, Acting Director

Technical Advisory Group

Lawrence Bennett, Director
Office of Program Evaluation
National Institute of Justice
Bethesda, Maryland

Mr. Joseph Coates
Office of Technology Assessment
Washington, D.C.

Mr. Robert Heyne, Superintendent
Dr. Norman M. Beatty Memorial Hospital
Westville, Indiana

Lloyd Ohlin, Ph.D.
Center for Criminal Justice
Harvard Law School
Cambridge, Massachusetts

Peter H. Rossi, Director
Social and Demographic Research Institute
University of Massachusetts
Amherst, Massachusetts

Ms. Marie Vida Ryan, former Chief
State of California
Department of Corrections
Management Information Section
Sacramento, California

Andrew von Hirsch
School of Criminal Justice
Rutgers State University
Newark, New Jersey

VOLUME II
Table of Contents

VOLUME II
Appendices

VOLUME II
List of Tables

CHAPTER 1
INTRODUCTION

1.1   Background for the Study of Inmate Population Movements

As part of a larger study of American prisons and jails, this volume examines trends in the population of federal, state, and local corrections facilities. In response to the Crime Control Act of 1976 which provided for a survey of "existing and future needs in correctional facilities in the nation,"[1] we discuss both historical population flows and their implications for anticipated future correctional needs.

Congressional concern was prompted primarily by the unprecedented growth in prison populations throughout the nation. With the exception of a period of disruption corresponding to World War II, prison populations had kept pace with civilian populations for most of this century. With comparative suddenness, this historical stability seemed to collapse in the early 1970's. When the Crime Control Act of 1976 was passed by Congress, the total number of persons confined in federal and state prisons was 40 percent higher than it had been five years earlier.[2]

Such unprecedented change was largely unanticipated by the state government agencies responsible in 1978 for housing the 307,384 men and women in prisons.[3] Partly because the increased demand caught planners by surprise, and partly because many legislatures were reluctant to be seen spending large amounts of money on "criminals" in an era of state and municipal fiscal restraint, resources did not grow to meet the increased demand for prison space. In particular, in the five years from 1972 to 1977 new state prison construction or remodeling resulted in about 23,000 beds being added to the total rated capacity.[4] The growth in population over the same period was over four times as great--92,528 inmates.[5] Without greater spending, the slack could only be absorbed by successive reductions in the quality of life for prisoners. Of all interest groups, prisoners could exert the least political power to resist deteriorating conditions, and therefore they suffered more severely.

By the time of the Preliminary Report to Congress (1977), conditions in many state prisons had reached such shocking levels that federal courts in 12 states had ruled that conditions of confinement in the entire system or in a major institution were such as to constitute violations of rights guaranteed by the Eighth Amendment. Since the publication of that report, the courts have interceded in seven more states and 12 states face pending court challenges.[6]

In planning remedial action, two questions emerge as critical:

- Is the population explosion transient or permanent? and

- Can the growth trends be reversed by policy, or is accommodation of ever-increasing numbers of inmates inevitable?

With these questions in mind, planners need to consider the time intervals involved in building and using prisons. Five years are likely to pass between the decision to construct a prison and the date of the first inmate's entry.[7] As we have seen, much can happen in five years; in the five years just passed, the prisons changed from a state of slight under-occupancy to one of grave overcrowding. It was therefore reasonable to ask whether the population "crunch" would persist long enough to justify new construction.

At a more fundamental level was the question whether building was the only way--or even an effective way--to meet the population problem. It had been suggested, most notably by William Nagel in his "Statement on Behalf of a Moratorium on Prison Construction," that the internal dynamics of the corrections system made it nearly inevitable that prison space--no matter how abundant--would always be used, and that building more institutions simply meant incarcerating an ever larger share of the population.[8] At its most extreme, this theory implied that projections of population growth, to the extent that they were believed and acted upon, had every chance of being right, not because of their methodological soundness, but simply as self-ful-filling prophecy. As we shall see in this volume, statisticians in several states were turning out just such projections of explosive growth; extensive building programs were, in fact, underway; and there was widespread expecta-tion of unabated future growth.

No consensus could be discerned in the logic on which these projec-tions were to be based. Sunbelt states pointed to the economic development of the 1970's, with its attendant growth in population and infrastructure, the arrival of new social groups, and the increase in crime associated with higher activity levels, more victims, and greater mobility. Other regions cited higher unemployment, loss of legitimate job opportunities, and derelic-tion of neighborhoods to explain their increase in prison population.

Criminal justice practitioners observed changes in the atmosphere of courts and legislative houses. Harsher penalties were being mandated to control alleged disparities in sentencing and release practices and to impose minimum periods of incarceration for specific offenses.[9] The ability of courts and prosecutors to clear their backlogs might have improved with the introduction of sophisticated electronic data processing systems and expanded manpower resources supported by LEAA. As both conservatives and liberals cast doubt on the legitimacy of the rehabilitative ideal, more punitive sentences were sought by prosecutors.

Fundamental changes in sentencing practice attracted a broad base of popular support: since publication of our Preliminary Report to Congress, the number of states with determinate sentencing has grown from two (Maine and California) to five (adding Indiana, Illinois and New Mexico).[10] Legislative advocates, planners and criminal justice researchers within those states produced vastly different predictions about the consequences of proposed legislation. In Illinois, for example, different groups--all supporters of determinate sentencing--variously claimed that it would have no net impact on population, that it would reduce it, and that it would imprison more criminals. Shortly after enactment of the legislation, public concern was aroused by the impending release of a group of inmates who had already served more time than required by the determinate sentences set by the new law. As of this writing, it is still not clear which predictions, if any, about the net effects of determinate sentencing in Illinois will be fulfilled.

From this brief review, we recognize the need to address at least the following issues in considering the future course of prison population flows: economic dislocations of inflation and unemployment, building plans, legislation reallocating discretionary practices, and fundamental changes in sentencing practices.

1.2   Scope of This Volume

Conclusions in this volume are drawn from a statistical description of inmate populations: how many people are incarcerated, who are they, and why are they there? We look first at the recent history of incarceration, tracing the succession of growth and decline which has marked the last 50 years of state prison populations, culminating in the era of rapid growth which characterized the 1970's. Regional components of this trend are presented showing the dominant role Southern prison systems played in accel-erating the overall growth of prison populations.

As we trace the variability in these inmate counts, natural questions arise about its possible sources. The links between crime and punishment are commonly assumed to be rigid, but our data show them to be strongly condi-tioned by local normative policy. Offenses which can cause imprisonment in one state may be treated with fines or probation in another, and may not be criminal at all in a third. Definitions of criminality may change from time to time with the passage of new laws, or with judicial rulings on the consti-tutionality of existing statutes.

Even two offenders convicted of the same offense at the same time and place may be sentenced differently because of their personal characteristics (first offender, employed, female), as a result of more or less effective plea negotiation, or because they are sentenced by different judges. Males, blacks, and young adults are all overrepresented at all levels of incarcera-tion. In the next chapter we also trace shifts in the demographic composition of the inmate population and briefly examine their relationship to the civilian population. In reviewing projection methods in Chapter 3, we return to this theme as a possible means of estimating the future effects of maturation of the baby boom on prison populations.

Any projections of inmate populations, such as those presented in the latter part of this volume (Chapter 4), depend either implicitly or

explicitly on a set of causal assumptions about the forces influencing future movements of prisoners. While the historical data do not support strong causal inferences, they can provide a valuable touchstone against which to test projection assumptions. We can think of a projection model as a set of assumptions about consistency over time. Some specified relationship among variables in the system is stipulated to remain constant throughout the projection period, and actual numerical projections are then deduced as a consequence of the model's assumptions. As a fundamental premise, it seems safe to claim that any relationship which has changed over the recent past cannot be supposed suddenly to become fixed during the period our projections happen to span. Thus, historical statistics can serve to remove potential models from consideration. Models which failed to hold in the past are unlikely to hold in the future.

Unfortunately, the converse need not be true. In Chapter 3 it is shown that certain sets of assumptions about future constancy in the movement of prisoners and the growth of prison populations are inherently contradictory. Thus, we know with mathematical certainty that some relationships among statistical series which have prevailed in the recent past will nevertheless be violated at some point in the future. Yet, while mathematical reasoning tells us that something must change, it does not identify which of the conflicting assumptions will be violated, when, or by how much. Reflecting this uncertainty, Chapter 4 presents three series of numerical projections, each corresponding to a different set of assumptions about which past relationship will remain in force until 1983.

1.3   Sources of Uncertainty

Having identified sets of assumptions which were not falsified by historical data and which were internally consistent, the next task was to convert these assumptions into usable numerical conclusions about future prison populations. This task was complicated by uncertainties introduced both in the modeling process and in the data themselves. One of the most conspicuous sources of error was the ambiguity of the term "inmate." In many states, jurisdiction may fall to one level of government, while custody is at another. This is particularly true where state prisoners are housed in county jails because of space limitations on the state level. Conversely, in exceptional circumstances state prisons may hold unsentenced inmates or misdemeanants who would generally be under local jurisdiction. The definitional anomalies have the most serious consequences for projections when they are changed either in a few isolated states or in the entire data base.

Because the definition of inmate depends on the uniform application of counting rules among state systems, reported numbers themselves are subject to revision as errors are discovered in the application of rules, or as the rules are retroactively changed to conform to new standards. In 1979, eleven states revised their 1977 reports to National Prisoner Statistics by amounts ranging from 42 to 2,626 prisoners.[11] Changes of this magnitude call into question not only the numerical accuracy of the baseline from which projections are drawn, but also the conceptual validity of the projection models. There is no guarantee that legitimate generalizations about a series under one definition remain true when a different definition (and, hence, a different population) is substituted.

Quite apart from measurement error, there is a genuine random component to prison and jail populations. Even under a rigidly deterministic sentencing and release policy, individual arrivals and departures are stochastic events with some degree of inherently unpredictable fluctuation above and below average levels. In Chapter 4 the experience of previous projections is used to provide estimates of the distribution and magnitude of this random error. For each projection method the absolute errors increase with increasing institutional population, but the increase is less than proportional to size, so that relative error is smallest for the large states. No one projection method is uniformly best for all states, and overall performance depends on which error criterion is chosen; different methods seem best suited for different purposes.

A final and fundamentally different source of uncertainty is presented by the intervention of criminal justice policy. From time to time one of society's decision-makers will introduce a fundamental change in the rules of the game, potentially invalidating the entire set of model assumptions. New crimes may be defined by legislation. Formerly criminal acts may be decriminalized, or the penalties may be raised or lowered. Major changes in prosecutional, judicial, or parole policy may increase or decrease rates of intake or release, or lengthen or shorten average periods of confinement. Such changes can take the future of a state's prison or jail population (or both, since the two may interact) entirely beyond the realm of statistical analysis of the kind we employ here. Ultimately, it is these policies of the criminal justice system which determine future prison populations, and not any set of mathematical numerical trends. The projections in this volume can only be seen as consequences of past policies as reflected in historical data. To the extent that they portray a threatening future, they may play some role in changing policies and thus lead to their own falsification.

Chapter 1: NOTES

1. P.L. 94-503, Section 402(c) of the Crime Control Act of 1973, as amended. The text of the Congressional mandate which was enacted into law on October 15, 1976 is cited in the Preface; see also Congressional Record, July 22, 1976, S512228.

2. U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Criminal Justice Information and Statistics Service (NCJISS), Prisoners in State and Federal Institutions on December 31, 1971, 1972, and 1973, National Prisoner Statistics (NPS) Bulletin No. SD-NPS-PSF-1 (Washington, D.C.: U.S. Government Printing Office, May 1975); and U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1976, NPS Bulletin SC-NPS-PSF-4 (Washington, D.C.: U.S. Government Printing Office, February, 1978). All historical data in this volume, unless otherwise stated, are drawn from the NPS for the appropriate year(s). (See Note 2(a) through (g) of Chapter 2.) These data are also reported in U.S. Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part I (Washington, D.C.: U.S. Government Printing Office, 1975): Series H1135-1140.

3. Figure refers to total prisoners under jurisdiction of state and federal correctional authorities (U.S. Department of Justice, LEAA, NCJISS, NPS Advance Report, Bulletin No. SD-NPS-PSF-6A (Washington, D.C.: U.S. Government Printing Office, May 1979).

4. Estimated from annual directories of the American Correctional Association.

5. NPS reports 174,470 prisoners in custody on December 31, 1972 (NPS Bulletin No. SD-NPS-PSF-1, May 1975) and 266,998 prisoners under the jurisdiction of state correctional authorities on December 31, 1977 (NPS Advance Report, Bulletin No. SD-NPS-PSF-6A, May 1979).

6. See Volume III, Chapter 2 for a full listing of reported court orders.

7. Estimate furnished by Carter, Goble and Roberts, of South Carolina, a project subcontractor involved in architectural consulting to corrections agencies.

8. William Nagel, A Statement on Behalf of a Moratorium on Prison Construction (Philadelphia: The American Foundation, Inc., 1976).

9. See Volume IV for a detailed report on changing sentencing and release practices. See also Overview of State and Local Sentencing Guidelines Activity, The American University Criminal Courts Technical Assistance Project (Washington, D.C., March 1979).

10. Revised criminal codes in a number of other states bear some resemblance to these determinate sentencing laws by establishing presumptive sentencing schemes, but the release decision still rests with parole authorities. See, for instance, Arizona's new criminal code effective October, 1978 (Arizona Rev. Stats. 13-901).

11. Each state's NPS data are reported twice for a given year: immediately after the end of the year, and again 12 months later. These data refer to the 1977 data reported U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1977, NPS Bulletin No. SD-NPS-PSF-4 (Washington, D.C.: U.S. Government Printing Office, February 1979), and U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1978, Advance Report, NPS Bulletin No. SD-NPS-PSF-6A (Washington, D.C.: U.S. Government Printing Office, May 1979).

The recent history of correctional populations reveals a dramatic increase in the numbers of state and federal prisoners and comparative stability in the number of jail inmates. Over the last fifty years, prisons have experienced episodes of growth and contraction superficially quite similar to the largely unanticipated increase of the last decade. By examining this fifty-year period we hope to understand both the new elements in the experience of the 1970's and those that represent continuations of longstanding trends.

To provide background for subsequent discussions of projection methods, this chapter begins with a description of the data sources used for this study. The chapter also provides a detailed review of population trends at the federal, state, and local levels. For each level of government, regional and demographic components are discussed.

In this volume, three levels of confinement systems are distinguished, operated by federal, state, and local units of government, respectively. The federal Bureau of Prisons operates 38 prisons for the confinement of sentenced inmates. It also uses space in various state and local facilities for pre-trial detention and for confining some sentenced prisoners (generally those serving comparatively short terms). Discussions of the federal prison population refer only to inmates of the 38 specific institutions, and not to inmates of other units who may be under the jurisdiction of the Bureau of Prisons. In most states, state prisons house principally sentenced felons, i.e., those serving sentences of more than one year. There are some important exceptions to this rule. Six states (Alaska, Connecticut, Delaware, Hawaii, Rhode Island, and Vermont) in addition to the District of Columbia operate an integrated prison and jail system. All inmates in these states are under state jurisdiction and are counted under the heading of state prisoners.

These state and federal institutions are collectively designated prisons, to distinguish them from jails, which are usually county facilities for housing unsentenced persons and inmates serving short sentences (usually one year or less). The terminology is confused because some jurisdictions refer to county institutions as county prisons. In this study we have adopted the convention that all locally operated confinement units, regardless of their designation by the respective localities, will be tabulated as jails or local units of confinement.

Preceding page blank

2.1 Data Sources

The projections attempt to include all inmates of federal, state and local prisons, jails, and detention facilities authorized to hold inmates for longer than forty-eight hours. Our primary data sources for historic series on these populations are the National Prisoner Statistics (NPS) and National Jail Census, both of which are mail surveys conducted by the Bureau of the Census on behalf of the Bureau of Justice Statistics (formerly the National Criminal Justice Information and Statistics Service).[2] Our source for demographic data was the Survey of State and Federal Adult Correctional Facilities (PC-2), conducted by Abt Associates in 1978. This instrument was designed for institutions primarily holding inmates 24 hours a day. All 559 of these federal and state prisons provided information on the physical dimensions of the facilities as well as the number of inmates housed on March 31, 1978 by sex, age, race, and crime committed.

The National Prisoner Statistics (NPS) have been collected annually, with minor interruptions, since 1926. They provide aggregate data at the state level for inmates in custody on December 31 of each year. From 1926 through 1970 the year-end inmate count included all sentenced adult felons. On December 31, 1971, 1972 and 1973, the NPS data included juveniles, did not differentiate between felons and misdemeanants, and only counted adult and juvenile inmates who were sentenced for more than one year. Starting in 1974, the NPS data also tabulated the number of men and women who are either unsentenced or sentenced for a year or less. Since this latter category comprises only four percent of all state inmates, trends in the number of inmates with sentences over one year closely reflect the total inmate population in most states, and in this report they, rather than the total number of inmates, will be used.

Information on the inmates held in local jails is much less systematic. Until 1970, no national data of any kind were collected on jails or their inmates. Three surveys have occurred since then. The 1970 Census of local jails partitions the population present on March 15 of that year by age and legal status and provides some basic information about the age, design capacity, and amenities of the facilities in which they are housed. The next survey, conducted in 1972, was addressed primarily to the acquisition of more detailed data about the facility characteristics.

The 1978 jail survey was substantially more comprehensive, providing "average" week-day and week-end populations, and a detailed description of the age, sex, and legal status of inmates present on February 15, 1978.[3] It also recorded housing configurations, staff present, and services offered.

Although data on both prisons and jails are available for each institution surveyed, the analyses in this chapter are based on aggregation to the state level. In describing the population of state prisons this aggregation is essential, because transfers among prisons are almost always at the discretion of corrections administrators, who generally distribute prisoners into available space so that vacancies are fully utilized. Movements among institutions, therefore, do not lead directly to estimates of state prison populations; movements aggregated at the state level do. In the case of jails, such flexibility is usually not available, although frequently, reciprocal agreements allow inmates of one county to be housed in another under specified circumstances. County jail populations also reflect, at least partly, policies and programs operating at the county level, so that projections of the numbers of inmates by county is at least conceptually meaningful. However, nearly 3500 local institutions are covered by the Census definition. It was impractical either to prepare projections in such detail or to attempt to interpret the results in the context of a national study concerned more with general trends in confinement use. Therefore, all population figures, both for prisons and jails, are reported at the state level of aggregation.

The incarceration rates which are reported at various points throughout this volume are computed as 100,000 times the ratio of inmates[4] (federal, state, or local, as the case may be) to the Bureau of the Census estimate of civilian population for July 1 of the corresponding year. Incarceration rates vary from state to state both because of differences in state sentencing and release policies and because of differences in accounting practices. For example, states whose prison and jail systems are combined will show higher state incarceration rates than a state with the same incarceration policies but with locally operated jails. The rates will further vary depending on where states choose to count state prisoners held in local jails because of overcrowding of state prisons.

Thus, the reader should view these rates with the understanding that part of the information they convey is arbitrary. Part of the information is also inaccurate. States revise data provided to NPS to correct reporting errors and discrepancies in earlier years. Such adjustments may affect as many as a dozen states, and are generally one to five percent of the total prison population. There may be other states for which adjustments should be made but are not.

2.2 Overview of Federal, State and Local Population Trends

On the reference dates of the surveys, there were 294,580 persons in federal and state prisons for sentences over one year, and 153,162 in local jails and pre-release centers,[5] almost 450,000 in total (see Appendix Table A.1). Most of these persons, 60 percent of the total, were held at the state level; 34 percent were held at the local level; and 6 percent were held in federal facilities.

As Figure 2.1 (and Appendix Table A.1) shows, since the early 1970's a very dramatic increase has taken place in the number of persons held in state and federal prisons for sentences over one year. Between 1972-1978 this number increased by over 98,000 persons, an increase of almost 50 percent. At the local level, jail populations increased during the same period by only eight percent. The increase in the rate of state and federal prisoners has far exceeded the growth rate of the civilian population. The national rate of incarceration at all levels of government (federal, state and local)

Figure 2.1
Inmate Populations and Incarceration Rates
1970-1978
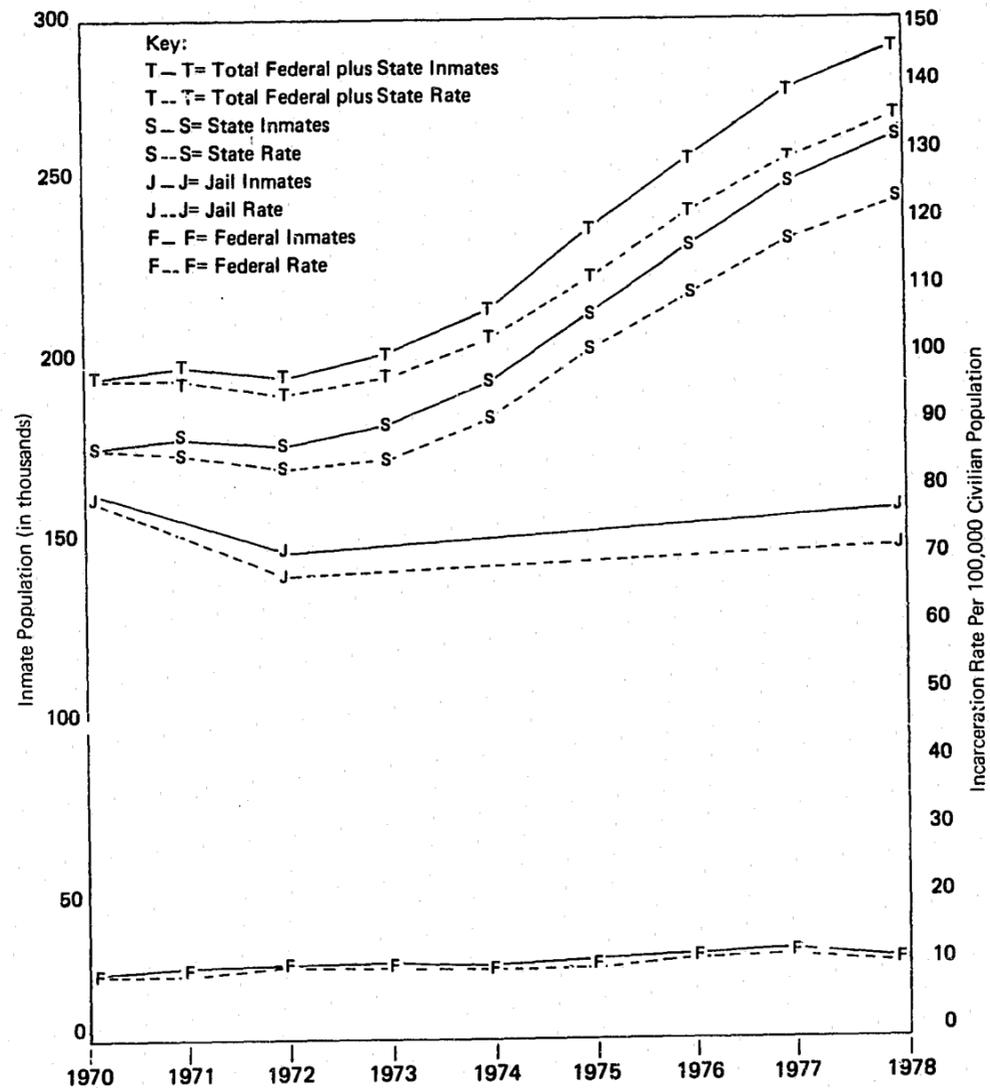
Key:
T — T = Total Federal plus State Inmates
T -- T = Total Federal plus State Rate
S — S = State Inmates
S -- S = State Rate
J — J = Jail Inmates
J -- J = Jail Rate
F — F = Federal Inmates
F -- F = Federal Rate

Inmate Population (in thousands)

Incarceration Rate Per 100,000 Civilian Population

increased from 164 to 207 per 100,000, an increase of 26 percent. The increase in the incarceration rate was especially sharp at the state level, rising by 48 percent from 84 to 124 per 100,000 civilian population. What has most characterized the period between 1972 and 1978 has been the suddenness of the upward turn in inmate population, in both absolute numbers and in rate of incarceration. Table 2.1 and Appendix Tables A.2 and A.3 present the state and regional distributions of incarceration rates for 1970, 1972, and 1978.

2.3   Federal Prison Population Trends: 1930-1978

Several interesting facts about federal prison trends emerge by comparing federal and state year-end correctional populations since 1930, shown in Figure 2.2. Trends in the federal system's population are generally similar to those of the state prisons' population. Between 1943 and 1948, however, some differences appear in the direction of change. War appears to have opposite impacts on the two correctional systems. While many of the population at risk are fighting overseas, state populations decline until 1945; but in that year, the number of federal prisoners reaches a peak for the decade.

In the long period of growth in state prison populations lasting from 1944 to 1961, the year-end state inmate count rose by a net of 72 percent over 1944. Over the same years, the federal prison population rose only 31 percent. In terms of incarceration rate, these differences represented an increase of 20 percent over 1944 (from 90 to 108 inmates per 100,000 civilian population) for state incarceration, while the federal incarceration rate remained essentially stable.[6]

From 1962 to 1968, however, federal prison populations decreased 18 percent, as did state populations by 14 percent. Thereafter, over the years encompassing the Vietnam War, the level of federal prison populations made up for this greater decline in the 1962-1968 period, increasing more rapidly than state prison populations. While the state populations remained roughly constant between 1969 and 1972 (and the rate of state incarceration actually dropped by about four percent, from 88 to 84 per 100,000), the federal prison population grew 11 percent, representing an increase in incarceration rate of eight percent, from 9.7 to 10.5 per 100,000.

Federal prison populations continued their increase until 1977, when they reached an all-time high of 28,650, or 46 percent more than they had been in 1967. In 1977 an additional 3,438 prisoners who were either unsentenced or sentenced for a year or less were held in federal prisons. These had not been reported in the 1967 NPS bulletin, making the increase appear even more dramatic. In 1978, a slight abatement in the trend of federal prison growth occurred, with an eight percent decrease in the base number of prisoners with sentences over a year. During the entire period 1930-1978, the number of federal prisoners increased 117 percent, compared with an increase in state prisoners of 133 percent.

Table 2.1
State Prison and Local Jail Population and Incarceration Rates by State and Region, 1978
(Excludes Federal Prison Population of 26,391)

Region and State	Civilian Population (in Thousands)	TOTAL Number Incarcerated (% of Total)	Number Incarcerated Per 100,000 Civilian Population	STATE Number of Prison Inmates (% of Total)	Prison Inmates Per 100,000 Civilian Population	LOCAL Number of Jail Prisoners (% of Total)	Jail Prisoners Per 100,000 Civilian Population
Total	216,600	421,351 (100%)	195	268,189 (100%)	124	153,162 (100%)	71
NORTHEAST	48,986	64,274 (15%)	132	40,425 (15%)	83	23,849 (16%)	49
Maine	1,081	902	83	577	53	325	30
New Hampshire	865	653	76	283	33	370	43
Vermont	487	337	69	337	69	–	–
Massachusetts	5,758	5,018	87	2,811	49	2,207	38
Rhode Island	928	524	56	524	56	–	–
Connecticut	3,101	2,163	70	2,163	70	–	–
New York	17,720	31,125	175	20,458	115	10,667	60
New Jersey	7,291	9,292	127	5,419	74	3,873	53
Pennsylvania	11,753	14,260	121	7,853	67	407	54
NORTH CENTRAL	58,110	88,654 (21%)	153	60,246 (22%)	104	28,408 (18%)	49
Ohio	10,720	18,822	176	13,357	125	5,465	51
Indiana	5,381	6,803	126	4,350	81	2,453	45
Illinois	11,201	16,211	145	10,430	93	5,781	52
Michigan	9,170	20,629	225	14,944	163	5,685	62
Wisconsin	4,681	5,359	114	3,433	73	1,926	41
Minnesota	4,021	3,394	85	1,877	47	1,517	38
Iowa	2,905	2,699	93	2,035	70	664	23
Missouri	4,827	8,486	176	5,637	117	2,849	59
No. Dakota	641	287	45	169	26	118	19
So. Dakota	684	782	114	506	74	276	40
Nebraska	1,557	1,895	122	1,219	78	676	44
Kansas	2,322	3,287	142	2,289	99	998	43
SOUTH	69,797	190,743 (45%)	273	128,108 (48%)	183	62,635 (41%)	90
Delaware	578	1,005	174	1,005	174	–	–
Maryland	4,105	11,125	271	7,952	194	3,173	77
D.C.	663	3,942	594	2,535	382	1,407	212
Virginia	5,023	12,114	241	7,882	157	4,232	84
West Virginia	1,861	2,259	121	1,193	64	1,066	57
No. Carolina	5,472	15,445	282	12,647	231	2,789	51
So. Carolina	2,836	8,628	304	6,990	246	1,638	58
Georgia	5,015	19,152	382	10,874	217	8,278	165
Florida	8,566	30,819	360	20,573	240	10,246	120
Kentucky	3,455	5,539	160	3,390	98	2,149	62
Tennessee	4,311	10,274	238	5,835	135	4,439	103
Alabama	3,705	9,083	245	5,376	145	3,707	100
Mississippi	2,388	4,106	172	2,679	112	1,427	60
Arkansas	2,157	3,863	179	2,529	117	1,334	62
Louisiana	3,946	11,451	290	7,409	188	4,042	102
Oklahoma	2,814	5,524	196	3,820	136	1,704	60
Texas	12,901	36,414	282	25,419	197	10,995	85
WEST	39,707	77,680 (18%)	195	39,410 (15%)	99	38,270 (25%)	96
Montana	775	996	129	672	87	324	42
Idaho	876	1,369	156	830	95	539	61
Wyoming	421	704	167	436	103	268	64
Colorado	2,662	4,148	156	2,467	93	1,681	63
New Mexico	1,198	2,187	182	1,393	116	794	66
Arizona	2,346	5,951	254	3,450	147	2,501	107
Utah	1,312	1,584	121	908	69	676	52
Nevada	657	2,269	345	1,357	206	912	139
Washington	3,741	6,930	185	4,477	120	2,453	65
Oregon	2,449	4,757	194	2,885	118	1,872	76
California	22,040	45,758	208	19,552	89	26,206	119
Alaska	387	534	138	490	127	44	11
Hawaii	844	493	58	493	53	–	–

Sources: Data on state prisoners refer to prisoners sentenced more than one year as reported in U.S. Department of Justice, LEAA, NCJISS, *Prisoners in State and Federal Institutions On December 31, 1978*, NPS Bulletin SD-SPS-PSF-6A, Advance Report (Washington, D.C.: U.S. Government Printing Office, May 1979).

Data on civilian populations refer to estimates on July 1, 1978 as reported in U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Estimates and Projections*, Series P-25, No. 878 (Washington, D.C.: U.S. Government Printing Office, March 1980).

Data on jail populations refer to prisoners present on February 15, 1978 as reported in U.S. Department of Justice, LEAA, NCJISS, *Census of Jails and Survey of Jail Inmates—1978*, NPS Bulletin SD-NPS-J-6P (Washington, D.C.: U.S. Government Printing Office, February 1979) *less* 5,232 state prisoners housed in local jails (see NPS Bulletin SD-SPS-PSF-6A, Advance Report, listed above). The affected states include: Alabama (1,342), Florida (59), Louisiana (1,190), Maryland (380), Massachusetts (110), Michigan (44), Mississippi (1,000), New York (269), South Carolina (724), and Tennessee (114).

Figure 2.2
Growth of Inmate Populations in Federal and State Institutions
1930–1978
(1930 = 100)
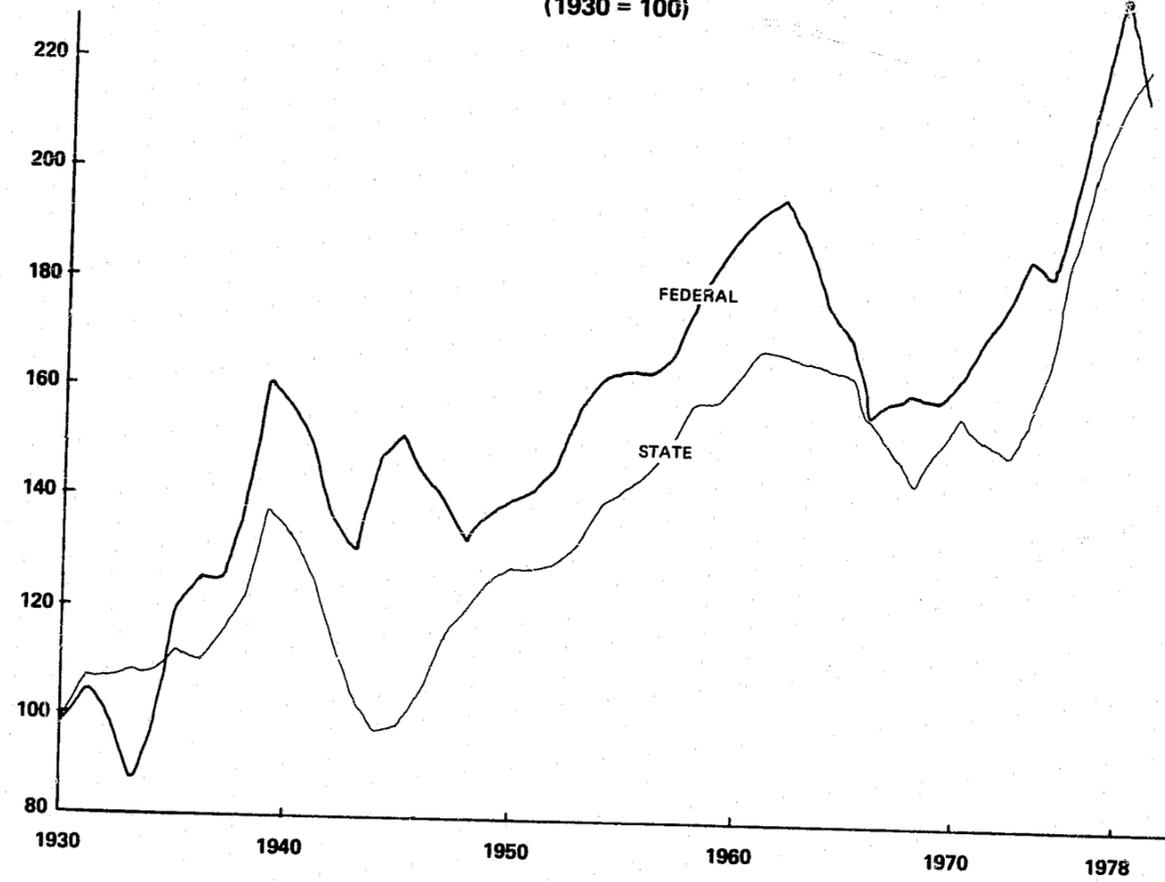
Sources: Data for state and federal prisoners for the years 1930 through 1970 in *Prisoners in State and Federal Institutions for Adult Felons* (see Note 2(a) of this chapter); data for the years 1971 through 1978 in *Prisoners in State and Federal Institutions on December 31* for the appropriate year (see Note 2(b) through (g) of this chapter).

Federal Prisoner Characteristics

Appendix Tables A.4 through A.9 display federal and state prison population on March 31, 1978 by offense type, race and ethnicity, age and sex. For federal prisoners, the distributions reported below rely on these data supplemented by more detailed information on offense characteristics provided by the federal Bureau of Prisons for 1977.

--Offense

Crimes such as murder and burglary are usually prosecuted under state law, and may not involve a federal offense unless committed outside any state jurisdiction (for example, in the District of Columbia, on the high seas, or on government reservations or territories). In 1977, roughly seven percent of federal prisoners were included in this category. Federal law is also violated when ordinary crimes are directed against victims with a special federal status, such as the postal service or a bank or other federally insured credit institution. Twenty-two percent of prisoners confined in 1977 were charged with robbery and burglary. Most of the offenses in this group were bank robbery. Another 15 percent were charged with larceny or theft, primarily driving stolen autos across state lines and postal theft. Violations of federal drug laws composed the largest single offense category in 1977, encompassing 26 percent of all federal inmates. Ten percent of the inmates committed white collar crimes such as counterfeiting, embezzlement, forgery, income tax evasion, or transporting forged or false securities. The number of immigration law violators rose and fell with political tides. In 1977 this group comprised four percent of the inmate population. The remaining 16 percent included a diverse array of offenses including assault, kidnapping, firearms, military court martial cases, escape or harboring a fugitive. Our survey data on offense characteristics are confined to the distribution of prisoners by "violent," "property," and "public order" or "other" offense classifications (see Appendix Tables A.4 and A.5). Twenty-nine percent of federal prisoners were found in the "violent" category, 24 percent were classified as property offenders and 47 percent as "public order" or "other," a category composed primarily of drug offenders.

--Race and Ethnicity

On March 31, 1978, five of every nine federal prisoners (56 percent) came from minority backgrounds. Thirty-seven percent of the total were black, and 17 percent were Hispanic (see Appendix Tables A.6 and A.7). This represents a substantial increase in minority prisoners compared to 1975, when only 37.5 percent of the total number of prisoners were minorities. The ethnic disparity was even more pronounced among women, of whom only 31 percent were white Anglos, compared to 54 percent black and 14 percent Hispanic. Of the United States adult (over 18) population, 10 percent were black and 4.5 percent Hispanics. This means that the probability of federal incarceration for blacks and Hispanics was over seven times that for non-minorities.

--Age and Sex

Because of the limited nature of federal crimes, federal prisoners tended to be somewhat older than inmates of state and local institutions (see Appendix Tables A.8 and A.9), although still younger than the general population. This effect is most clearly visible in the 12 percent of federal prisoners who are 45 years or older. Although this proportion is small compared to 44 percent of the United States adult population in this age bracket, it is much larger than the fraction of state prisoners over 45. On March 31, 1978, federal prisons housed 5,490 inmates (21 percent) who were 18 through 24, compared with the United States adult population of 19 percent who were 18 through 24. (Women 18 through 24 comprised 27 percent of all federal female prisoners in 1978; men 18 through 24 comprised 21 percent of all federal male prisoners.)

2.4   State Prison Population Trends: 1925-1978

The national trend in state prison population displays five remarkably distinct periods since 1930. As illustrated in Table 2.2, a slow but steady growth is interrupted by two periods of decline, of only five and seven years, respectively.

These fluctuations coincide, for the most part, with trends in the incarceration rate. The median incarceration rate of state prisons between 1939 and 1970 was 98.8 per 100,000 of the civilian population. At the population peak of 1939, the state prison incarceration rate was 122 per 100,000, while in 1970, following a seven-year period of decrease in incarceration rate, it was 87 per 100,000.

Table 2.2

Net Change in State Prison Populations, 1930-1978

	Net Change	Average Annual Change
Growth 1930-1939	+39%	+3.7%
Decline 1940-1944	-29%	-6.5%
Growth 1945-1961	+72%	+3.2%
Decline 1962-1968	-14%	-2.2%
Growth 1969-1978	+59%	+4.8%
● Slow 1969-1972	● + 4%	+0.9%
● Rapid 1973-1978	● +54%	+7.4%

Sources: This table is based on prisoners under state authority with sentences of a year or longer, and counted on December 31 of each year. Data for 1930-1970 in NPS Bulletin No. 47 (see Note 2(a) of this chapter). Data for 1971-1978 in NPS Bulletins for appropriate year (see Note 2(b) through (g) of this chapter).

The last period, beginning in 1969, can be separated into two phases: relative constancy (1969-72) and rapid growth (1973-1978). The increases of the most recent phase account for nearly all of the change since 1968. This prison population rise is different from any previous period of increase for three reasons: First, the number of prisoners increased more rapidly during the mid-1970's than in any previous period except the three years from the end of 1936 to 1939, when the number of state prisoners increased at an average annual rate of 7.8 percent. Significantly, that period was followed by the most rapid state prison population decrease in the last fifty years. Second, the following section will show that this increase in the mid-1970's was substantially dominated by one region of the country: the South. Of the 91,786 prisoners added to the count of state prisoners between 1970 and 1978, 64 percent of the increase occurred in the South. Finally, no other period since 1940 compares with the 1970's in state prison incarceration rate. The rate was not above 108 per 100,000 between 1941 and 1970, and its median was 98.6 per 100,000. The state prison incarceration rate has grown by 42 percent nationally since 1970, to a level of 124 persons per 100,000 in 1978 (see Appendix Table A.1).

State Prisons: Regional Components of Population

As illustrated in Figure 2.3, the geographical distribution of the U.S. prison population between 1939 and 1968 was quite stable. Until about 1956, no region varied in its percentage of the total by more than three or four percentage points. Some adjustments occurred thereafter, with a small decrease of the Northeast's share compensated by an increase in the West's portion.

After 1968, the picture changed, and the South, which had held about 36 percent of the nation's prisoners at the state level, began to increase its share. By 1978, this region held 48 percent of all state prisoners in the U.S. It is the only region to show an increase in its share since 1969. Moreover, while the remainder of the nation increased its state prison population between 1970 and 1978 by 31 percent, the South has increased its number of state prisoners by 84 percent.

The magnitude of the South's impact on the recent national trend becomes clear in light of its incarceration rate. In 1950, the prison incarceration rate of the South, at 114 per 100,000, was 22 percent greater than the average of the other three regions. In 1960, the disparity had grown to 33 percent higher than the average of the other three regions. The South's increase in imprisonment continued to outpace the other three regions of the country that decade. By 1970 its incarceration rate was 41 percent higher and by 1978 it was 93 percent higher than the average of the other three regions.

By comparing the state prison populations between 1970-1978 (see Table 2.3), we observe that the South experienced a dramatic increase in both the numerical change in state prison population and the rate per

Figure 2.3
Regional Distributions of Year End State Prison Populations
as Proportion of Total
1939—1978

State Prison Population in Thousands

260 —
240 —
220 —
200 —
180 —
160 —
140 —
120 —
100 —
80 —
60 —
40 —
20 —
0 —

TOTAL POPULATION

Northeast

North Central

West

South

1939   1945   1950   1955   1960   1965   1970   1975   1978
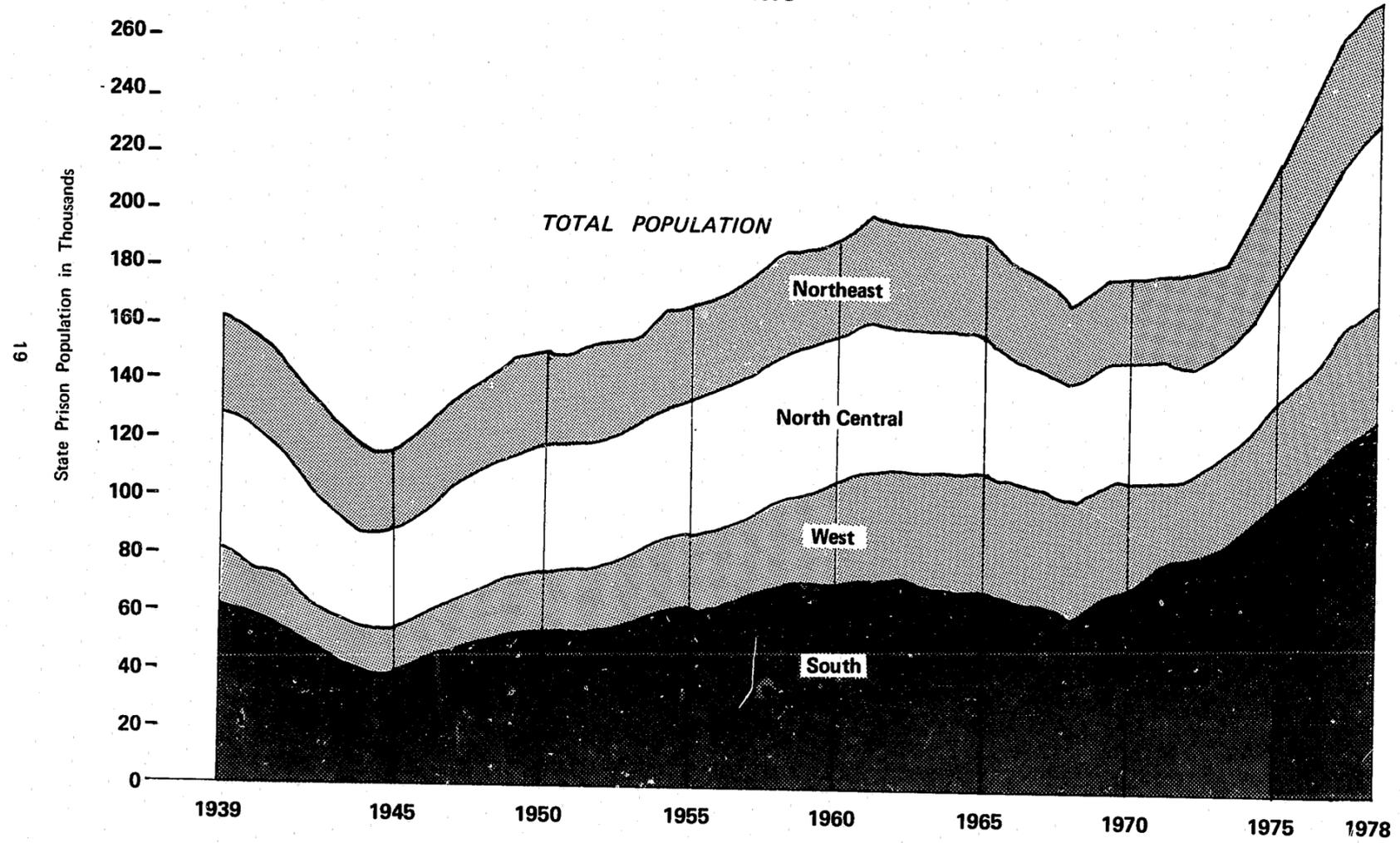
Sources: Data for state prisoners for the years 1939 through 1970 in *Prisoners in State and Federal Institutions for Adult Felons* (see Note 2(a) of this chapter); data for the years 1971 through 1978 in *Prisoners in State and Federal Institutions on December 31* for the appropriate year (see Note 2(b) through (g) of this chapter).

Table 2.3

State Prison Population Change by Region between 1970 and 1978

	1970 Prison Population	1978 Prison Population	1978 Percentage Change in Population	1970 Rate per 100,000 Civilian Population	1978 Rate per 100,000 Civilian Population	1978 Percentage Change in Rate per 100,000 Civilian Population
Northeast	28,595	40,425	+41.4%	59	83	+41%
North Central	41,941	60,246	+43.6%	74	104	+41%
South	69,590	128,108	+84.1%	112	183	+63%
West	36,277	39,410	+ 8.6%	106	99	- 6.6%
Total State Prison Population	176,403	268,189	+52.0%	87	124	+43%

Sources: 1970 and 1978 prison population data from Prisoners in State and Federal Institutions (see Note 2(a) and (g) of this chapter). Civilian population data from U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Estimates and Projections, Series P-25, No. 878 (Washington, D.C.: U.S. Government Printing Office, March 1980), Table 4, p. 9.

100,000. Although the remainder of the nation did not begin its increase until 1972, the South began in 1969 with a 1.6 percent increase in 1970, followed by a further 13 percent rise in 1971. The South is the only region to show increases every year since 1968. In 1970, the South had the largest prison population, and the highest prison incarceration rate of any region in the country. By 1978, the South significantly increased its lead in both areas, with an 84 percent increase in state prison population and a 63 percent increase in its prison incarceration rate per 100,000 of the population.

Between 1970 and 1978 only the West had a decrease in its prison incarceration rate per 100,000 of the civilian population, with a decrease of seven percent between 1970 and 1978. During the same period, the number of sentenced state prisoners in the West increased by only eight percent. Both northern regions mirrored the national average throughout the 1970's in state prison population increase, but by December 31, 1978, the number of persons per 100,000 in state prisons in the South was more than twice as great as the number in the Northeast, and 92 percent higher than the weighted average (by civilian population) for the other three regions. And as Table 2.4 shows, the South's disproportionate share of prisoners had risen by 1978 until it held 48 percent more inmates than its share of the civilian population would warrant. More noteworthy is the fact that in 1978 the South held 58 percent more inmates than its share of serious (Part I) crime would warrant.

State Prisoners Characteristics

--Offense

About 47 percent of all state prisoners incarcerated in 1978 have been convicted of violent crimes (see Appendix Table A.11). In only 15 states does the number of violent offenders rise above half the inmate count. Most of the remaining state prisoners (37 percent of the national total) were convicted of crimes against property, while a residual one in six prisoners (16 percent) is classified as a "public order" or "other" offender. About three-quarters of the public order offenses involve drugs, with the remainder being a miscellany with no obvious classification.

Regions of the country are remarkably uniform in the extent to which prisons are used to house violent offenders. With 44 percent violent inmates, the South is only slightly below the Northeast (45 percent) and West (48 percent). Fifty-two percent of inmates in the North Central states were convicted of violent crimes. The states themselves differ greatly, however, ranging from over 70 percent non-violent in New York, Nebraska, North Carolina, Arkansas, Montana, and Utah to under 40 percent in Massachusetts, Pennsylvania, Illinois, and Indiana. Figure 2.4 plots the range of the percent of violent offenders in forty-six state prison systems and the District of Columbia. (Connecticut, South Dakota, Delaware and Alabama data were unavailable.) The greatest diversity is found in the Northeast; the least diversity, in the South.

21

Table 2.4

Comparison of Prison Population with Civilian Population and with Reported Crime

	Ratio of Share of Prison Population to Share of Civilian Population*		
Region	1960	1970	1978
Northeast	0.72	0.67	0.67
North Central	0.92	0.85	0.84
South	1.23	1.28	1.48
West	1.14	1.21	0.80

*A ratio of 1.00 means that a region's share of the total state prison population is equal to its share of the total civilian population.

	Ratio of Share of Prison Population to Share of Part I Reported Crime**	
Region	1970	1978
Northeast	0.65	0.70
North Central	0.98	0.93
South	1.45	1.58
West	0.88	0.61

**A ratio of 1.00 means that a region's share of the total state prison population is equal to its share of the total Part I reported crime.

Sources: 1960 state prison and civilian population data from U.S. Department of Justice, Bureau of Prisons, Prisoners in State and Federal Institutions, 1960, NPS Bulletin No. 27 (Wash., D.C.: U.S. Government Printing Office (GPO), Sept. 1961); 1970 state prison data from NPS Bulletin No. 47 (see Note 2(a) of this chapter); 1978 state prison data from Survey of State and Federal Adult Correctional Facilities (PC-2), 1978; 1970 and 1978 civilian population from U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Estimates and Projections, Series P-25, No. 878 (Wash., D.C.: GPO, Mar. 1980); and Part I Reported Crime from Federal Bureau of Investigation, Uniform Crime Reports-- 1970 and 1978, Crime in the United States (Wash., D.C.: GPO, 1971 and 1979).

Figure 2.4
Percentage of Inmates Serving Sentences for Violent Crimes in Federal and State Adult Correctional Facilities by Region
March 31, 1978

Percentage of Inmates Serving Sentences for Violent Crimes

90					
80		• Massachusetts			
70	•		• Illinois		
60	Highest Quarter	Pennsylvania / Rhode Island / New Jersey	• Indiana		
50	Median	New Hampshire	Ohio / Minnesota / Kansas/Wisconsin / Michigan	• Virginia/District of Columbia / • Georgia / Florida / Texas/Maryland / Oklahoma	• Colorado / • California/Nevada / Arizona/Hawaii
40	Lowest Quarter	Vermont / Maine	North Dakota / Iowa / Missouri	Louisiana / Tennessee / West Virginia / South Carolina / Mississippi / Kentucky	Washington / Oregon / Alaska/Wyoming / Idaho / New Mexico
30	• / •	• New York		• North Carolina/Arkansas	• Utah
			• Nebraska		• Montana
20					
10					
0	Total U.S.	Northeast	North Central	South	West

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

23

Compared to violent offenses, we can see in Figure 2.5 that the distribution of property offenses is less variable than the distribution of violent offenses in the Northeast and North Central states, but more variable in the South and West. The distribution for property offenses ranges from less than 20 percent in Massachusetts and California to over 50 percent in New York, Nebraska, Iowa, North Carolina, Arkansas, Oregon and Utah.

Table 2.5 shows how the distribution of offense types changed during the five years of rapid prison population growth from 1973 to 1978 (see also Appendix Table A.11). In every region the percent of violent offenders went down. The decline was particularly true in the Northeast where the proportion of violent prisoners dropped from 60 percent to 45 percent. In the Northeast and Southern regions almost all of this decrease

Table 2.5

Type of Crime Committed by Prisoners (Percent of Column Total)
Regions and U.S. Total
1973 and 1978

	Northeast	North Central	South	West	U.S TOTAL
Violent Offenders					
1973	60	55	49	50	52
1978	45	52	44	48	47
Property Offenders					
1973	21	33	35	30	32
1978	37	34	41	28	37
Public Order or Other Offenders					
1973	19	12	15	20	16
1978	18	14	15	24	16

Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Census of Prisoners in State Correctional Facilities, 1973, National Prisoner Statistics Special Report No. SD-NPS-SR-3 (Washington, D.C.: U.S. Government Printing Office, December 1976); and Survey of State and Federal Adult Correctional Facilties (PC-2), 1978.

Figure 2.5
Percentage of Inmates Serving Sentences for Property Crimes
in Federal and State Adult Correctional Facilities by Region
March 31, 1978
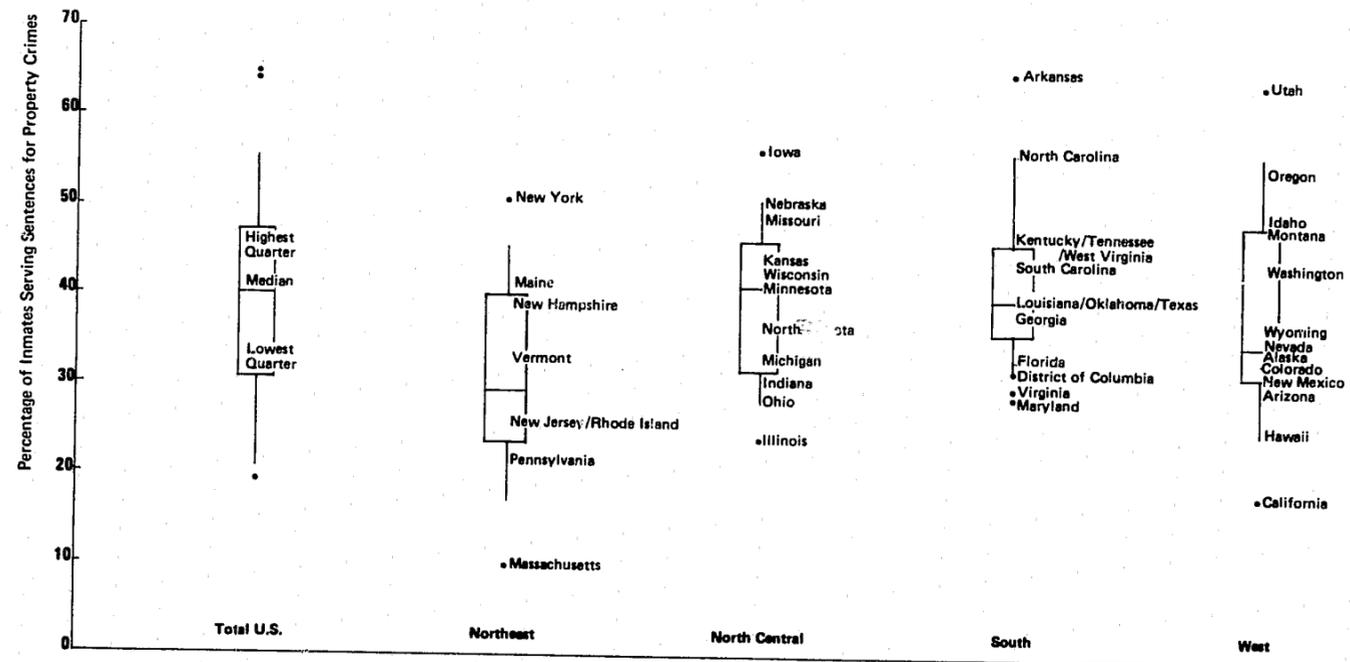
Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

was offset by the increased imprisonment of property offenders. In the North Central and Western regions, offenses classed as "public order" or "other" increased their share of the total prison population.

Proportionate distributions of offenses have changed markedly in the other regions as well. In the North Central states, the number of "public order" or "other" offender inmates increased by over 74 percent between 1973 and 1978 growing from 12 percent to 14 percent of the total North Central inmate population. In the South, the number of property offenders increased more rapidly than the number of violent offenders, with the former contributing about 60 percent of the growth, compared to 26 percent contributed by violent offenders and 14 percent by "public order" or "other" offenders. In the West, both violent and property offenders dropped as a percentage of the total sentenced inmate population, with "public order" and "other" offenders increasing their share of the total from 20 percent to 24 percent.

--Race and Ethnicity

Almost half (48 percent) of all 1978 state prisoners were black. Both the Northeast and the South held 54 percent black prisoners; the North Central states held 49 percent and the Western states, 25 percent. (See Appendix Tables A.6 and A.7.) In 1974, the corresponding figures were: Northeast, 53 percent; South, 55 percent; North Central, 44 percent; and West, 25 percent. Thus, only the North Central states have increased their percentages of black prisoners. In comparison to the federal Bureau of Prisons, state prisons hold few Hispanic Americans: under six percent of state prisoners are Hispanic. The higher federal concentrations are attributable to immigration law violators, who form the largest single class of Hispanic prisoners. In fact, nearly 28 percent of all state and federal Hispanic prisoners were in federal prison in 1978.

The incarceration rate for blacks in 1978 (467.3 per 100,000) was almost eight times as high as that for whites (59 per 100,000). The racial disparity is greatest in the Northern states--14.2 times as high for blacks as whites in the Northeast, and 10.3 times in the North Central states. Measured in this way, the racial disparity in the South (5.5 times) and West (6.5) is only about half as great as that in the North.

Table 2.6 displays the incarceration rates per 100,000 blacks and whites in each region. Rates for blacks do not differ nearly as much among regions as do the interregion rates for whites. The rates reported in this table should, however, be viewed with considerable caution for a number of reasons. Race and/or ethnicity are unknown for about ten percent of the state prisoners covered by the survey. Biases in the missing data could easily introduce a slight distortion in the incarceration rates. A more serious problem is created by the inaccuracy of the United States Census of Population. The 1970 Census seriously undercounted the number of blacks in the United States, and particularly, the number of young urban black males. Since these men have the highest incarceration rate of any demographic group in the country, their omission significantly affects the

racial/ethnic distribution of incarceration rates. Estimates based on drivers' licenses and other public records suggest that the undercount may be as high as twenty percent for blacks, which would reduce their incarceration rate from 467 per 100,000 to 389 per 100,000 or six-and-one-half times the white rate. Even allowing the full magnitude of such an adjustment, the difference between the two races remains massive.

Table 2.6

Incarceration Rate per 100,000
by Race and Region

	Blacks	Whites
Northeast	430.3	30.3
North Central	539.2	52.3
South	455.2	83.3
West	466.6	68.8
Total United States	467.3	59.3

Sources: State black prison populations from Survey of State and Federal Correctional Facilities (PC-2), 1978. Civilian populations for 1978 by region and race estimated from data in U.S. Bureau of the Census, Statistical Abstracts of the U.S.: 1979 (Wash., D.C.: U.S. Government Printing Office): 29, 34.

Demography and Incarceration rates

The historical data quoted above confirm that the comparatively large proportion of blacks in prison is not a new phenomenon. Much has been written on possible reasons for the difference between black and white incarceration rates. While this study has not developed any additional explanatory data, the problem may be put in context by a brief review of earlier research.

First, prisons are used only for certain types of crime. Persons convicted of homicides, rape, burglary, robbery and drug offenses are much more likely to be incarcerated than embezzlers, anti-trust violators, speeders or drunk drivers. Thus when we speak of black or white criminality as potentially explaining black or white incarceration rates, we must recall that only specific kinds of criminality contribute to incarceration.

For most crimes the race of the offender is not known because no one sees him (or her). Crimes of personal victimization (robbery, rape, and assault) provide a partial exception because victims of these offenses were asked to describe the offenders in the National Crime Panel victimization survey. These descriptions are reported by Hindelang[13] on the basis of approximately 65,000 interviews conducted in 1974-1975. The survey found that 62 percent of all robbery victims said their offenders were black. In 1974 about 11 percent of the U.S. population was black, so that the rate of involvement in robbery for blacks is over five times as high as for whites. Rape victims said their assailants were black 39 percent of the time, and assault victims reported black assailants 30 percent of the time, for over-representations of slightly less than a factor of four and three, respectively.

These numbers may not be literally accurate descriptions of criminality[14] since a victim's report is a composite of reality plus perception biases. For example, crime victims probably do not use exactly the same definition of "black" that the Census employs for its tabulation of "Negroes." Moreover, there is evidence that black and white victims may have different interpretations of "assault." (Blacks may be more likely to disregard minor assaults.) Finally, whether an act is construed as a crime depends on the victim's interpretation of the "offender's" intent. Interracial judgments of such intent may be inaccurate.

Regardless of whether there are biases in reporting crimes to survey interviewers, there are clearly biases in reporting them to the police. More than half (52 percent) of the victims of black rapists said they reported the crime to the police, while only 38 percent of those raped by whites filed an official report.[15] Robbery victims said they reported 62 percent of the black offenders, as opposed to 53 percent of white offenders. The pattern is reversed for assaults: 48 percent of blacks and 57 percent of whites are reported for aggravated assault, and 31 percent of blacks vs. 36 percent of whites for simple assault. Hindelang suggests that this reversal may be related to particular recall biases associated with assault, and particularly assault by persons known to the victim, which are (a) less likely to be reported, and (b) more likely to involve black victims and offenders.

Police may or may not be racially biased in arrests. The proportions of blacks among persons arrested for rape and robbery are nearly the same as the respective proportions among offenders reported to the police.[16] For assault, the proportion of black arrests is disproportionately higher. It is unclear whether this reflects bias on the part of the police or a different distribution of seriousness for assaults committed by black or white offenders.

The prevalence of racial discrimination in prosecution, conviction, and sentencing has also been extensively debated, but data on this portion of the criminal justice system are of such varying quality that the only useful empirical results come from isolated jurisdictions where information happened to be available. Probably the best known claim of discriminatory

application of the law concerns the disproportionate use of the death penalty against blacks. In Furman vs. Georgia[17] two justices noted the statistical evidence that capital punishment was discriminatorily applied. Although it can always be argued that the disproportion is not "really" discriminatory because some unmeasured (non-racial) factor distinguished the blacks sentenced to death from the whites not sentenced, it seems unlikely that the number of discriminatory sentences is really zero. The question of how large the number may be remains unanswered and is probably unanswerable with present data.

Age and Sex

In 1978, four-fifths (79.5 percent) of all prisoners in state prisons were under 35 years of age. While at least 44 states have some state prisoners younger than 18 (see Appendix Tables A.8 and A.9), only a few states have many such prisoners. New York, reporting 2,067 (10.9 percent) prisoners under 18, has 30 percent of all the under-18 state prisoners in the country. Missouri has the highest concentration of very young prisoners, with 576 inmates under 18, or 11.1 percent of the total number of inmates for whom ages were known in 1978.

Table 2.7 displays the age distributions by sex for each region. Age distributions vary only slightly, apart from some tendency for North Central states to have younger than average prisoners and Western prisoners to be slightly older. The Northeast has relatively more young (under 18) offenders than other regions, but only because of New York's population. Excluding New York, only 5.9 percent of Northeast prisoners are under 18.

Female prisoners are only slightly older than male prisoners. One percent of the women are under eighteen, and, as with men, New York accounts for a large portion (39 percent) of all the very young prisoners.

The absolute numbers of women to whom these statistics refer are extremely small. On the reference date of our survey, 10,315 women were reported as residents in state prisons and pre-release facilities, and usable age data were available for 8,785 or 85 percent of these women. Thus, when we speak of categories which include one percent of the women, we are dealing with about 100 prisoners. With so small a base, changes which are insubstantial in absolute terms may seem large when expressed as percentages.

2.5   Local Jail Population Trends [18]

Unfortunately, it is impossible to analyze jail trends for the past 50 years because the data are simply unavailable. As the previous section noted, beginning in 1968 prisons entered a period that appears to be critically different from earlier population movements, both in magnitude and regional pattern. A comparison of national jail trends as shown in Table 2.8 reveals little dramatic change at the national level, but does show regional differences.

Table 2.7
Percentage Distribution of Inmates by Age, Sex and Region

Males

Region	Under 18	18-24	25-34	35-44	Over 44
Northeast	9%	36%	38%	12%	5%
North Central	4	46	32	11	7
South	2	38	38	13	9
West	0	33	44	15	8
All States	3	38	38	13	8
Federal Prisons	1	20	44	22	13

Females

Region	Under 18	18-24	25-34	35-44	Over 44
Northeast	3%	35%	42%	13%	7%
North Central	1	41	40	12	6
South	1	34	41	16	8
West	0	34	45	14	7
All States	1	36	42	14	7
Federal Prisons	0	27	51	15	7

Source: Survey of State and Federal Adult Correctional Facilities
(PC-2), 1978.

Table 2.8

Local Jail Population Change by Region Between 1970 and 1978

	1970 Jail Population	1970-1978 Change in Jail Population	1978 Percentage Change in Jail Population	1970 Rate per 100,000	1970-1978 Change in Rate per 100,000	1978 Percentage Change in Rate per 100,000
Northeast	31,458	-7,230	-23%	64	-15	-23%
North Central	29,209	-757	-3%	52	-3	-6%
South	61,655	+5,789	+9%	99	-2	-2%
West	38,541	-271	-1%	112	-16	-14%
Total National Jail Population	160,863	-2,469	-2%	80	-7	- 9%

Source: 1970 National Jail Census and Census of Jails and Survey of Jail Inmates, 1978 (see Note 2(h) and (j) of this chapter).

Based on the 45 jurisdictions[24] for which there are census data, the net growth of the jail population of the United States between 1970 and 1978 is negative--in 1978, there were 2,469 fewer persons in local jails than in 1970. Considering the growth in the U.S. population over these eight years, this population decline is accompanied by an apparent reduction in the jail incarceration rate of about seven persons per 100,000 civilian population (from about 80 to 73 per 100,000 of the civilian population). However, the 1970 Census date (March 15) fell on a Sunday, and the 1978 Census date (February 15) on a Wednesday. Average weekend jail populations are higher than weekday counts: in 1978, weekend jail populations were 11 percent higher than those of the weekday. Comparison of the two census figures therefore somewhat underestimates actual growth, probably by about ten percent.

Local Jails: Regional Components of Population

The Northeast region accounted for the majority of the jail population decrease, with a loss of 7,230 inmates or 23 percent of its jail population. In contrast, the South showed an increase of 5,789 inmates, which resulted in a nine percent increase in its jail population. The greatest changes in the jail incarceration rate occurred in the Northeast, with a reduction of 23 percent, and in the West, with a decrease of 14 percent.

Although the national picture is one of stability, several striking exceptions can be found. The changes in most states are no larger than one would expect to find through chance alone, but in six Southern states quite dramatic growth has occurred. The growth in these states was substantially offset by significant decreases in New York, South Carolina and the District of Columbia.

Table 2.9 presents the net effects of the six states showing highly significant increases in jail population, compared to the net changes of the seven largest states (ranked by significance). As can be seen from the table, the seven largest states alone offset, in total losses, the gains of all states in which jail population growth was extreme. In fact, New York's decreases alone offset 89 percent of the highly significant increases found in other states. Without the reduction of 6,463 prisoners in New York's jail population, the 1978 national figure would have represented an increase, rather than a decrease, when compared with the 1970 national figure.

The total impact of all "important" states--that is, large or "significant," including South Carolina and the District of Columbia, which experienced reductions--on the national jail population in 1978 represents an overall decrease of 3,686 prisoners from the 1970 level. Changes among the remaining states are distributed relatively evenly across region and state size, with respect to both magnitude and sign of change. As a result, their average change can be characterized as moderate growth.

Table 2.9

Notable Changes in Local Jail Population
at the State Level, 1970-1978

A. "Significant" States				B. Large States	
1. Gains		2. Losses		All Effects	
Alabama	2031	New York	-6463	New York	-6463
Mississippi	791	District of Columbia	-1815	California	-1466
Georgia	1552	South Carolina	- 919	Illinois	+ 457
Louisiana	1193			Pennsylvania	- 493
Tennessee	931			Ohio	- 455
Maryland	795			Texas	+ 235
				Michigan	- 60
Net Gain	+7293	Losses	-9197	Net Change	-8245

Source: 1970 National Jail Census and Census of Jails and Survey of Jail Inmates, 1978 (see Note 2(h) and (j) of this chapter).

Several factors account for trends in many of those states with large or "significant" changes:

● Changes in the United States population

All of the "significant" gains occurred in the sunbelt, where civilian populations were growing unusually rapidly, bringing other indicators of change with them. In the years from 1970 to 1978, the six states listed in part A of Table 2.9 experienced a net gain in civilian population of nine percent, which must be considered a partial explanation of the 33 percent increase in these states' jail inmates.

● Court intervention

The highly significant increases shown by Southern jails in 1978 were also influenced by court intervention.[20] At the time of the Census count, four of the six states that showed gains in jail population had their prison system under court orders stemming from suits citing overcrowding. Similar suits also were pending in the other two states, Georgia and Tennessee. As a result of these orders, state prisoners were transferred to local jails or simply retained locally after sentencing. In Alabama in

March of 1978, for example, prison overcrowding had forced 2,759 state prisoners to be housed in Alabama's local jails. Within 18 months of the 1976 decree, Birmingham's county jail alone saw a 102 percent population increase. Alabama's situation was not unique: case studies documented that in Mississippi in May 1977, 458 state prisoners were being held in local jails; and in Louisiana in July 1978, there were about 210 state prisoners being held in Orleans Parish Prison alone. A total of 7,048 state prisoners were held locally on December 31, 1977.[21]

Court orders also affected at least one of the three jurisdictions showing significant reductions. In 1976, the District of Columbia jail came under court orders to reduce population to match its "rated capacity."

● Jurisdictional shifts

Changes in population frequently reflect shifts of persons from one administrative control to another, sometimes without any inmates changing their cells. For example, the reduction in South Carolina is the result of the state takeover of the county prison system in 1973.[22]

● Reduction of the number of juveniles in jails

A comparison of the 1970 and 1978 juvenile populations held in jails shows a decrease from about 7,800 to about 1,600.[23]

● Jail "release valves"

Jail populations, and particularly the pre-trial subgroup, are susceptible to various informal release mechanisms that are not applicable to prison populations. The decreases in New York, and especially in New York City, where public and private agencies foster a large range of alternatives to jail, may be partly attributed to efforts such as the Vera-sponsored release programs, which provide several alternatives to money bail, release-on-recognizance, pre-trial release, 90 percent bond, etc.

Our examination of several jurisdictions produced examples of jail officials taking new arrivals back to court for new bail hearings,[24] occasional concerted efforts to reduce court backlogs,[25] and sheriffs' notifying judges on a daily or regular basis of jail population in the hope that the judiciary would cooperate.[26] These ad hoc programs tend to come into existence when jails are overcrowded, and probably regardless of method, may tend to be more effective than ongoing efforts to utilize alternatives.[27]

● Shifts from jail to prison

Finally, jails, unlike prisons, can relieve crowding in two directions: both more lenient and harsher alternative dispositions are available,

so that more severe sanction policies may shift as many cases from jail to prison as from freedom to jail. Only the dispositions at the extremes of the severity spectrum are necessarily affected by general increases or decreases in sentence severity.[26] That is, given sufficient prison capacity, jails can always pass along those "extra" inmates who have received longer sentences, or quickly release those convicted of the least serious crimes. Shifts in sentencing policy may also work to avoid crowding in jails if the effect of the change is to substitute felony (prison) sentences for misdemeanor (jail).

Jail Inmate Characteristics

Little information is available about jail inmates because records are decentralized, turnover is rapid, there are no uniform reporting standards, and individual sheriffs sometimes destroy or remove records at the end of their terms. Table 2.10 conveys virtually all of the current information about adult jail inmates which is available at the national level. As can be seen from the table, about half of jail inmates are awaiting arraignment or trial. One-third are serving sentences of less than one year. The rest are awaiting sentencing, serving more than one year, returned for probation or parole violations, etc.

Only a few states in the Northeast and South frequently use jails for long (over a year) sentences. One-third of the inmates in Massachusetts jail, for example, are listed as serving a year or more, and 18 percent of Pennsylvania's jail inmates are in this category. In the South, the leading states are Maryland (26 percent), Virginia (16 percent), Georgia (34 percent), South Carolina (25 percent), Alabama (53 percent), Mississippi (31 percent), and Louisiana (15 percent). With the exception of this state-to-state variation in sentence length, there is no pattern of regional differences in the legal status of jail inmates.

Women, who comprise six percent of the adults in jail, tend to serve shorter sentences than men and are more likely to be awaiting arraignment or trial. In the South and West, 15 percent of all adult women are awaiting arraignment, compared with ten percent in the North Central states and four percent in the Northeast.

In addition to the adults described above, 1,611 juveniles were reported as inmates of local jails. This represents about one percent of all inmates. Most of the juveniles are in the South (669) and the North Central states (515).

2.6   Summary

The last 50 years have been marked by episodes of growth in the state and federal prison populations, which have so far always been followed by shorter periods during which populations stabilized or decreased. The period of sustained growth which marked the mid-1970's has been relatively more rapid than most of the earlier growth periods, and has been increasingly

Table 2.10

Percentage Distribution of the Legal Status of Jail Inmate
by Sex and Region -- February 15, 1978

Legal Status	Total		Northeast		North Central		South		West	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Total	100%	100%	99%	100%	100%	99%	100%	100%	100%	101%
	(146,726)	(9,233)	(22,720)	(1,124)	(26,003)	(1,669)	(63,157)	(3,344)	(34,846)	(3,096)
Not yet arraigned	9%	13%	3%	4%	7%	10%	12%	16%	8%	15%
Arraigned, awaiting trial	40	42	46	49	47	42	36	47	40	33
Convicted, awaiting sentence	5	4	6	4	6	5	5	5	5	4
Serving less than one year	32	32	29	34	34	36	25	23	43	39
Serving more than one year*	10	5	11	5	1	1	17	5	1	6
Probation or parole violators	2	2	3	3	3	3	2	2	2	2
Other	2	2	1	1	2	2	3	2	1	2

*Includes convicted state inmates whose transfer to state prisons is delayed due to overcrowding in state institutions.

Source: Census of Jails and Survey of Jail Inmates, 1978 (see Note 2(j) of this chapter).

dominated by a single region. Southern incarceration rates and prison populations have increased significantly faster than the nation as a whole. Of the 91,786 inmates added to the count of state prisoners between 1970 and 1978, over 63 percent live in the South. Figure 2.6 shows the divergence of incarceration rates among the regions, and clearly indicates that the Southern prison population trend cannot be explained by the sunbelt's increase in total population: Southern prisoners have increased much more rapidly than total populations, and in the West, which is also part of the sunbelt, incarceration rates actually declined.

The kind of people imprisoned has also changed with the increase in numbers. If data from the 1978 survey can be compared with data on offenses collected in 1973, it appears that by far the largest share of growth is due to an increase in the number of prisoners sentenced for property and public order crime, with only a small fraction of the growth attributable to greater numbers of violent offenders.

These facts underscore some of the major themes which must be considered in developing projection models. First, the experience of the last 50 years tells us that periods of growth (or decrease) do not continue forever in straight lines. Sooner or later, any simple extrapolation is going to miss a major change. Second, different states and regions may follow different patterns, and national aggregate data are likely to obscure much of what occurs.

Third, the extent to which prisons are used to punish public order offenders is heavily influenced by criminal justice policy. The increased share of these offenders in the prisons may indicate changes in the exercise of discretion which have affected both the number and composition of the correctional system population. These shifts of policy will emerge as among the most important factors in understanding changes in prison populations, and substantially influence not only how projections should be done, but how they should be used. In particular, we emphasize that the projections which follow do not attempt to predict what prison populations "will" do. They only illustrate what may occur if the policies which have prevailed in the recent past are continued for five more years, given various sets of assumptions about how key determinants of the prison populations will interact.

Figure 2.6
State and Local Incarceration Rates per 100,000
of the Civilian Population by Region —1978

Region	State	Local
South	183.5	89.7
West	99.3	96.4
North Central	103.7	48.9
Northeast	82.5	48.7
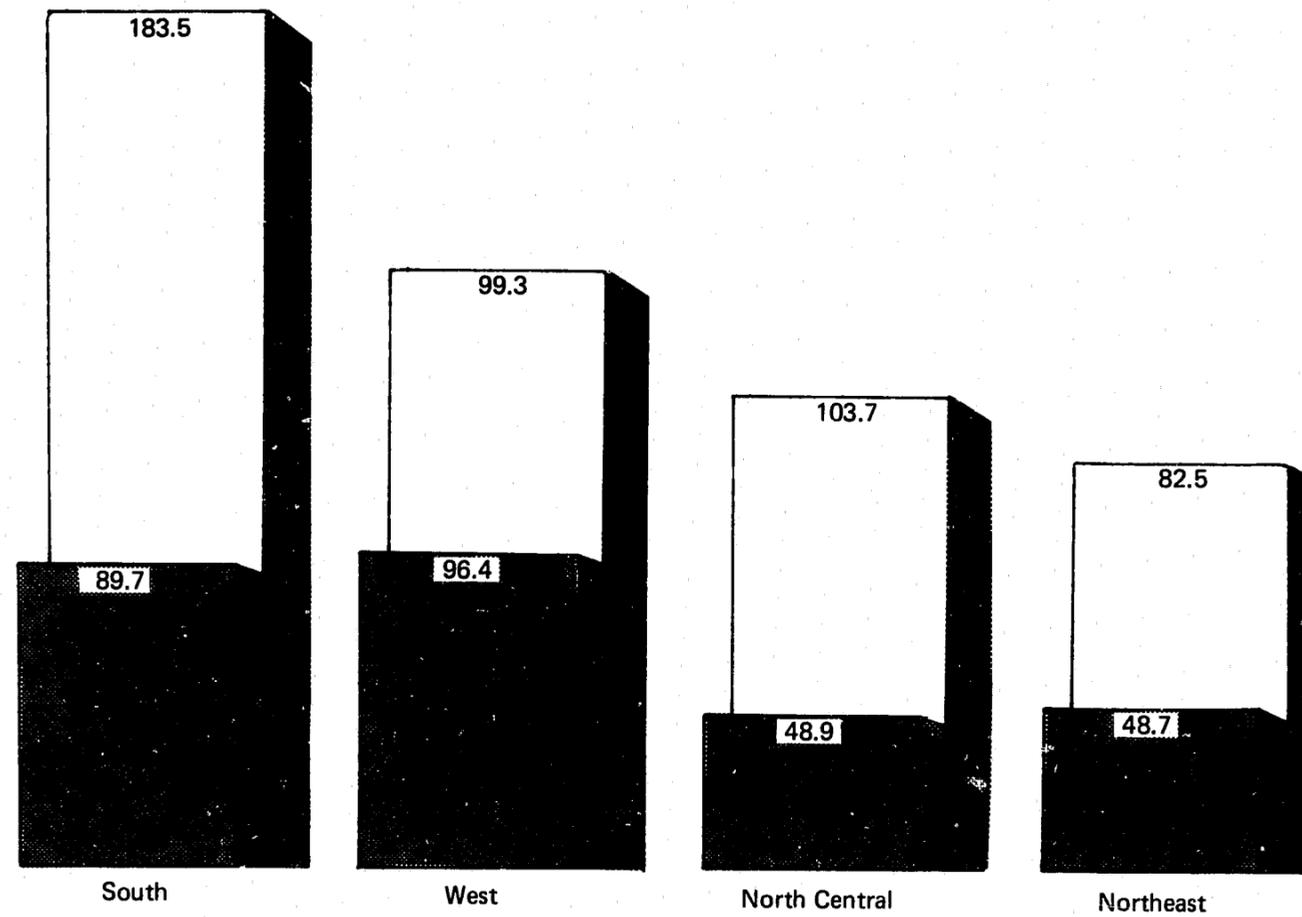
Sources: Incarceration rates calculated from civilian population data in U.S. Department of Commerce, Bureau of the Census, Current Population Reports, *Population Estimates and Projections*, Series P-25, No. 878 (Washington, D.C.: U.S. Government Printing Office, March 1980), Table 4, p. 9; state prisoner data in *Prisoners in State and Federal Institutions on Decemver 31, 1978* (see Note 2(g) of this chapter); and jail inmate data from *Census of Jails and Survey of Jail Inmates* (see Note 2(j) of this chapter).

38
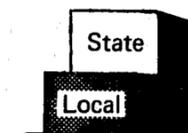
1. Prior to 1978, the Summary of Sentenced Population Movement (NPS-1) survey form counted all inmates under state <u>custody</u> (housed in state adult correctional facilities), without regard to jurisdiction. The 1978 form, however, based its count on all inmates under state <u>jurisdiction</u>, regardless of where the inmates are housed. Custody information in the 1978 form is solicited only in one supplementary question. For reasons not yet completely understood, the jurisdictional count is usually higher than the custody count. Where the U.S. Bureau of the Census counts 306,602 inmates under the jurisdiction of federal and state authorities on December 31, 1978, it counts only 295,229 inmates using a custody definition for the count. Approximately 4,000 inmates held in local jails because of overcrowding are counted under state jurisdiction, but not custody. However, this accounts for only part of the discrepancy. For illustrative purposes, the jurisdictional and custody counts for the seven integrated prison and jail systems are provided below:

	Jurisdiction Count	Custody Count
Total	10,223	9,664
Alaska	712	555
Connecticut	3,489	3,420
Delaware	1,325	1,130
Washington, D.C.	2,844	2,844
Hawaii	725	629
Rhode Island	664	649
Vermont	464	437

This change in the basis of counting inmates made our projection task more difficult; we suspect it will continue to do so in the future. This is particularly unfortunate because the custody basis of the count that has been used in the past is much more relevant to the current standards discussion than is the jurisdictional definition. We have found it much more important to know where the inmates are located rather than who is ultimately responsible for them. For both reasons, the continuation of an established time series and the greater relevancy of knowing where inmates are actually housed -- we encourage the Department of Justice to continue the collection and reporting of inmate counts based on custody.

2. Unless otherwise noted, federal and state data for this chapter are from:

    (a) U.S. Department of Justice, Bureau of Prisons, <u>Prisoners in State and Federal Institutions for Adult Felons</u>, National Prisoner

Statistics (NPS) Bulletin No. 47 (Washington, D.C.: U.S. Government Printing Office, April 1972).

(b) U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Criminal Justice Information and Statistics Service (NCJISS), Prisoners in State and Federal Institutions on December 31, 1971, 1972, and 1973, National Prisoner Statistics (NPS) Bulletin No. SD-NPS-PSF-1 (Washington, D.C.: U.S. Government Printing Office, June 1975).

(c) U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1974, NPS Bulletin No. SD-NPS-PSF-2 (Washington, D.C.: U.S. Government Printing Office, June 1976).

(d) U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1975, NPS Bulletin No. SD-NPS-PSF-3 (Washington, D.C.: U.S. Government Printing Office, February 1977).

(e) U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1976, NPS Bulletin No. SD-NPS-PSF-4 (Washington, D.C.: U.S. Government Printing Office, February 1978).

(f) U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1977, NPS Bulletin No. SD-NPS-PSF-5 (Washington, D.C.: U.S. Government Printing Office, February 1979).

(g) U.S. Department of Justice, LEAA, NCJISS, Prisoners in State and Federal Institutions on December 31, 1978, Advance Report, NPS Bulletin No. SD-NPS-PSF-6A (Washington, D.C.: U.S. Government Printing Office, May 1979).

(h) U.S. Department of Justice, LEAA, NCJISS, 1970 National Jail Census, Statistics Center Report SC-1 (Washington, D.C.: U.S. Government Printing Office, February 1971).

(i) U.S. Department of Justice, LEAA, NCJISS, The Nation's Jails, A report on the census of jails from 1972 Survey of Inmates of Local Jails, Report No. SD-J-4 (Washington, D.C.: U.S. Government Printing Office, May 1975).

(j) U.S. Department of Justice, LEAA, NCJISS, Census of Jails and Survey of Jail Inmates, 1978, Preliminary Report, NPS Bulletin No. SD-NPS-J-6P (Washington, D.C.: U.S. Government Printing Office, February 1979).

See Volume III, Chapter 2 and Appendices A and B for a fuller discussion of these 1978 jail survey findings.

4. Inmates were counted either on December 31 of each year (for state and federal prisons) or on a date arbitrarily chosen by the Bureau of the Census (for local jails). Note that the daily counts fluctuate from day to day, especially over weekends, and that they do not reflect the total number of people passing through an institution in any given year or month.

5. NPS Bulletin No. SD-NPS-J-6P, supra Note 2(j), reported 158,394 jail inmates as of February 1978. Our data total here is 5,232 less, so that those inmates who were under state jurisdiction and counted in the state counts but housed in local jails would not be reported twice. As reported in NPS Bulletin SD-NPS-PSF-6a, supra Note 2(q), the states affected are: Alabama (1,342), Florida (59), Louisiana (1,190), Maryland (380), Massachusetts (110), Michigan (44), Mississippi (1,000), New York (269), South Carolina (724), and Tennessee (114).

6. Unpublished tables provided by the Bureau of Prisons.

7. The questionnaire classified murder, forcible rape, robbery, aggravated assault, and similar crimes as "violent"; and it listed burglary, larceny or theft, motor vehicle theft, etc., as "property" crimes.

8. U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1979 (Washington, D.C.: U.S. Government Printing Office, 1979): 32-33.

9. Ibid., pp. 29-30.

10. Supra Note 2(a).

11. U.S. Department of Justice, LEAA, Profiles of State Prison Inmates: Sociodemographic Findings from the 1974 Survey of Inmates of State Correctional Facilities (Washington, D.C.: U.S. Government Printing Office, 1979).

12. Our data from the 1978 Survey of State and Federal Adult Correctional Facilities (PC-2) plus an estimate for California which did not provide data for this variable. The NPS Special Report cited in footnote 11 above provided the same percentage for 1974.

13. Michael J. Hindelang, "Race and Involvement in Common Law Personal Crimes," American Sociological Review 43 (February 1978): 93-109.

14. Roger McNeely and Carl Pope, "Race and Involvement in Common Law Personal Crime: A Response to Hindelang," Review of Black Political Economy 8 (Summer 1978).

15. Supra Note 13.

16. Federal Bureau of Investigation, Uniform Crime Reports for the United States (Washington, D.C.: U.S. Government Printing Office, 1975): 191, quoted in Hindelang, ibid.

17. 408 U.S. 238 (1972).

18. Jail statistics in this section are based on actual number of inmates housed in local jails regardless of jurisdictional authority.

19. Of the 50 states, the six states that administer jail populations are excluded (Alaska, Connecticut, Delaware, Hawaii, Rhode Island, and Vermont). None are large enough that inclusion would affect the general trends observed in this discussion. In 1977, these states held at most 1,893 persons who were unsentenced or serving sentences under one year. This represents 1.2 percent of the total jail population.

20. See review of impact of court intervention on custodial population movements in Volume III, Appendix A-1.

21. Supra Note 2(f).

22. This conclusion is drawn from the Annual Report of the Board of Corrections for the period July 1, 1973 to June 30, 1974, printed under the direction of the South Carolina State Budget and Control Board.

23. This was probably related to changes in reporting procedures used by local agencies. It may also in part be a consequence of implementation of the Juvenile Justice and Delinquency Prevention Act of 1974. Juvenile data are from the National Jail Census, 1970, and from preliminary data from the 1978 National Jail Census.

24. Dade County, Florida; Milwaukee County, Wisconsin; and Wayne County, Michigan.

25. Wayne County, Michigan.

26. Harris County, Texas.

27. U.S. Department of Justice, LEAA, NILECJ, Instead of Jail (5 volumes), by John J. Calvin et al. (Washington, D.C.: U.S. Government Printing Office, 1977).

28. Zimring interprets unpublished data of Zeisal (in Anatomy of Criminal Justice, Chicago: University of Chicago Press, forthcoming) to imply that many individuals now receiving prison sentences would otherwise go to jail.

CHAPTER 3
LOGIC OF PROJECTIONS

3.1   Meaning of Projections

The terms "projection," "prediction," and "forecast," often are used interchangeably to refer to any statements about the future. Webster's definitions reveal a nuance which corresponds to an important philosophical distinction among the terms. Forecasts are "estimates of future happenings or conditions." A prediction is "something declared in advance." Under these definitions, forecasts and predictions are true if and only if they are fulfilled. Their validity is not compromised because they may be based on turtle shells, planetary movements, or satellite photographs, so long as the future events match the forecast.

Projection is contrastingly defined as "an estimate of future possibilities based on a current trend." Two elements of this definition should be highlighted. First, most possibilities are not realized, so that a projection which genuinely captures the range of future possibilities can be only partially fulfilled. Second, projections explicitly rely on current trends; if states depart from these trends the projection cannot be tested for validity. Projections, as we use the term in this report, are essentially statements about the past and about sets of assumptions relating past and future. Changing these assumptions changes the resulting projections.

In the preceding chapter we presented historical trends in the population of federal, state, and local correctional institutions. In this chapter, we examine a range of assumptions about how these past trends might relate to future possibilities. As with the trends themselves, these projection assumptions can only be evaluated as they apply to the past. Those assumptions which were unable to provide an adequate explanation of the recent past were rejected as unlikely to provide much guidance for the future. The converse was not necessarily true; formerly valid relationships could break down at any time.

The number of such hypothesized relationships was bewilderingly large. As we undertook the task of examining the projection assumptions which might be applicable, we tended to speak of the "unexplained rise in prison population." Actually, explanations (all formulated after the fact) were not lacking. If anything, we suffered an embarrassment of riches. Causes ranging from the maturing baby boom to the economic dislocations of inflation and unemployment were advanced. Experienced observers pointed to tougher attitudes among criminal justice practitioners: judges, they said, were handing out longer sentences and more of them; prosecutors were striking harder bargains; offenders were committing and being arrested for more serious crimes, which carried higher penalties; parole boards were

granting releases more cautiously and returning technical violators more quickly. LEAA assistance to courts and prosecutors may have cleared longstanding case backlogs and enabled prosecutors' screening programs to identify and concentrate on the most serious and well-founded cases, leading to higher conviction and imprisonment rates. All told, there were probably enough ex post facto hypothesized causes to account for the observed trends several times over.

Moreover, there was every indication that yet more forces would come into play. Legislation reallocating sentencing discretion in various ways was being considered by the U.S. Congress and by more than half of the state legislatures. Proposed changes ranged from the proscription of plea bargaining (Alaska) to mandatory minimum sentences (Florida), parole guidelines (Oregon), or the elimination of parole discretion in the release decision (California). Most of these proposals were seen as potentially increasing the numbers of people in prison, and as certainly eliminating at least part of the traditional mechanisms whereby these numbers have been informally regulated.

3.2   Previous Research

Numerous projections of inmate populations have been prepared for federal, state, and local jurisdictions. The Congressional Research Service[1] prepared a series of projections for the federal Bureau of Prisons in connection with a 1974 appropriation debate. The projections relied on a correlation between unemployment and prison intake, and on a series of unemployment predictions which prophesied an immediate decrease in unemployment, followed by stabilization at four percent. On this basis, the projections anticipated only limited growths in population. Events demonstrated the hazards of this projection method, as both unemployment and the federal prison population proceeded to increase beyond all recent precedent.

In 1976 the National Planning Association[2] prepared a series of projected manpower needs for each component of the criminal justice system, using an econometric two-stage least squares model. The number of prison inmates appeared as an intermediate variable in the corrections sector of the model, and as a function of the number of arrests and levels of employment in the prosecution, defense, and corrections sectors of the model. Although the report was released in November 1976, the most recent prisoner statistics used were from 1974. The model projected a gradual increase in the prison population over a ten-year forecast period. Like the CRS projections, the NPA projected maximum has already been exceeded.

At the state level, a much wider variety of projection methods have been explored. For the most part, projection of prison populations has been a preliminary step in projecting the year's operating budget for state prison systems. Depending on the degree of controversy associated with the budgeting process, any number of projections from zero growth and up may be prepared. As background material for this project, each state department of corrections was asked for copies of any projections they had done. Half the states supplied materials in response to this request.

The 25 states who did not respond presumably represent several distinct classes. Some may have prepared projections which were not obtained simply because our survey response was incomplete. Others may have projected populations for internal use but were reluctant to distribute the results for policy reasons. Most cases, however, are probably like that of the New England state that laconically responded, "we take what the courts send us."

While planners tend to be more aware of reasons for making projections, some fairly cogent reasons against them can also be advanced, and may have motivated those states who avoided published population projections. The first of these is simply the conceptual and technical difficulty of preparing a credible projection. Particularly in a small state, a large percentage of the total population is subject to essentially random variation for which projection would be meaningless. It may be argued that the non-random portion of the population variation, to the extent that it represents the results of decisions taken outside the corrections system, is not subject to review or prediction by corrections, and that published projections are therefore seen as either inappropriate or infeasible. Finally, budgeting procedures may leave little room for consideration of expected future populations in the negotiating process. Last year's budget, the degree of public concern over prison conditions, willingness to increase spending, and support for competing programs may all exercise greater control over the budget than a projection of the number of inmates. Since many prison costs are virtually independent of the number of prisoners, and others demonstrate fairly low sensitivity, such seeming motivations may reflect a realistic assessment of needs and allocation procedure. With an audience which may be unaware of or unsympathetic to the complexity of the relationship between costs and numbers of prisoners, corrections administrators are understandably reluctant to release information which they may perceive as potentially harmful or misleading.

Among those jurisdictions which provided at least one projection, there was no consensus of either approach or interpretation. States chose various ways to reflect the dependence of correctional futures on decisions made elsewhere in the criminal justice system. About half (12 in the sample of 25) either made no mention of the issue, or assumed that whatever policy was to be pursued would be automatically consistent with their choice of projection methods. Some considered the possible effects of changed policies, and either included a disclaimer stipulating that all bets were off if any policies were switched, or asserted that the projection corresponded to the "most likely" policy configuration. Others went on to point out that they had explicitly rejected the notion of alternative possibilities because of the need to prepare a budget which could not reflect contingencies.

In six states, projections were prepared which acknowledged the links between sentence/release policy and prison populations. This generally took the form of published "high" and "low" projections, without specification of which behaviors in particular contributed to the high or low levels of incarceration. In two instances, however, the projections explicitly considered the possibility of significantly expanded diversion programs, assuming that the participants in these programs would otherwise have been part of the prison population.

Four states employed two or more alternative statistical methods, including linear regression, simulation of intake and release rates, and estimates based on the fraction of population (or population at risk) incarcerated. While such multiple methodologies were supported by reference to the generally inchoate state of the projection art, there was little guidance to help the reader decide which of the methods most closely approximated the situation in the state. Unlike the states in which policy alternatives exist, there were no attempts to provide any indication of the possible correspondence between policy and the mathematics of future prison populations.

In the following sections, three broad classes of projection techniques--leading indicators, extrapolation and simulation of intake and release--are discussed, examining the experience of states using such methods, theoretical and statistical considerations, and experience gained in the course of this project.

3.3 Leading Indicators

Like the federal study described above, one group of state projections relies on identifying one or more external variables which are claimed to bear some relation to future prison populations. Examples of leading indicators include: population, unemployment, and crime. Detailed reviews of some of these studies are provided in the Appendix. Here we summarize the methodological issues raised by this approach.

Population (Age-at-Risk, Race and Total Population)

Population is generally defined to refer to subgroups stratified on race and/or age. The projections are invariably based on the assumption that imprisonment rates will remain constant within strata throughout the future of the projection period, often despite evidence that the rates have not remained constant in the very district for which the projection is being prepared. A popular hypothesis relates the most recent growth in prison populations to the fact that the fraction of the U.S. population in the most incarceration-prone ages (just over 18) grew significantly during the 1970's. Because the post-war baby boom has only happened once, the relationship between it and the prison population is not really a statistical question. We can, however, ask how age-at-risk has performed as a predictor of prison populations in the past, and in particular, how it compares to other correlated time series, such as a simple straight-line fit or the total population of the state. We tested these models in two exploratory studies using the 20- to 29-year-old segment of the total population and the 20- to 29-year-old black population as candidate leading indicators in selected states where detailed data were available. Both studies had disappointing results. Over the comparatively short time span of the last decade, the changes in prison population have been too rapid and abrupt to fit any simple function of the demographic distribution. Since 1960, the ratio of inmates to population at risk declined steadily in Iowa, increased in South Carolina, and fluctuated in Illinois. Using the post-war Iowa time series, a statistically significant correlation between the number of inmates and the population at risk is found. Unfortunately, for both variables, the simple correlations are negative. If a regression model is used to remove the common effect of a simple linear growth trend from the two series, the correlations vanish. Moreover, the imprisonment rates are statistically less stable than the prison populations per se. The coefficient of variation of the rates is roughly twice as high as for the number of inmates.[3]

Only the series of papers by Blumstein and his coauthors[4] provide an explicit test of the hypothesis that a constant fraction of the population is imprisoned. Blumstein's population statistics refer to the total resident civilian population without the customary refinement to distinguish the greater risk of incarceration faced by young black males. Over the period covered by Blumstein's data (1929-1974), the incarceration rate neither increases nor decreases systematically. This trendlessness is of particular interest in light of the sustained growth during much of this period of the putatively high-risk population subgroup. Blumstein relates this trendlessness to a concept of stability of punishment first formalized by Emile Durkheim in 1895,[5] which posited a societally determined level of tolerance for deviance. Under this model, a constant fraction of the population would be singled out and labeled as unacceptably deviant, largely independent of the actual behavior of the group. This view of incarceration is fundamentally different from the more direct population linkage assumed by the at-risk projectionists, who presumably rely on a chain of causation leading from demographic characteristics to criminal behavior to criminal sanctions. To the extent that national time series can distinguish between these two models, Blumstein's results appear to support Durkheim's social stability model over the more commonly used risk models.

Several important characteristics of the data are not adequately explained by the stability formulation. At least twice in history the incarceration rate has begun to rise far above the supposedly stable level. The first time the rise was interrupted by World War II. The second began in 1972, just as Blumstein's data were ending. These fluctuations appear significantly larger than one would expect if annual incarceration rates were simply normally distributed around some constant stable value.

Even more difficult to explain is the fact that few individual state incarceration rates show the same pattern of stability as the national average data. Since social deviance is defined by state law and its sanctions imposed by state courts, one would expect state level data to provide stronger support for the stability model than do national aggregates. Instead, it appears that the stable national rates are derived from mutual (and possibly fortuitous) cancellation of conflicting non-stable state systems.

Unemployment and Crime

Unemployment has been shown to be correlated with crime among individuals. Studies of released prisoners[6] and pre-trial releasees[7] have found that unemployed persons are significantly more likely to be rearrested than are their working counterparts. Census tracts reporting high unemployment rates also tend to have high crime rates.[8] Theoretical analyses of criminal motivation provide various possible explanations for these correlations, based on simple economic rationality (for some people crime may pay more than legitimate labor) and relative deprivation (when legitimate avenues are closed, only illegitimate ones remain). It is also possible that the correlations are due in part to the way unemployment is defined. People who work full time selling drugs or emptying banks are not likely to respond "pusher," or "robber" when asked their occupation. They are rather more apt to say they are unemployed, contributing to a correlation between crime and unemployment, but without the usual causal interpretation.

For unemployment to be a useful leading indicator of prison populations, the correlations of interest are those which show a consistent relationship over time, rather than over individuals. Figure 3.1 shows the raw time series of serious crimes (homicide, rape, robbery, aggravated assault, burglary, and auto theft), and unemployment (percent of civilian labor force). The two are not significantly correlated ($r = .23$, $n = 22$, $p > .2$). Most of the correlation is produced by the 8.5 percent unemployment rate of 1975. Without this year, $r = .06$, $n = 21$, $p > .4$. A similar lack of correlation exists when the specific components of the unemployment index are considered. Over the same historical period, there are significant correlations between the unemployment rate for non-white males (as opposed to the total population) and the rates of burglary and robbery. However, since the correlations are negative, they are almost assuredly spurious. There were decreases in non-white unemployment over the period and increases in crime, but it is most unlikely that the two are causally linked.

That this almost certainly spurious correlation is nominally statistically significant teaches us an important lesson about interpretation of correlated time series. The significance tests for correlations assume (among other things) that the errors of successive observations are uncorrelated. Since both variables had clear trends over the period

Figure 3.1
Rates of Serious Crime and Unemployment
1957—1978
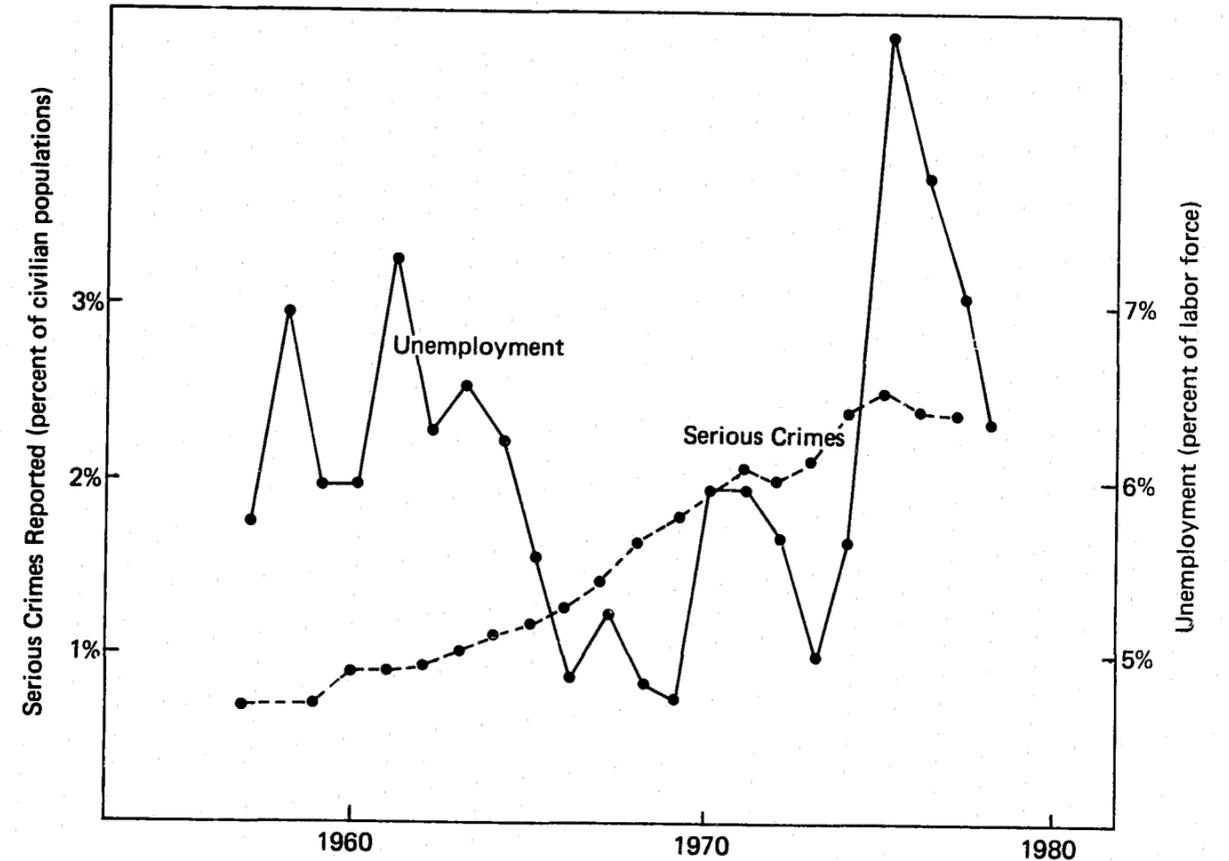
Sources: U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 1* (Washington, D.C.: U.S. Government Printing Office, 1975), Series D86 and H953; and U.S. Bureau of the Census, *Statistical Abstract of the United States: 1979* (Washington, D.C.: U.S. Government Printing Office, 100th Ed., 1979).

tested the true errors may well violate this assumption, causing a false conclusion of significance to be drawn. The influence of correlated residuals may be a factor when we proceed to examine the relationship between crime and prison population.

Crime in the United States, as measured by the FBI's index of seven major violent and property offenses reported to the police, reached a temporary peak in 1976. During the preceding years of increasing crime, increasing numbers of inmates had been added to state and federal prisons. In the years after the peak in crime rate, prisons in about half the states began to experience small declines in the rate of new intake from courts, which according to our projections and preliminary data should be reflected in abatement, and perhaps reversal, in the growth of their incarcerated populations.

It is natural to ask whether these two events were related, and if so, in what way. A naive analyst might assume that more criminals in prison must mean fewer on the streets, and hence less crime. The more conventional approach simply assumes that the increased volume of cases would be transmitted through police, prosecution, and the courts, directly to prison (perhaps with some attenuation along the way). There is no question that over the last few years the two time series have moved together. It is, however, possible that the relationship was more coincidental than causal.

The overwhelming majority of crime in the UCR part I index is larceny (of varying severity, as the definition shifted from year to year). Since larceny is rarely prosecuted as a felony, the number of possible prison sentences generated by index crimes is much smaller than the total number of crimes. Moreover, since no more than one in five of the reported offenses ever results in arrest, to say nothing of a conviction on the original charge, the slack between crimes committed and crimes punished by imprisonment was large enough to absorb large fluctuations in case volume without necessarily having any influence on prison populations. Finally, since arrest statistics suggest that perhaps as many as half of all crimes are committed by juveniles, many of the offenders who were caught would never make it to the adult correctional institutions which were the subject of our study.

Table 3.1 shows the aggregate correlation between offenses reported to the police (UCR part I crimes) and changes in prison populations in each of the six years before and after the crime rates were reported. Computed at the state level in a combined longitudinal and cross sectional analysis, summations are across all states, covering 20 years of crime and population data. The correlations are not significantly different from zero. In fact, the largest of them reflects a shared variance of at most three percent. These two results can be reconciled only if one acknowledges that while each individual sees a single process leading from crime through arrest and conviction to imprisonment, different individuals may be treated differently.

Probabilities of conviction given arrest for a specific crime, or of incarceration given conviction change with time, so that no simple linear relation between aggregate crime and imprisonment exists.

Despite the absence of a temporal relationship between crime and unemployment, there is a significant correlation between unemployment and prison commitments ($r = .57$, $n = .22$, $p < .01$). Other studies have observed this same correlation on the national level and for specific states.[10] The explanations which are presented for these results are clearly inconsistent with the lack of any intervening correlations involving crimes actually committed. While no empirically validated explanation of this effect has yet been published, the results leave ample room for speculation. Judges may prefer to grant probation to employed defendants. Social moods may shift toward law and order in hard times. Public order offenses such as drug possession or sale are not reflected in the serious crime index used above, since they are not ordinarily reported to the police. If these acts increase in times of unemployment, they might provide a partial explanation of the findings. It is also distinctly possible that the correlation between unemployment and prison intake could be entirely spurious. Both variables could reflect broad changes in some unmeasured third characteristic of society yet to be identified. Both prison and economic variables tend to be autoregressive (last year's values are correlated with this year's). This is likely to induce correlation among the residuals of the regression between the two series, so that correlations may be artifactually inflated. Thus, while there seems to be some relationship between unemployment and prison intake, caution seems appropriate in adopting any interpretive view.

Table 3.1

Relationship Between Crime and Prison Population

Years of Lag	Current Population		Current Crime	
	Lagged Crime	Lagged Population	Lagged Crime	Lagged Population
0	.08	1.00	1.00	.08
1	.12	.22	37	.02
2	.18	.01	.06	-.11
3	.11	.05	.03	-.12
4	-.18	.15	.28	.00
5	.09	-.01	.42	.07
6	.15	.03	.39	.00

In Table 3.2 we look at the correlations between the number of persons unemployed in each state and year and changes in prison populations. In this analysis we find no significant relationships which would support the use of unemployment as a leading indicator of prison populations. If we were looking at only one coefficient at a time, the .597 correlation between current unemployment and the change in prison populations three years ago would be statistically significantly different from zero. However, because it is only one of 14 correlations considered, and because no plausible relationship in this direction has been suggested, we are reluctant to attribute the effect to more than chance.

Table 3.2

Relationship Between Unemployment and Prison Population

Years of Lag	Current Population Lagged Unemployment	Current Unemployment Lagged Population
0	-.001	-.001
1	.012	.008
2	-.188	.009
3	-.019	.597
4	-.018	.131
5	.118	-.239
6	.031	-.020

As a practical matter, the authors who adopted unemployment as a leading indicator appear to have fared poorly because unemployment is not much easier to project than prison intake. Recent projections have invariably proved optimistic, and generally are no more than conjectural after the second year. The results were a series of low population projections for the years that actually experienced the fastest growth in history. Both the state and federal projections using unemployment to project intake subsequently used intake to project releases (Congressional Research Service, Georgia) or population (Colorado). In the CRS projection of federal prisoners, releases are estimated at 1.3 times last year's intake minus 6177. Because in the model intake increases with unemployment and releases increase faster than intake, this has the bizarre result of causing prison populations to decline sooner and more steeply for high levels of unemployment than for low levels. In the CRS model for states, releases grow more slowly than intake, so that prison populations at least increase with increasing unemployment. In the Colorado version of the model, population is assumed to be a linear function of intake, intake is a linear function of unemployment, and unemployment is projected to be nearly constant, with

the result that the prison population itself is projected to be constant. It is important to note that these projected growth patterns are not findings. They are inevitable consequences of the modeling assumptions, and would not be altered by data.

Capacity and Population

A relationship between population and facility capacity has been suggested by proponents of a construction moratorium, most notably William Nagel who has provided numerous illustrations of the notion that building more institutions may simply mean incarcerating an ever greater share of the population:

> "Probably the best institution that we visited in America was the new, handsome one, the Purdy Treatment Center for Women, at Gig Harbor, Washington. In our view, both its architecture and its leadership are inspired. Before it was opened, however, only 69 women were imprisoned in the state of Washington. In less than two years of its opening, the population at Purdy has soared to 153, very close to its capacity of 170."[11]

Because of its clear policy implications, we included construction of new prison space in our list of possible leading indicators. Although incorporated in the same data base as other potential leading indicators, this variable was conceptually of a different kind than the others. Implicit in all economic, demographic, and crime-related models was the notion that illegal behavior was an essential element in incarceration, and that the corrections systems were responding in some invariant way to the stimulus of these individual actions. Admitting a role for capacity implied a view of the system directly counter to this reactive model. Here institutional actions were seen as determinant, with building decisions based on factors quite apart from the needs of existing populations. If there was any assumption about individual criminal activity, it was that potential prisoners were always available in surplus, and could be incarcerated at will by a system with sufficient space to hold them.

The practical implications of these two conflicting views of the process are considerable. If the natural phenomenon approach (demography, crime, and the economy) were valid, reactive planning might be justified, and the questions of building become essentially tactical rather than strategic. Under this model, the ideal corrections system would be one which had space available when needed, where the needs were generated outside the corrections system, although that system might be able to anticipate those trends.

If the opposite model held, and capacity changes were echoed in the number of inmates, a substantial new burden would be imposed on corrections planners, whose actions would now become potentially proactive rather than

reactive. Under this model, construction would be justified only by a belief that steps to increase the number of prison inmates were appropriate, a belief which could only be predicted on some underlying assessment of the purposes of incarceration and the ability of prisons to achieve those purposes. As we have seen, no consensus on these deep issues exists, and a linking of construction to population growth would transfer all the turmoil of the debate about purposes directly to the planner's arena.

We can display the relationships which might be hypothesized among these variables in the following diagram:

Path of Hypothesized Relationships Among Leading Indicators of Prison Population

$\longrightarrow$ indicates hypothesized linkage

$----\rightarrow$ indicates alternative hypothesis
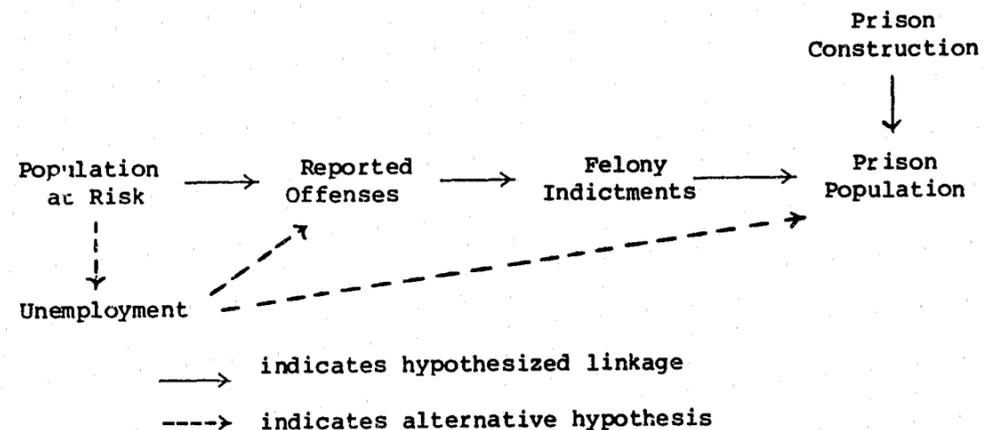
Our actual analysis cannot proceed directly on this simple path diagram because the linkages are not expected to be instantaneous. We need an analytic method which takes account of the time implicitly underlying each of these variables. Accordingly, the following regression format was used:

$$Y_t = a_o + a_1 Y_{t-1} + \ldots + b_o X_t + b_1 X_{t-1} + b_2 X_{t-2} + \ldots + \quad (1)$$

where Y_t = hypothesized result of process and

X_t = hypothesized leading indicator of Y.

In estimating the a's and b's, results from all states with available data were pooled. Correlations were estimated for t = 1955, ..., 1977, using as many lag terms as were available (i.e., first year lags begin in 1956, second year lags in 1957, and so on). Although the theoretical model includes infinite lags, in practice they were limited to six years. Correlations were examined for stability over time and among geographic regions of the country.

54

Significance tests were based on the F ratio generated by analysis of covariance:

If R^2_{XY} = the squared multiple correlation associated with

$$Y_t = a_o + \sum_{i=1}^{k} a_i Y_{t-i} + \sum_{i=1}^{k} b_i X_{t-i} + \varepsilon$$

and R^2_{YY} = the square multiple correlation for

$$Y_t = a_o + \sum_{i=1}^{k} a_i Y_{t-i} + \varepsilon$$

then $F = \dfrac{(R^2_{XY} - R^2_{YY})/(k + 1)}{(1-R^2_{XY})/(s \times y-2k)}$

where s = number of states
      y = number of years
      k = number of lag terms

Because prison populations are substantially correlated from year to year—for the very good reason that most inmates remain incarcerated for more than a year—the usual regression assumption about non-autocorrelated residuals is unlikely to hold. To eliminate this problem, all variables are transformed to their first differences (i.e., signed change from one year ago) and all tests are based on these differenced series.

Although the foregoing discussion raised doubts about the theoretical and methodological value of models based on crime and unemployment, the time series of these variables for each state were included in the data base for these computations, and the parameters relating capacity to population were estimated both including and excluding effects of crime and unemployment. We are unable to detect substantial significant relationships between these and their hypothesized consequences which would justify our use of the variables as a basis for projection. This does not rule out the possibility that such relationships may actually exist. It simply means that in the sometimes noisy and possibly mis-specified test in which our model seeks such relationships it was impossible to detect them.

Only in examining the relationship between capacity and population do we have what appear to be clear-cut statistically significant results. We find that changes in capacity are significantly related to changes in population. This much was generally known before our study began. What is new is the temporal relationship of these effects. There is no relationship between future capacities and present populations. We can say with 99 percent confidence that building to house existing populations represents less than one space for every 30 inmates. All regression terms in the equation predicting capacity on the basis of population are near zero, and all have

55

standard errors so small that the probability of their reaching substantial levels (where "substantial" means on the order of one space per inmate) vanishes.

We also find no relationship between capacity change and population change in the same year or with a one-year lag. However, the picture changes abruptly at lags of two or more years. For these we find a significant (p < .001) and substantial (approximately one inmate per unit of space) effect of past capacity changes on future populations. Taking all the coefficients into consideration, our results say that on the average:

- capacities do not appear to be changed more often in crowded conditions than at other times;

- additions are filled to rated capacity by the second year after opening additional space;

- within five years the occupancy of the new space averages 130 percent of rated capacity.

We do know that some states in some years showed less responsive behavior, while others showed more. It should be emphasized that these are aggregate historical statistical trends, and not rigid rules governing the behavior of every state.

Other Leading Indicators

Observers of correctional practice have pointed to a number of other structural changes in the criminal justice system which may be related to changes in the prison population.[12]

--Reporting Rates

Data on citizen reporting of crime have only recently become available,[13] so that historical trend analyses are impossible. The probability that a crime covered by the survey would come to the attention of the police has risen slightly, from 28 percent of all crimes in 1973 to 32 percent in 1976. Table 3.3 shows the data on reporting rates for major crimes included in the victimization survey. Only assault shows any significant change in reporting rate over the years. Since assault cases make up a relatively small fraction of the prison population, it seems unlikely that any meaningful portion of the growth in prison populations from 1973 to 1976 can be traced to changes in citizen reporting behavior.

--Criminal Justice Policy

Policy at various levels of the criminal justice system is reflected in a series of statistical indicators. We can begin to quantify judicial sentencing policy by looking at the probability of a prison sentence for persons convicted of specified crimes, and at the distribution of lengths of such sentences. Similarly, prosecutorial policy is partially defined by the probability of indictment given arrest and the rate of conviction given indictment. Each of these indicators is influenced by the behavior of multiple actors, and is only a partial measure of the policy of any of its participants. Taken together, however, they provide measures of the key events and decisions in an individual offender's path through the system. The key indicators which might serve as measures of the links between policy and incarceration include: arrests, indictments, felony convictions, sentences and intake to prison, parole hearings, release on parole or at expiration of sentence and length of time served.

Many of these indicators cannot be tested because data are uniformly unavailable (crimes committed) or available only in isolated and incomparable forms (persons arrested, length of prison sentences, parole hearings, time served). In individual states where detailed data were obtained, our results indicated that of the remaining variables, those at the end of the continuum offered the least hope of providing systemic leading indicators.

Table 3.3

Percent of Victimizations Reported to the Police
1973-1976

	All Crimes	Rape	Robbery	Burglary	Assault
1973	28%	44%	51%	46%	43%
1974	30.3%	51.8%	53.6%	47.8%	44.7%
1975	31.6%	56.3%	53.3%	48.6%	45.2%
1976	32.2%	52.7%	53.3%	48.1%	47.5%
(approximate standard error)	2.4%	12.6%	5.0%	2.2%	3.1%

Source: U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Criminal Victimization in the United States: 1973 through 1976; No. SD-NCP-N-4 (December 1976), No. SD-NCS-N-6 (December 1977), No. SD-NCS-N-7 (December 1977), and No. SD-NCS-N-9; Washington, D.C.: Government Printing Office.

for two reasons. First, variables farthest downstream seemed least suscep-
tible to change in the cases we examined. Time served in both New York and
Florida showed no indication of any increase or decrease during the time of
most rapid growth in the early 1970's. Sentences to prison increased, but
less rapidly than indictments, and these in turn changed less than arrests.
Leaving aside empirical questions, the further consideration remained that
late changes might be too far downstream to provide leading indicators of
any practical utility. Thus, for example, even if the release function had
been changing in New York, we would have seen the results in the prison
population at approximately the same time the change occurred in the
release series itself, making it of little practical value as a leading
indicator.

While this suggests that events preceding sentencing might show
the greatest promise as leading indicators, in practice it proved impossible
to gather sufficient consistent information to provide an adequate test of
their utility. State records on indictments, for instance, are erratic and
each reflects different charging and record keeping policies. Therefore, the
pooling of states, necessary to accumulate enough evidence for vigorous
testing, became logically questionable.

--Court Workload

The 1970's also marked a period when courts were said by some to
become both more efficient (partly due to an influx of federal funds to
support increased automation and better management) and more strict. Quanti-
tative data on either the efficiency or the leniency of courts proved virtual-
ly impossible to collect from most states. We are thus unable to confirm
or deny the proposition that changes in court processing per se were behind
the movements in prison population. We will indicate in the next chapter
that prison intake has recently appeared more influential in the size of
prison populations than has the length of time served. Courts, as the first
gatekeeper in the chain leading to intake, clearly could exercise a major
controlling influence on prison population.

Specific instances where the role of the courts has been studied[14]
indicate that the courts serve a complex role, delaying and smoothing the
impact of changes earlier in the system. They are not, however, impervious
to external changes, and increases in prosecution are eventually transmitted
to the corrections system.

3.4   Linear Extrapolation

The Florida Department of Offender Rehabilitation[15] surveyed state
corrections departments and found that of 32 states publishing projections,
two-thirds (21) based their projections on simple linear regression. As
most commonly used, linear extrapolation is a special case of the leading

indicator approach, where the leading indicator is simply years since 1900.
As the historical discussion of Chapter 2 indicated, the U.S. prison popula-
tion is marked by long episodes of increase or decrease. As long as the
projection period is wholly contained by one of these episodes, linear
extrapolation works perfectly well. The problem is that it provides no
hint of when a change in growth will occur, or of how large such a change
might be.

Our chronology identifies about six episodes of sustained increase
or decrease in the last 50 years, which means the average length of an
episode is eight or nine years. Linear extrapolations done in the last
year or first two years of an episode will be falsified in one year. Thus,
short-term (one-year) extrapolations will at best indicate the right direc-
tion two-thirds of the time. Intermediate-term (five-year) projections
which rely on linear extrapolation would have called the right direction 11
of the last 50 years (22%).

3.5   Simulation of Intake and Release

Six of the states responding to Florida's survey employed simulation
models in preparing their projections. Such models were also used by the
Canadian Federal Corrections System,[16] the D.C. Department of Corrections,[17]
and by Abt Associates in a previous report for this project.[18] Simulation
as a technique allows free reign to the model-builder's ability to incorpo-
rate any available facts or assumptions about the system. Since modeling
assumptions differ vastly, our lumping of all simulations under a single
heading is a major oversimplification of a diverse body of literature. The
plausibility of results from a simulation exercise depends directly on the
assumptions built into the model, and only minimally on the specific formal-
ism in which those assumptions are expressed. Unfortunately, most of the
literature goes minimally beyond announcing a formalism, and perhaps demon-
strating that its parameters can be estimated in a test jurisdiction.
Little information is available on the fidelity with which modeling assump-
tions reflect local realities, or on the stability of the estimated para-
meters. Since each projection method is in reality only a package of
assumptions and a logical formalism for working out the consequences of
those assumptions, these general purpose models included only general
purpose assumptions. Corrections systems do, of course, share some proper-
ties with the general class of all possible systems, so that some of these
general purpose modeling assumptions were applicable.

The recent history of custodial corrections has, however, provided
dramatic evidence that much of what is important about prisons and jails
lies in the specifics of the system, not in its general properties. By
definition, general properties of the system were true both in 1968 and in
1978. Much of the concern over corrections problems, and much of the
uncertainty which these projections were to address, sprang from what were
seen to be possible fundamental changes in the properties of the system

between those two years. General purpose models were unable to provide the kind of specific information required to assess this change.

This study's experience with general models indicated that while they can serve a significant heuristic purpose, models specifically formulated to reflect the particular features of corrections systems were able to provide substantially more credible results. The dynamic modeling exercise conducted for our Preliminary Report to Congress was valuable as a means of classifying the relationships among key actors in the criminal justice process and focusing attention on the important control points in the movement of persons and information. As such, it provided us with significant insight into which variables were most likely to show direct or indirect relationships to inmate populations or movements. Our experience in comparing numerical results, however, indicated that for this purpose dynamic modeling performed at little better than a random level. Our attention in this report has therefore been concentrated on the properties of the corrections system per se, with less emphasis on the more general social and systemic factors which the dynamic model attempted to incorporate.

3.6 Experience of States in Use of Projection Models

In many respects it is unfair to the individual states to attempt to summarize the results of their projections under a single series of measures. The projections were intended to serve diverse purposes, were made to meet different standards of accuracy, and were based on data of widely varying scope and quality. Nevertheless, an examination of the kind of accuracy obtained with the methods generally in use served to place our own first-year results in the context of previously available technology.

Figure 3.2 displays the distributions of percent of error in the various one-year projections by state. Each diagram displays the upper and lower quartile points, median and extremes of the distribution of percent of discrepancy between the populations projected for December 31, 1977, and the numbers of inmates actually reported to the U.S. Bureau of the Census National Prison Statistics Program.

Regression based projections were equally likely to over- or underestimate the actual population, usually by substantial amounts. None of the projections were within ten percent of the correct values. Half were off by amounts ranging from 16 to 30 percent. In the states using this method, the median change in population from 1976 to 1977 was eight percent, or only about half as large as the error of projection. Roughly stated, this means that where they were applied, regression methods provided substantially worse estimates of future populations than would have been given by no projections at all.

The next distribution in Figure 3.2 groups together those projections which expressed prison populations as a function of one or more

**Figure 3.2
Distribution of Errors in Projections Made
by State Department of Corrections
1972—1976**
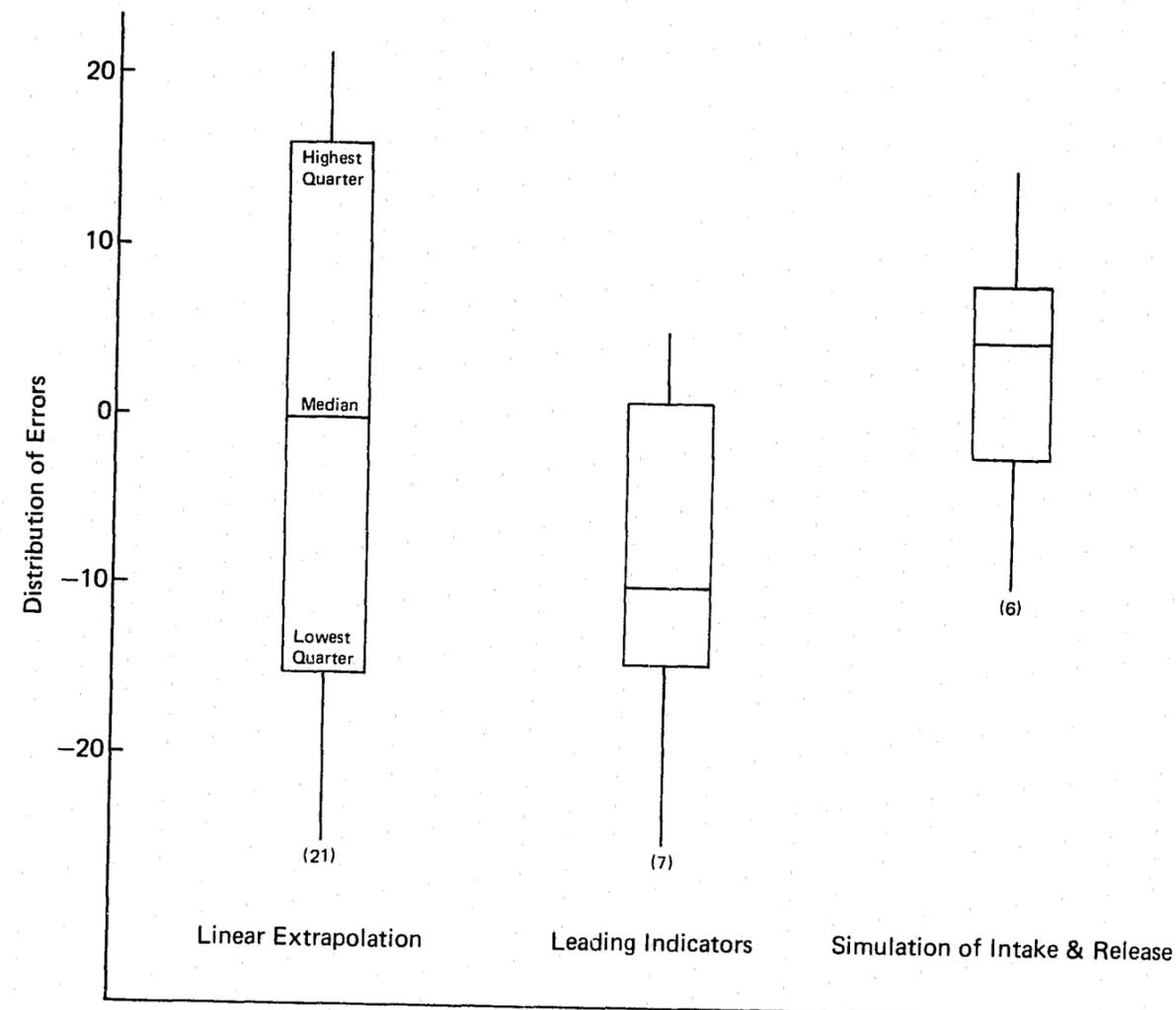
exogenous variables (leading indicators), most commonly total civilian population or population in a specified age bracket, but also unemployment rates, arrest rates, and parole revocations. Although the dispersal is smaller than in the preceding method, there is a bias of nearly ten percent underestimation, so that aggregate performance is only slightly better than the regression estimates, and at the extremes, equally erroneous.

The third class of models, those which treat intake and release separately, have the smallest bias and dispersion of any of the commonly used state projection methods. While the median projection overestimated by about five percent, only a quarter of the states using this approach missed by more than ten percent.

While this evidence is suggestive, because different methods were used by different states (and sample sizes were small), no true comparison of differential effectiveness is possible. A more adequate comparison of methods was afforded by comparing our own projections with actual data. The three methods used in those projections were again representative of leading indicators, extrapolation and simulated intake and release. The assumptions underlying these models and our tests of accuracy are reported in the next chapter.

Chapter 3: NOTES

1. Congressional Research Service, Prison Population and Costs -- Illustrative Projections to 1980, Library of Congress, 1974.

2. U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Institute of Law Enforcement and Criminal Justice (NILECJ), The National Manpower Survey of the Criminal Justice System, Volume Three, Corrections, by the National Planning Association (Washington, D.C.: U.S. Government Printing Office, September 1978).

3. U.S. Department of Justice, LEAA, NILECJ, Prison Population and Policy Choices, Vol. I, by Andrew Rutherford et al. (Washington, D.C.: U.S. Government Printing Office, 1977): 143.

4. A. Blumstein and J. Cohen, "A Theory of the Stability of Punishment," 64 Criminal Law and Criminology, 198 (1973); _____, _____, and Nagin, "The Dynamics of a Homeostatic Punishment Process," 67 Criminal Law and Criminology, 317 (1977); _____ and Moitra, "An Analysis of the Time Series of the Imprisonment Rate in the States of the United States: A Further Test of the Stability of Punishment Hypothesis," 70 Criminal Law and Criminology, 376 (1979).

5. E. Durkheim, The Rules of the Sociological Method, supra Note 3.

6. D. Glaser, "Economic and Sociocultural Variables Affecting Rates of Youth Unemployment, Delinquency and Crime," Conference on Employment Statistics and Youth, Institute of Industrial Relations, UCLA, in U.S. Congress, House, Unemployment and Crime, Hearings before the Subcommittee on Crime of the Committee on the Judiciary, 95th Congress, 1st and 2nd sessions (Washington, D.C. Government Printing Office, 1978): 708-740; U.S. Department Labor, Manpower Administration, Employment Problems of Released Prisoners, by G. A. Pownall (Washington, D.C.: U.S. Government Printing Office, 1969); C. L. Smith, P. Martinez and D. Harrison, An Assessment: The Impact of Providing Financial Assistance to Ex-prisoners (Huntsville, Texas: Texas Department of Corrections, 1978); and J. L. Stephens and L. W. Sanders, Transitional Aid for Ex-offenders: An Experimental Study in Georgia (Atlanta, Georgia: Georgia Department of Offender Rehabilitation, 1978).

7. U.S. Department of Labor, Manpower Administration, Office of Policy, Evaluation and Research Pretrial Intervention: A Program Evaluation by Joan Mullen et al.(Cambridge, MA: Abt Associates); and S. Baker et al., The Court Employment Project Evaluation (New York, NY: Vera Institute, 1979).

8. Unpublished crime analyses from Denver, CO, and University City, MO.

9. M. H. Brunner, "Estimating the Social Costs of National Economic Policy: Implications for Physical and Mental Health and Criminal Aggression,"

Study for the Congressional Joint Economic Committee (Washington, D.C.: U.S. Government Printing Office, 1976).

10. T. Crago and G. Hromas, "Beyond A Straight Line Fit - Probation [sic] Projection Techniques Which Use Readily Available Data," in Proceedings of the 106th Annual Congress of Corrections (American Corrections Association, 1976); Cox and Carr, "Unemployment and Prison Population Trends in Georgia: 1967-1974" (Georgia Department of Corrections/Department of Rehabilitation, 1975).

11. William G. Nagel, The New Red Barn: A Critical Look at the Modern American Prison (New York: Walker and Co., 1973): 180.

12. Several of these ideas came originally from John Flanagan. See, for example, "Projection of Prison Populations," American Journal of Correction 39 (May-June, 1977): 11.

13. U.S. Department of Justice, LEAA, NCJISS, Criminal Victimization in the United States: 1973, No. SD-NCP-N-4 (Washington, D.C.: U.S. Government Printing Office, December 1976), and subsequent volumes published annually.

14. U.S. Department of Justice, LEAA, NILECJ, The Nation's Toughest Drug Law: Evaluating the New York Experience, Final Report of the Joint Committee on New York Drug Law Evaluation (Washington, D.C.: U.S. Government Printing Office, 1978).

15. "Research Findings," Bureau of Planning, Research, and Statistics, Document #77-R-065, Florida Department of Rehabilitation cited in A. Beck, The Art and Methods of Criminal Justice Forecasting, Ph.D. dissertation, Sam Houston State University, 1978.

16. R. G. Hann, "Forecasting Correctional Populations: The Offender Prediction System," Ministry of Solicitor General of Canada (forthcoming).

17. S. Stollmack, "Predicting Inmate Population from Arrest, Court Disposition, and Recidivism Rates," Journal of Research in Crime and Delinquency (July, 1973): 141.

18. Supra Note 3.

CHAPTER 4
DETAILED PROJECTIONS

4.1   Introduction

The question of policy rapidly emerged as a central issue in deciding what kinds of projection methods would be appropriate to assess the "future needs" of which the Congress had spoken in the Crime Control Act of 1976. If those needs were direct or indirect consequences of choices made in legislative or criminal justice system deliberations, what kinds of statements could appropriately be made about the likely course such deliberations might take, or the consequences of a specific course once chosen? If corrective mechanisms are activated to reduce populations once capacity reached critical levels, any projections made in ignorance of such mechanisms would be unlikely to give an accurate reflection of actual events. On the other hand, projections which assumed the inevitability of self-corrective policy adjustments are guaranteed never to anticipate future needs which might stem from the failure or inadequacy of the corrective measure. Alternatively, rather than risk public censure, public officials might choose to await litigation and court intervention to prescribe the effective population and capacity ratios.

Corrections administrators face an unusually frustrating policy environment. Many, but not all, of the most critical decisions which bring prisoners into their custody and later release them, are beyond the direct control of institutional administrators. Few administrators could legally refuse to house prisoners whom a judge has sentenced, or release prisoners against the wishes of the parole board. Thus, for the correctional planners who form a large segment of the audience for projections, the policies followed by judges, prosecutors, legislators, and parole boards are, in many cases, to be taken as externally fixed. Corrections planners cannot rely upon someone else's adaptive behavior to solve their housing problems.

Accordingly, for this study, it was anticipated that the audience for prison population projections would also include influential members of those groups who did have some power to affect the levels of incarceration, and who formulated the very policies to which prisons were responding. For this audience, predictions of the decisions they would be making were clearly inappropriate. What was needed was, rather, some way to estimate the possible consequences of the alternatives under their consideration. The future course of prison populations had to be viewed neither as a deterministic natural phenomenon, nor as a statistical event whose outcomes could be ranked according to probability, but as a set of alternative contingencies: "If..., then..." statements, where the "if" was directly supplied by the policymakers to whom the reports were directed.

Finally, spanning the interests of both of these groups of readers, and sharing characteristics with both, were the members of the U.S. Congress who had ordered the study. Although members of Congress do have responsibility for the federal criminal code and prison system, they cannot explicitly control state and local criminal justice systems. Congress does, however, wield tremendous influence through its appropriation of funds for assistance to state and local corrections, through LEAA assistance to other sectors of the criminal justice system, and as a policy and legislative model often emulated by state policymakers.

To supply the information required by these diverse audiences necessitated fundamentally different analytic tools. In the Preliminary Report to Congress those methods where policies were explicitly modeled and assumed to be variable were referred to as "policy-informed" projections, to distinguish them from the so-called "policy-blind" models in which the assumptions about policies were only implicit, and no provision was made for altering the policies once their present levels were estimated from the data. The policy-blind and policy-informed models shared a number of characteristics. Both depended on the specifications of assumptions about the ways in which key variables in the system relate to one another. Both assigned numerical values to these relationships on the basis of past observations, either at an "initial" instant in time, or at a series of prior instants. Thus the statements which emerge from the models and which are presented as findings about the future, are more accurately seen as statements about past data viewed in the framework of more or less arbitrary assumptions about the future. It should be noted that even the blindest of policy-blind models harbors as broad an array of assumptions as the relatively complex simulation models that were employed to generate our policy-informed projections. The crucial difference is that for policy-informed projections those assumptions are isolated and must be explicitly evaluated by the modeler, while for policy-blind models, assumptions are lumped and allowed to assume whatever values may be implied by the data.

This chapter reviews the models presented in the Preliminary Report to Congress and compares the projected 1977 year-end populations with actual data for December 31, 1977. We turn then to our final analysis and present the projected federal and state inmate population levels from 1979 through 1983. Repeating the previous validation process, projections for 1978 are compared with actual data for December 31, 1978 in the concluding section.

4.2   Phase I Projections

Like some of the earlier projections described in the preceding chapter, the Preliminary Report to Congress developed multiple series of projections for each of the 52 jurisdictions. The different methods used for these projections correspond to alternative sets of assumptions about the dominant forces influencing recent past and future trends in prison population. In the discussion of poicy-informed models, the Preliminary Report noted:

In a particular state, one loop may operate more strongly than another....A feedback loop dominates another loop when it operates more effectively: the behavior of the system reflects the operation of the dominant loop....Loop dominance presents policy and research problems. The dominated loop tends to be inactive: thus, it is easy to overlook its existence. The loop dominance can shift, however, producing unexpected results.

The three projections reported for each jurisdiction correspond respectively to dominance by capacity (leading indicators), intake (extrapolation), and time served (simulation of intake and release). In each case, substantial simplifying assumptions were employed which could have contributed both to bias and to other error. In this discussion, "bias" will be used to refer to errors of a consistent direction. Unbiased errors are those which, given enough cases, would have an average of zero.

It is worth listing several of those assumptions here as factors to be considered in comparing the projections with actual events.

Uniform Policy

Inherent in the concept of the policy-blind projections was the assumption that no change that might occur in the state's policies would disturb the trend of prison intake and release previously set. We know this assumption to have been false in the past. In almost every state we can identify one or two points in the past two decades when a dramatic statistical change occurred as a result of changes in technical allocation of jurisdiction, as in transfers of custody among civil commitment, county jails, and state prisons--or in the severity with which some or all offenses are punished, e.g., drugs, guns, or violence. For purposes of the policy-blind projections, however, the assumption was that no such event would occur during the six years covered by the projections. Equivalently, one might state this assumption as the belief that such changes might occur, but that their magnitude and direction were unknown, with increases and decreases equally probable, so that the best estimate of the expected total value of the changes was zero.

Sentences Over One Year

Because the series "prisoner with a sentence over one year" seemed to be the most consistently available measure, it was assumed to provide an adequate index of total populations. States differ in their definitions of who may be held in prison. Louisiana parish facilities, for example, can house inmates for as long as five years, while South Carolina state prisons can take anyone with a sentence over 90 days. In most cases, however, the one year criterion distinguishes state from local jurisdictions. Twenty states had ten or fewer inmates who did not meet this criterion in 1976. The significant exceptions were the federal Bureau of Prisons, with 2,270 "other" prisoners, many of whom were held as immigration law violators for

a period of about six months; California, with 2,285 "other" prisoners serving indeterminate sentences; Connecticut (1,318), where the jails are under state administration; and North Carolina (1,420), where the state assumed control of a number of county prisons, with custody of their inmates. All told, 11,462 persons, or 4.6 percent of all prisoners were excluded by the restriction to "prisoners with sentences over one year."

No Change in Definition

As state systems installed computers and otherwise moved to more sophisticated records systems, the number of prisoners counted in state custody underwent changes which were sometimes minor, sometimes major. Some of these adjustments represented changes in reporting policy, e.g., redefining when escaped prisoners would no longer be considered "inmates." Other changes were simple clerical or computational errors, ranging in severity from one inmate to one prison. While our survey attempted to eliminate as many of these sources of error as possible, discrepancies totaling 6,724 inmates still remained between the year-end population reported in June and the same figure reported to the U.S. Bureau of the Census the following year. In aggregate, this discrepancy represented about 2.5 percent of the total inmate population, but since over half the discrepancy was concentrated in one state (Illinois), a more representative measure of the error is about one percent.

4.3   Phase I (Preliminary Report to Congress) Model Assumptions

In addition to the general data assumptions outlined above, each of the three projection models in the Preliminary Report to Congress (Chapter IV) added a group of specific assumptions about which aspects of the data series were most relevant to future populations. The first projection was derived from the literature on the relationship between capacity and population. The second, a modified linear extrapolation, assumed the future discrepancy between intake and release would remain constant. The third assumed that intake would continue at current rates and that releases would lag intake by a specified amount.

I. Capacity. Projection I presumed the existence of an equilibrium between costs of imprisonment and the gains society (as represented by criminal justice personnel) expected from further increases in incarceration. The model further required the assumption that no significant changes would occur in either the costs of incarceration or in public preferences for it. Specifically, since physical capacity seemed to be the most difficult cost component to adjust, the model was presented as one in which the degree of crowding now observed in the state and federal prisons would be neither relieved nor exacerbated by population adjustments.

The model was further simplified to assume that any additional construction over the next five years would serve to replace, rather than expand, existing capacity. These assumptions were patently false. New prisons were under construction even as the projections were prepared.

Modular construction technology made the cost of building significantly lower for states interested in large-scale expansion of facilities. Tolerance for crowding may also have shifted slightly as state or federal courts pronounced some of the confinement conditions in some states intolerable, or as prison authorities found additional accommodations for a few inmates.

In fact, responses to our survey indicated plans for a net growth of over 62,000 beds in the nation's aggregate prison capacity between 1977 and 1982, or approximately five percent in each of the five years in that period. This change alone is of approximately the same size as the total bias in the Projection I population estimates for the first year.

This is not to suggest that failure to incorporate the capacity information was the only source of error in Projection I. Other mechanisms for maintaining the constancy of incarceration have been posited which have little to do with physical space. Blumstein's papers discuss implicit social and cultural norms which specify the fraction of the population to be labeled deviant at any moment. These presumably operate antecedent to any mere physical limitations. Variable costs, such as custody and subsistence, may be taken into consideration in sentencing or release decisions. Possible changes in all these forces were ignored in formulating Projection I, and, because no quantification of the impact of such factors is available, it is impossible to say how serious such omissions were, much less to isolate the consequences of any particular potential misspecification.

II. Flow. The assumptions basic to Projection II can be presented in at least two alternative forms:

A) Rates of intake and release remain constant at their recent levels.

B) Rates of intake continue to increase in line with recent trends, while release lags intake by a constant amount.

A key word in both of these formulations is "recent." From the emerging experience in the case-study states, it has been observed that correctional systems have been subjected to abrupt policy reversals triggered by events outside the correctional system, and thus are not predictable from the time series of prison data alone. Where these external events dominated the population trends, pre-change time series were not only ineffective in projecting future populations, but positively misleading.

Projection II therefore incorporated a simple test which attempted to define the "recent" period on the basis of the direction of yearly change in the sentenced population. In states where this direction underwent a change in the previous trend, only post-change years were considered. If there was no trend change, all years since 1970 were used. Such a definition can err in either direction. Because random variation can produce shifts which look like policy changes, the method could overidentify trend

changes resulting from shifts in policy, producing projections (a) based on too short a series, and (b) biased because the series included an endpoint where the expected value of the random component was non-zero. The method could also fail to detect changes which were too recent, too gradual, or masked by too much random fluctuation. The errors in this case would be the reverse of the over-inclusive misclassification, although bias would be less likely, since extreme points would not be involved.

The first version (A) of this projection's assumptions implies a growth in average time served during each year in the projection period. Such a growth is not consistent with most of the data on duration of incarceration which we were able to collect; the time served by persons released (which may differ from the time which an entering cohort can expect to serve) has not increased significantly in the states where we have data.[2] The average time served is approximated by the ratio of population to intake. Over the period of time 1974-1976 this index changed only moderately, increasing from 20.5 months to 22 months (for the median state). The magnitude of the change was too small to account for the observed changes in population, and may in fact have been merely an artifact of the effect of increasing intake on the approximation. The changes in intake, in contrast, were of sufficient magnitude to produce the observed population changes, and appeared to play a much more important role than changes in time served. This finding tends to cast doubt on the verisimilitude of both the constant intake-constant release formulation and the hypothesis that prison populations are growing as a result of longer sentences.

No such inherent implausibility attaches to form (B) of the assumption, but this version leaves unresolved the question of why a trend of intake growth should be expected to persist. That no good answer to this question is likely to emerge is suggested by the fact that even as the projections were being completed, this trend reversed itself in 20 of the 52 jurisdictions.

III. Sentence. A situation of unchanging time served and stabilizing intake corresponds most nearly to the assumption of Projection III: that intake would continue at the level of 1976, and that releases in 1977 through 1982 would equal intake, lagged by the same amount by which 1976 releases lagged prior years' intake. Because these lags were of the same approximate duration as an average prison term--two to three years in most cases--the projection method forced a constant population in the later years of the projection period. Such an equilibrium was entirely the consequence of the assumed model, and not necessarily implied by the data. Empirical calculations only indicated the level of equilibrium which would be consistent with the assumptions and the length of time required to reach this level.

The known defects of Projection III's assumptions are less severe than those of I and II. Aggregate flow measures were used in the calculations, combining intake from court with parole revocation and other forms of intake. It is unlikely that a single process drives both these movements, and disaggregation might more accurately have represented the true

state of affairs. The disaggregated approach was rejected in our Preliminary Report to Congress because of ambiguities and inconsistencies in the ways states classified prisoner movements. For some states these details are now irretrievably lost for earlier years. For others, appropriate series are now available for future use.

Estimating the intake-release lag from 1976 releases also represents a simplification of reality. The releases of any year are a composite of short-termers from recent cohorts and long-termers from earlier cohorts. As long as all the cohorts are of constant size, or continue to grow proportionately, this year's lag should be a good estimate of next year's. These conditions, however, were violated by both fact and assumption. Past cohorts had been growing conspicuously. The assumption of Projection III was that this growth would come to an end, and that therefore the proportion of early to late cohorts would be changing over the projection period. This inconsistency should be of minimal consequence. Once equilibrium is reached, the lag has no effect at all on the projections, and even a very poor estimate should not degrade the projections. Moreover, in the first year of the projection, when the lag is most critical, the error should be least. Thus the principal effect would be to shift the time at which the assumed equilibrium would be reached.

Testing Accuracy

Just as there are multiple purposes for preparing projections, there are multiple standards of accuracy by which they may be tested. In this report two principal measures are considered: (a) the percentage discrepancy between a particular state's projected 1977 year-end population, and (b) measures of the total aggregate error summed over all states. In the aggregate measures the unbiased errors largely cancel one another, so that we are left with an estimate of the bias (over one year) inherent in the methods. For individual states, the systematic bias, while it contributes to total error, will be augmented or possibly canceled by unbiased errors of equal or sometimes greater magnitude. The two measures thus complement one another.

It should be noted that the comparisons done here give far less than a complete picture of the performance of any of the projection methods. The most glaring omission is one which cannot be remedied: performance over one year may be a very poor indicator of accuracy over the entire period of interest. Over the short-term, the fact that people who go to prison can be expected to stay there places a premium on estimates based on the most recent population and intake data. About half the inmates counted in our 1977 projections were physically present in the 1976 data. By the end of five years, however, only about ten percent of today's inmates will still be imprisoned (on their current charge; recidivism or revocation is another matter). Thus over the long term, trends--if there are any--become relatively more important, and today's data relatively less so.

A second characteristic of these error measures concerns the effect of state size. In Vermont, with about 300 inmates, an error of 15 persons

shows up as a five percent discrepancy. Since errors of that size or more are easy to make, the small states tend to dominate in considerations of individual percentage errors. In the aggregate statistics the reverse is true; all of Vermont is less than two percent of Florida. Thus, one could project almost anything for the small states without materially affecting the overall aggregate error statistics. About one-third of the nation's prisoners are in Texas, California, New York, Florida, or the federal Bureau of Prisons. It is these largest jurisdictions which are primarily reflected in the aggregate error figures.

Validation Results

Figure 4.1 shows a plot of actual and projected populations for each jurisdiction for 1977. The projection technique illustrated is for the intake/release model. The simple correlation between projected and actual populations is .9899, which means that variance due to projection error is two percent of the total variance in the 52 population numbers. A linear regression of actual on projected populations gives

$$P = .9995 \ A + 92$$

where P = projected 1977 population, and
A = actual population reported to NPS.

These coefficients indicate that

- the systematic bias is almost totally independent of state size, and

- it is less than 100 inmates per state.

The intake/release projection yields a national aggregate for 1977 of 283,258 prisoners with sentences over one year. The actual figure according to preliminary NPS data is 278,593. The difference—4,665—is two percent of the total. To put this difference in perspective, the difference between the 1976 year-end populations reported in our July 1977 survey and the same information reported to NPS the following spring was 6,724. When these discrepancies were included in the regression equation, it became:

$$P = .99A + 1.16D - 14$$

where P and A are as before, and D is the discrepancy in 1976 data. The total variance due to projection error was cut in half, and the systematic bias virtually disappeared. Inspection of the raw data indicated that about half the net discrepancy in 1976 data was contributed by Illinois, which reported 13,262 prisoners on the Abt survey and 9,739 to NPS. The discrepancy seemed to be linked to problems with a new computer.

In the aggregate, the intake/release projection provides the most accurate estimates of the three models. The capacity model estimated a

72

**Figure 4.1
Comparison of Actual and Projected Federal and State Prison Populations
on December 31, 1977**
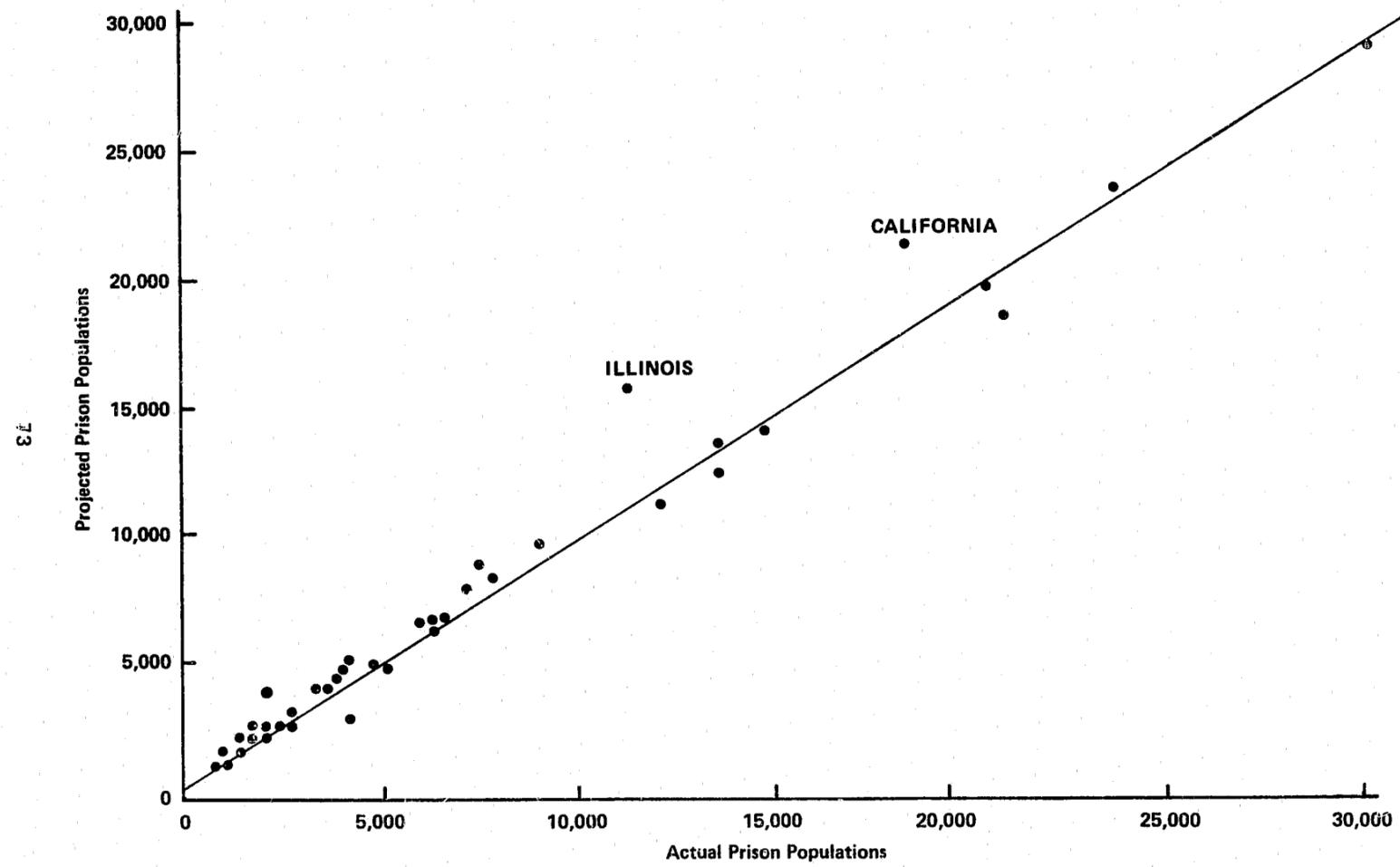
total 1977 population of 270,031, an underestimate of slightly more than three percent. The linear growth projection at 289,907 overestimates by about four and one-half percent.

With the exception of Illinois, the most conspicuous departure in Figure 4.1 is California, whose actual 1977 population was 17,338. Projections I, II, and III respectively estimated the population at 18,113, 13,399, and 20,358. The lower figure reflects the result of the first year's experience under California's new determinate sentencing statute. Each of the three projections explicitly assumed that the fundamental rules of prisoner movement would continue as they had in the previous year. In California, this was known not to be the case, and as the dynamic modeling exercise pointed out, one could anticipate at least a temporary reduction in inmate numbers with the release of those already beyond their putative determinate terms.

Comparable policy disruptions, not contemplated by the assumptions of the three projection series, occurred in states where federal courts imposed limits on the capacity of state institutions, most notably in Alabama and Mississippi. The dynamic modeling treatment of the court intervention scenario indicated a delayed but precipitous decrease in incarcerated populations, again consistent with the results observed in these states. Under the dynamic modeling assumptions, new construction to bring state capacities back to pre-intervention levels would not be available until the end of the forecast period or later. There is some evidence that this estimate may prove to be conservative, and that under pressure of increasing jail backlogs these states may be substantially expanding their facilities over the next three to five years. If their plans are met, these states might return to pre-intervention levels by 1982.

When we turn to an examination of individual states, the superiority of the intake/release projection is no longer so overwhelming. Table 4.1 indicates that in only 16 states was it the closest of the projections. In another 16, II (the flow model) did best. For 18 states the capacity-based projection gave the smallest error. (A detailed listing of the states and their best projections is included as Appendix B.) Table 4.1 also shows that the relative sizes of the projections are not a guide to accuracy. Model II is about as reliable when it gives the highest estimate as when another model (III) is higher. Regression tests give similar results. No linear combination of the three projection results provides a significant improvement over a single projection alone. This suggests that refinements are unlikely to come from statistical considerations alone.

Table 4.2 attempts to draw upon two external facts—size and location of the states—in assessing which projection is most accurate. As with Table 4.1, there is no clear indication that either of these variables is related in any significant way to projection accuracy. A case-by-case analysis of the seven states for which projection errors were highest is instructive. Mississippi and Alabama were experiencing the effects of court intervention. Illinois' projection errors are explained almost

Table 4.1

Average Absolute Errors and Number of Jurisdictions by Larger and Most Accurate Projection

Best Projection	TOTAL		Projection II Exceeds Projection III		Projection III Exceeds Projection II	
	Average Absolute Errors	Number of Jurisdictions	Average Absolute Errors	Number of Jurisdictions	Average Absolute Errors	Number of Jurisdictions
TOTAL	195	52	220	32	154	20
I Capacity-Based	286	20	348	11	210	9
II Intake/Release	102	16	118	12	54	4
III Linear Growth	173	16	200	9	139	7

Source: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, Prison Population and Policy Choices, Volume 2: Technical Appendix, by Andrew Rutherford et al. (Washington, D.C.: U.S. Government Printing Office, September 1977).

Table 4.2

Relative Errors of 1977 Projections

	Projection		
	I	II	III
TOTAL	-2.09%	5.75%	1.43%
25 small states & D.C.	-1.77%	6.0%	1.70%
25 large states	-2.25%	5.9%	1.24%
Federal Prisons	-6.46%	-5.7%	-.66%
Northeast	5.40	12.62	7.17
North Central	-1.86	10.34	5.43
(excluding Illinois)		5.6	0.07
West	-7.52	-0.27	-2.66
(excluding California)		-0.80	-4.33
South	-1.82	5.33	0.09

Note: Error is defined as $100 \times \dfrac{\text{Projection-Census (year-end 1977)}}{\text{NPS Census (year-end 1977)}}$

Source: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, Prison Population and Policy Choices, Volume 2: Technical Appendix, by Andrew Rutherford et al., Washington, D.C.: U.S. Government Printing Office, September 1977.

entirely by discrepancies in the raw data on which the projections were based. Three of the remaining states--Alaska, Vermont, and Wyoming--have populations of (respectively) 284, 279, and 401, so that errors of a small absolute number of inmates appear large when expressed as percentages. In Pennsylvania, an executive order (1970) resulted in a substantial transfer of inmates from local to state facilities. By one estimate, approximately 1,800 persons may have been so transferred. This amount is more than enough to account for the difference between actual and projected populations. Finally, Figure 4.2 shows the distribution of projection errors in each of the fifty states for each projection method. Projections I and II have biases in approximately equal but opposite directions; projection III, while unbiased, has a slightly larger random dispersion.

Figure 4.2
Distribution of Percent Errors of the 1977 Projections
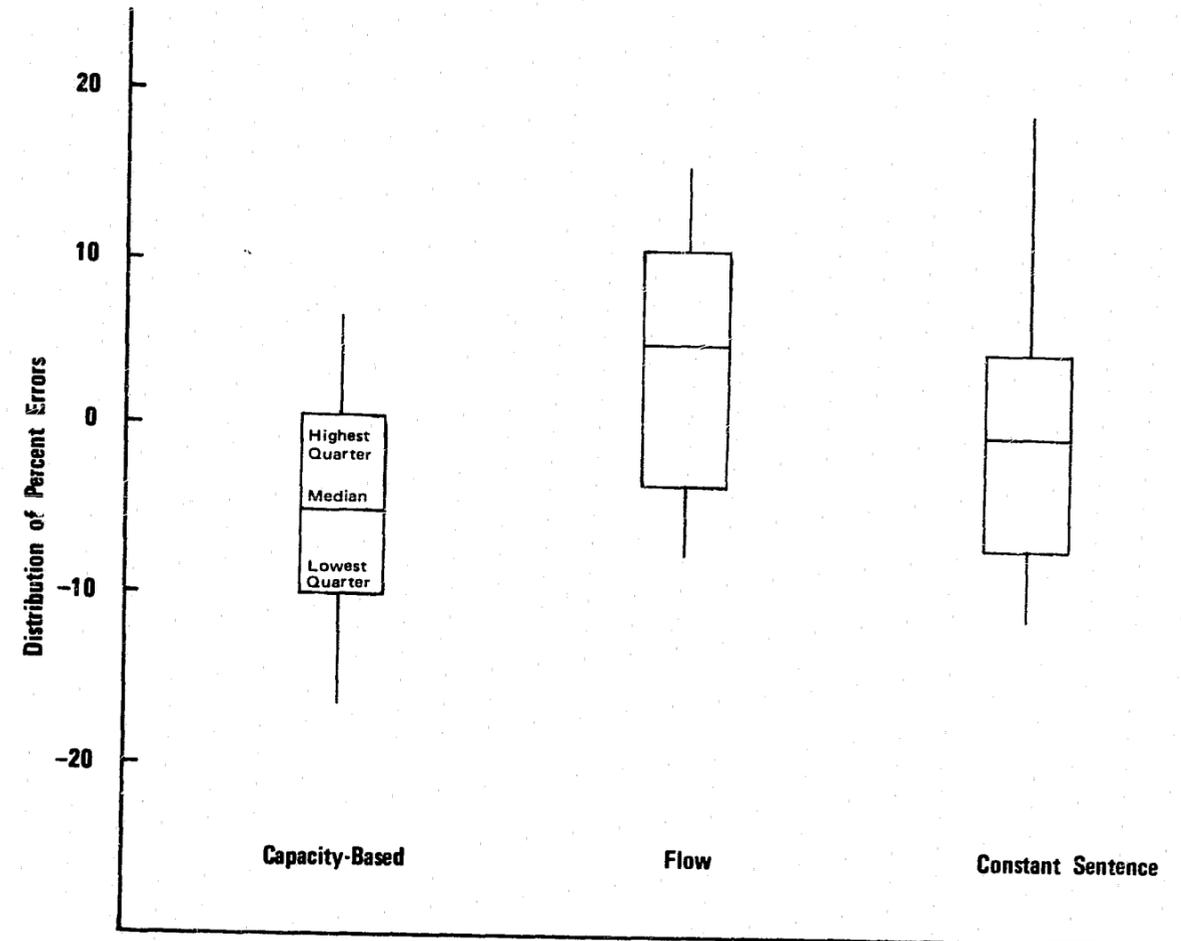
Source: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, Prison Population and Policy Choices, Volume 2: Technical Appendix, by Andrew Rutherford et al. (Washington, D.C.: U.S. Government Printing Office, September 1977).

4.4   Phase II Projections

The projections reported in this volume are derived from models substantially similar to those of Phase I, with two important refinements. The projection based on capacity employed the new information on construction plans which state departments of corrections supplied in response to our survey (Form PC-1). The model also reflects the two-year delayed impact of new construction on population which was estimated by the time series analysis of state prison populations and capacities. In estimating the rate of past population increase for the linear growth model we relied on telephone interviews with those states with the most dramatic apparent past growth to try to uncover possible changes in accounting practice which might have inflated reported population changes. A number of these were indeed identified, and the projections are based on data adjusted to obtain approximately consistent series.

Projections of State Prison Populations: 1979-1983

Although all prison population projections anticipate some further growth in the number of inmates in state custody, none call for continuation of the historically high rate of the mid-1970's. Projections I (capacity) and II (linear growth) are in near agreement over the five years from December 31, 1979 to December 31, 1983. Figure 4.3 shows the numbers of inmates expected if the assumptions of the three projection methods hold. Over the five year period, Projection I estimates annual growth slightly under four percent based on planned new construction during the period 1976-1981. Projection II, which extrapolates past growth in state inmate populations, is slightly faster, at five percent per year.

Regional patterns of Projections I and II show nearly identical median growth rates for the two methods (Table 4.3). The Northeast shows the lowest median growth rate (3.5 percent per annum) in both projections. The South is slightly higher (4.25 percent in Projection I, 4.75 percent in Projection II). The Western rate of 5.5 percent per year makes it the fastest growing component of Projection I, although this is slightly exceeded by the six percent annual rate given by Projection II for the North Central states. The projection based on capacity, however, shows a bimodal distribution in each region, with states splitting into a class of builders (roughly characterized by the upper quartile points) and non-builders (lower quartile points). The differences in projected growth between these two groups are extreme, with the lower quartile points under two percent per year in each region, and the upper points ranging from 4.5 percent to 14.5 percent per year.

Figure 4.4 shows the complete distribution of projected five-year growth for each region according to Projection II. While regional differences are apparent, it is also clear that the states within a region differ from one another by more than the regions differ among themselves. New York and California are shown in this display to be outliers compared to their respective regions. New York's growth rate is 80 percent higher than

Figure 4.3
Projected State Prison Populations
December 31, 1979—December 31, 1983
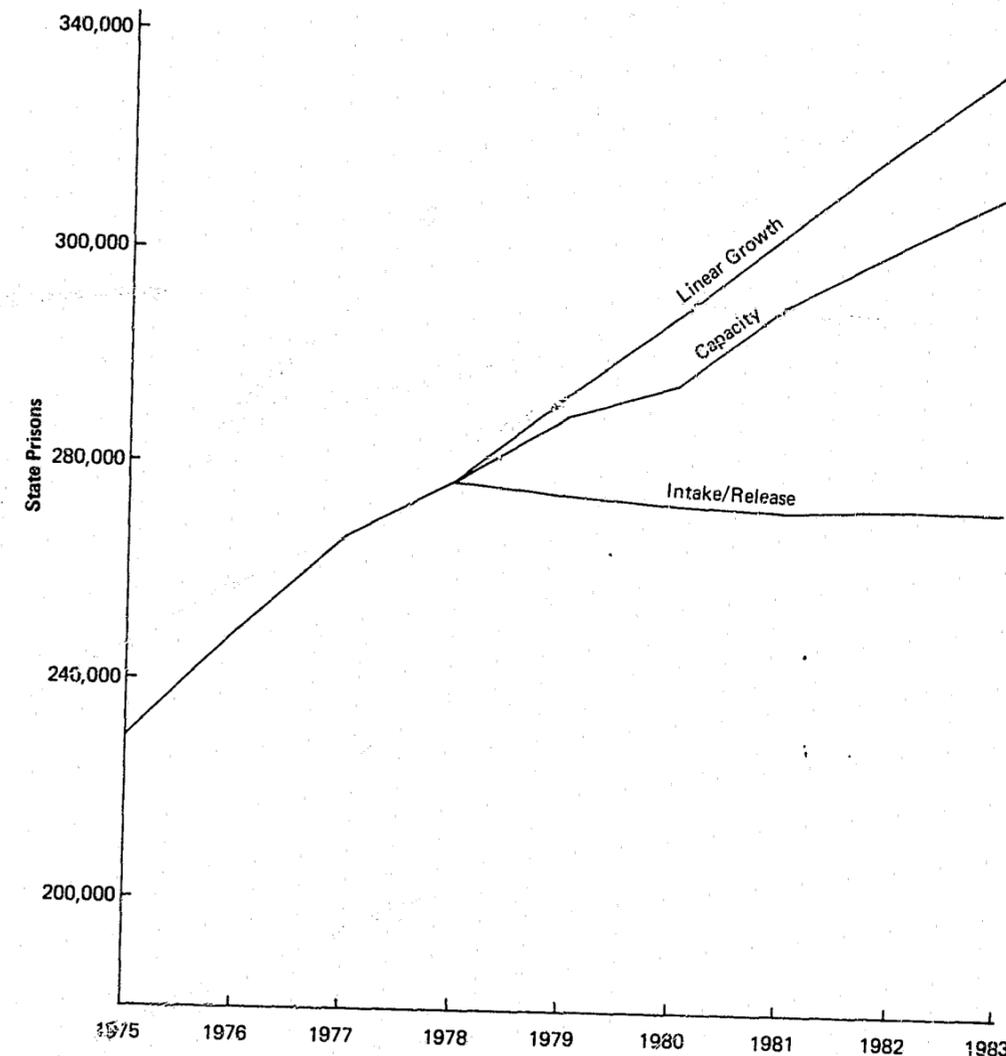
Sources: *Prisoners in State and Federal Institutions on December 31* for the years 1975 through 1978 (see Note 2(d) through (g) of Chapter 2 of this Volume); 1979 through 1983 data taken from Appendix B.

Table 4.3

Median Projected Five Year Growth Rates for States By Region: 1978-1983

	Projection I (capacity)	Projection II (linear growth)	Projection III (intake/release)
Northeast	18%	19%	0
South	23%	26%	0
North Central	22.5%	34%	-1%
West	31%	30%	0

the median for Northeastern states, while California is the only state in the West (or in the U.S.) for which Projection II shows a decrease in population. Projection I shows confirmatory results in both states. (New York: I = 4.3 percent per annum, II = 6 percent; California: I = .02 percent, II = -.2 percent)

The highest projected rates of growth in Figure 4.4 are those for Michigan, Illinois, Alabama, and South Dakota. Of these, South Dakota's should be considered least reliable. Because of that state's small size, random fluctuations play a disproportionately large role in the variance of prison populations, and Projection II may be simply extrapolating this randomness. Alabama's situation is also uncertain. The outcome in that case depends on actions taken as a result of the judgment against the state prison system for Eighth Amendment violations. At the end of 1979, thousands of Alabama prisoners were being held in local jails because of judicially imposed limits on state prison capacity. That situation is unlikely to persist through 1983, although the direction of resolution is unclear. The two midwestern states have no such special circumstances to cast doubt on their projections. Both have experienced large and sustained growth in their prison populations over the last several years, and the assumptions of Projection II extrapolate this growth over the early part of the next decade.

According to the assumptions of Projection III there will be very little net growth, and perhaps even a slight decrease in total state prison populations over the next five years. In most states, peaks in intake rates appear to have occurred two or three years ago, and as these peak cohorts complete their terms and become eligible for release, we may expect

Figure 4.4
Projected Five-Year Growth Rates in Year End Population for States by Region, 1978-1983 (Model II)

Percent Increase (y-axis: 0, 10, 20, 30, 40)

NORTHEAST — New York; Vermont; Connecticut, Massachusetts, Rhode Island; Maine (19%); New Hampshire, Pennsylvania; New Jersey

SOUTH — Alabama; Delaware; South Carolina; Louisiana; Tennessee, Florida; Texas, Arizona, Georgia (26%); Oklahoma, North Carolina, Virginia; D.C., Maryland; Kentucky; West Virginia; Mississippi

NORTH CENTRAL — South Dakota, Michigan; Illinois; Ohio, Kansas; Wisconsin, Indiana (34%), North Dakota, Missouri; Iowa; Minnesota; Nebraska

WEST — Oregon, Montana, Arizona; Idaho, Nevada; Washington; Wyoming, New Mexico (30%), Arkansas; Utah; Hawaii, Colorado; California

to see absolute reductions in the levels of the prison population. More
than half the states are projected to experience stable or declining
populations on the basis of their current intake trends.

Both in broad qualitative characteristics and in some of their
numerical details, Projections II and III are generally consistent with the
series published in the 1977 Preliminary Report to Congress, which were
based on data from 197U-1976. Figures 1.3 and 5.1 from that report are
reproduced here as Figures 4.5 and 4.6. The annual growth rate of the old
Projection II is about one percent greater than that of the 1979 projection.
Old Projection III called for slower growth in 1978 and 1979, followed by
stability through the remainder of the projection period. This also is
consistent with the revised version of Projection III based on two addi-
tional years of data.

Only the capacity-based model gives projections qualitatively dif-
ferent from those of 1977. The early projection seriously underestimated
the extent of planned future construction, and lacked the empirical founda-
tion contributed by our more recent research. With this conservative basis
it estimated an immediate cessation to prison population growth, which (a)
did not occur, and (b) was inconsistent with actual increases in existing
and planned capacity.

Even in state-by-state detail one can see consistency between the
1977 and 1979 results. New York and California retain their respective high
and low projected growth rates, and Illinois, Michigan and Ohio still contrib-
ute a major share of the North Central states' growth.

United States Bureau of Prisons

The federal Bureau of Prisons reports plans to open 5,000 new units
of capacity in fiscal years 1978-1981. Combined with the 962 units of
rated capacity added in 1976-1977, this adds 20 percent above the actual
inmate count of December 31, 1978. Projection Method I, which is based on
the observed correlation between changes in capacity and changes in popula-
tion, accordingly projects an annual increase of approximately four percent
in federal inmate populations between 1979 and 1983. Projection II, which
simply extrapolates historical population growth levels, yields a virtually
identical projected growth rate. Since future prison construction plans
may reflect just such an extrapolation, the agreement of the two results
may not be wholly coincidental.

Projection III relies on past intake statistics to estimate future
releases. For the period preceding 1977, the federal Bureau of Prisons was
unable to supply movement data consistent with National Prisoner Statistics
definitions. Data for 1977 and 1978 are compatible with the definitions,
but not with prior years' figures. The numerical results of Method III are
dominated by this change in reporting basis, and convey no useful informa-
tion about actual population levels. Because no defensible correction for
this effect appears available, only Series I and II are reported in Figure
4.7.

Figure 4.5
Inmates of State and Federal Prisons with Sentences Over One Year
(1977 Projection)
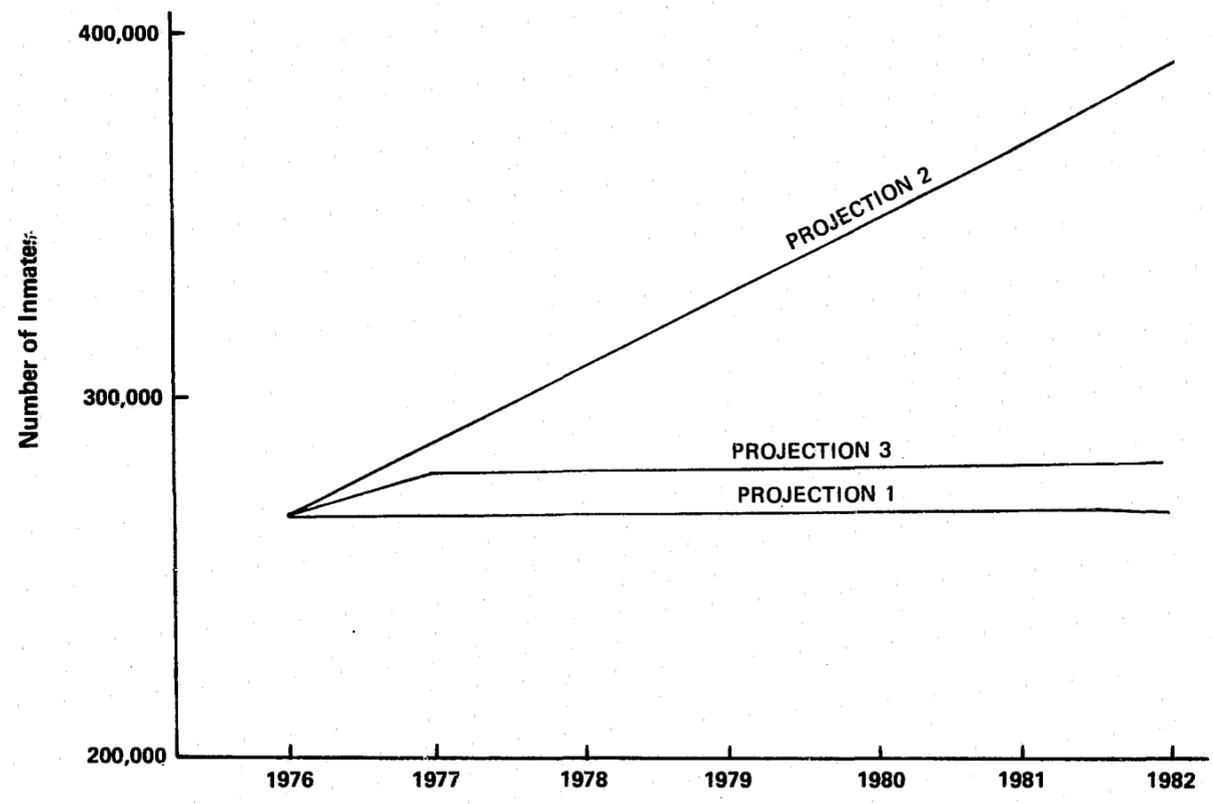
Source: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice, *Prison Population and Policy Choices, Volume 2: Technical Appendix,* by Andrew Rutherford et al. (Washington, D.C.: U.S. Government Printing Office, September 1977).

Figure 4.6
1977 Projected Increase in Year End Prison Population
1976–1982
(Projection 2)
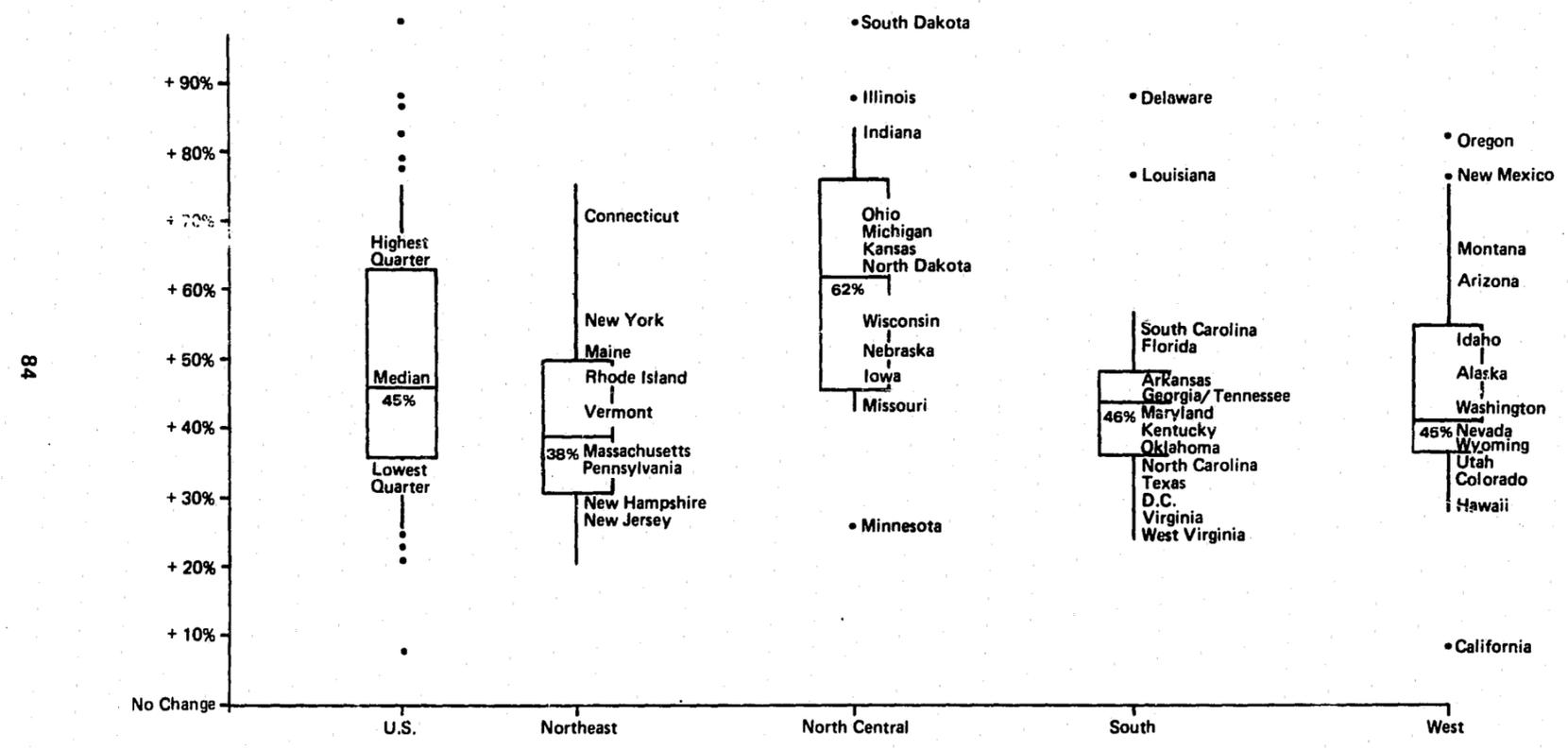
• South Dakota

+ 90%

• Illinois   • Delaware

+ 80%   • Oregon

Indiana   • New Mexico

+ 70%   Connecticut   Ohio   • Louisiana

Highest
Quarter   Michigan   Montana
Kansas
North Dakota   Arizona

+ 60%

62%

New York   Wisconsin   Idaho

+ 50%   Median   Maine   Nebraska   South Carolina   Alaska
Florida
45%   Rhode Island   Iowa   Washington

Arkansas
Vermont   Missouri   Georgia/Tennessee   45% Nevada
+ 40%   46% Maryland   Wyoming
38% Massachusetts   Kentucky   Utah
Lowest   Pennsylvania   Oklahoma   Colorado
Quarter   North Carolina
New Hampshire   Texas   Hawaii
+ 30%   New Jersey   D.C.
• Minnesota   Virginia
West Virginia

+ 20%

+ 10%   • California

No Change

U.S.   Northeast   North Central   South   West

Source: U.S. Department of Justice, Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal
Justice, *Prison Population and Policy Choices, Volume 2: Technical Appendix*, by Andrew Rutherford et al. (Washington, D.C.:
U.S. Government Printing Office, September 1977).

Figure 4.7
Federal Prison Population, 1971—1983
(Methods I and II)
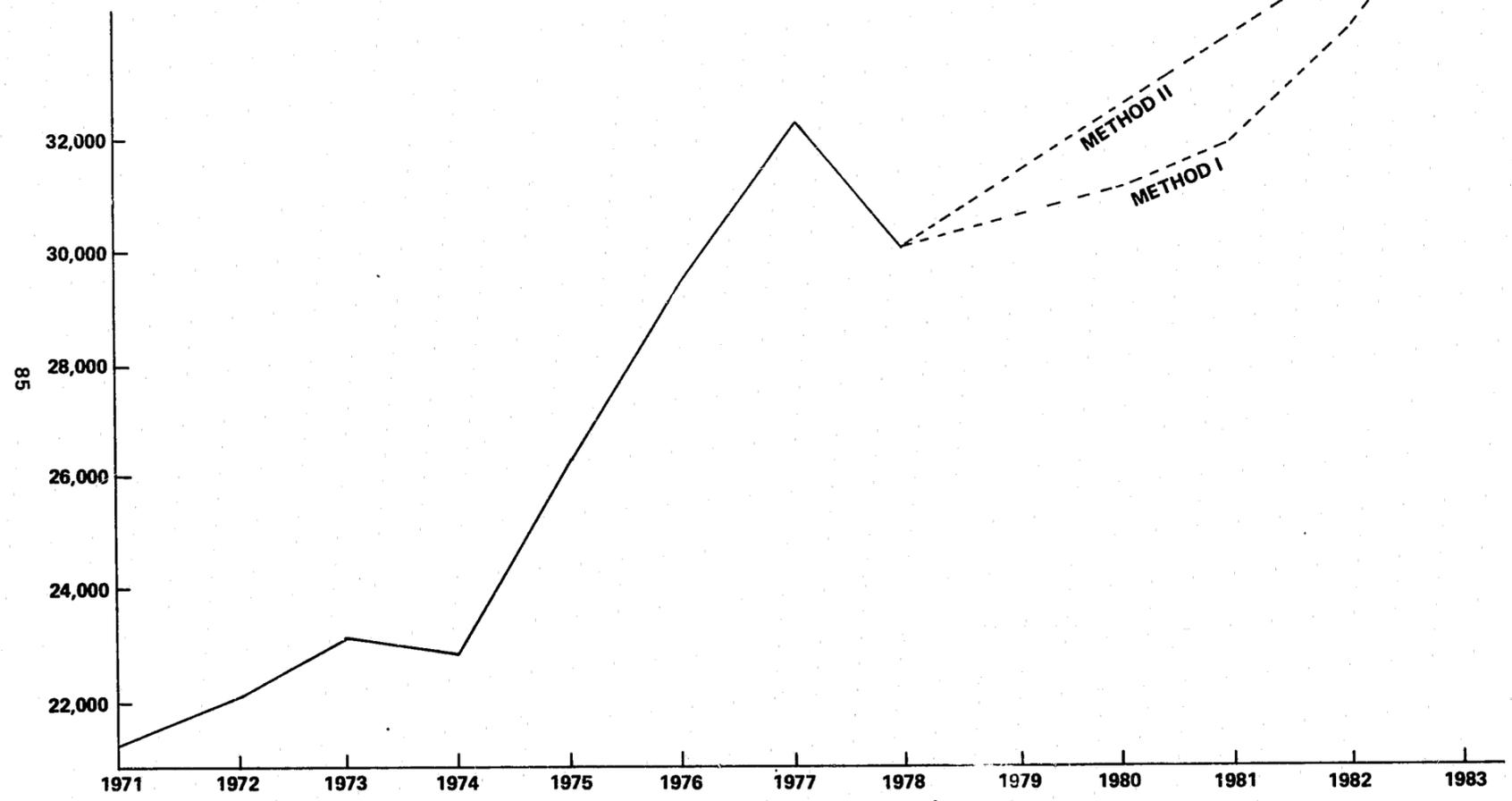
Sources: *Prisoners in State and Federal Institutions on December 31* for the years 1971 through 1978 (see Note 2(b) through (g) of
Chapter 2 of this Volume).

Following several years (1964-1972) of relatively modest capacity increases, the federal Bureau of Prisons began an active construction and acquisition program which introduced ten new federal institutions in five years. At the time of our survey in March 1978, these institutions held 5,160 inmates. The peak of the building activity came in 1974 when three institutions, housing 2,146 inmates, were opened. The rate of increase in the federal prison population reached its highest level two years later, in 1976, when 2,668 inmates were added. In 1977 the population continued to grow, but more slowly, and by 1978 the population had begun to decrease. Whether this relationship will be repeated in the face of new construction (as our projections suggest) remains a matter of speculation. Thus far, NPS data for 1979 show a continued decrease in federal prison population which may signal the beginning of a declining trend that would break the apparent connection between capacity and poulation.

Local Correctional Institutions

The historical data presented in Chapter 2 of this volume indicate no trends of either increase or decrease in the number of jail inmates in most states. In every exception a direct transfer between state and local systems can be identified, most commonly triggered by Eighth Amendment violations by the state department of corrections. Statistical projection methods offer little to the detection of such major transfers. Accordingly, the only projection of jail populations which the data appear to justify is that levels will fluctuate randomly around today's value.

Whereas two to three years has been identified as the length of a prison generation, jail populations may circulate through the system in two or three months, or even weeks. The turnover is so rapid that it is diffi-cult even to obtain reliable data on average lengths of stay. A result of this turnover is that jail populations are both socially and statistically much less stable than prison populations. For many jails, the change in population between Wednesday and Saturday is probably more significant than the change between 1978 and 1983.

This is especially likely to be true in small jails. If we consider every arrival as a random event, then the Central Limit Theorem tells us that as the number of these events increases, their percentage variation will decrease. A very small jail, with an average daily population of one inmate, will frequently experience population increases or decreases of one hundred percent. For a jail with 600 inmates, such a fluctuation would be very unlikely. One model of the random changes in jail populations implies that the standard deviation of population would be approximately proportion-al to the square root of the average daily population, so that a jail with 400 inmates would have daily variations averaging about twice as large as one with 100, rather than four times as large.[3]

Jails differ from prisons in another important respect which may also influence the growth (or stability) of their populations. For most defendants, prison is the most severe sentencing option available. If

sentences become harsher and all defendants are shifted toward more severe punishments, the number of prison sentences must rise. Jails are different because they occupy an intermediate position in the spectrum: when the distribution shifts toward harsher sanctions, some people move out of jail. Their places may be taken by others moving up from still lesser penalties, but whether the shift exceeds or falls short of the shift out depends on the distribution of offenders and the nature of the change in sanctions.

Finally, the character of the jail as a residual institution affects the size and composition of its population. Jails house the occasional person who comes in contact with the criminal or juvenile justice system simply because no suitable alternative exists. Functions which in one jurisdiction might be performed by a social service agency are provided by jails in another. Thus, depending on local custom, jails may hold federal prisoners, military detainees, prisoners awaiting transfer to state facilities, runaway juveniles, drunks, material witnesses, persons in safekeeping, and any number of other "residual" categories. This effect increases both the randomness and flexibility of jail populations, since one of the solutions available in times of crowding is the diversion of one or several of these small subpopulations to some other agency. In addition to these "residual" categories, pre-trial detainees (who constitute 40 percent of the jail population) represent a particularly volatile group whose size is largely dictated by local variation in bail and non-monetary release practices.

Comparison of Projections with Actual Data

Figure 4.8 displays the errors associated with each of the three projection methods in projecting state prison populations for December 31, 1978 on the basis of 1977 NPS data. The scale of Figure 4.8 is directly comparable to Figure 4.2. In their most basic characteristics the two figures differ only slightly. The dispersion of the 1978 projections is slightly smaller than that of 1977, and the few outliers associated with extremely large errors in 1977 have been eliminated by screening selected states for major accounting change which affected either their actual prison populations or those report 1 in the statistics.

The most frequent such effects were those involving jurisdictional transfers between state and local levels of government. Where it was clear that some identifiable class of inmates had changed (e.g., state prisoners held in local jails) the projections were based on the nearest approximation which would be reconstructed to a consistently-defined series. All projec-tions were finally reported on the basis of inmates actually in the physical custody of the states. The projected inmate populations are thus as nearly comparable to the capacity data reported in Volume III of this series as it was possible to make them.

Figure 4.8 also shows a slight reduction in the systematic bias of Projection Methods I (capacity) and II (linear growth). Elimination of this bias was possible due to more precise information about planned

Figure 4.8

Relative Errors of the 1978 Projected Prison Populations
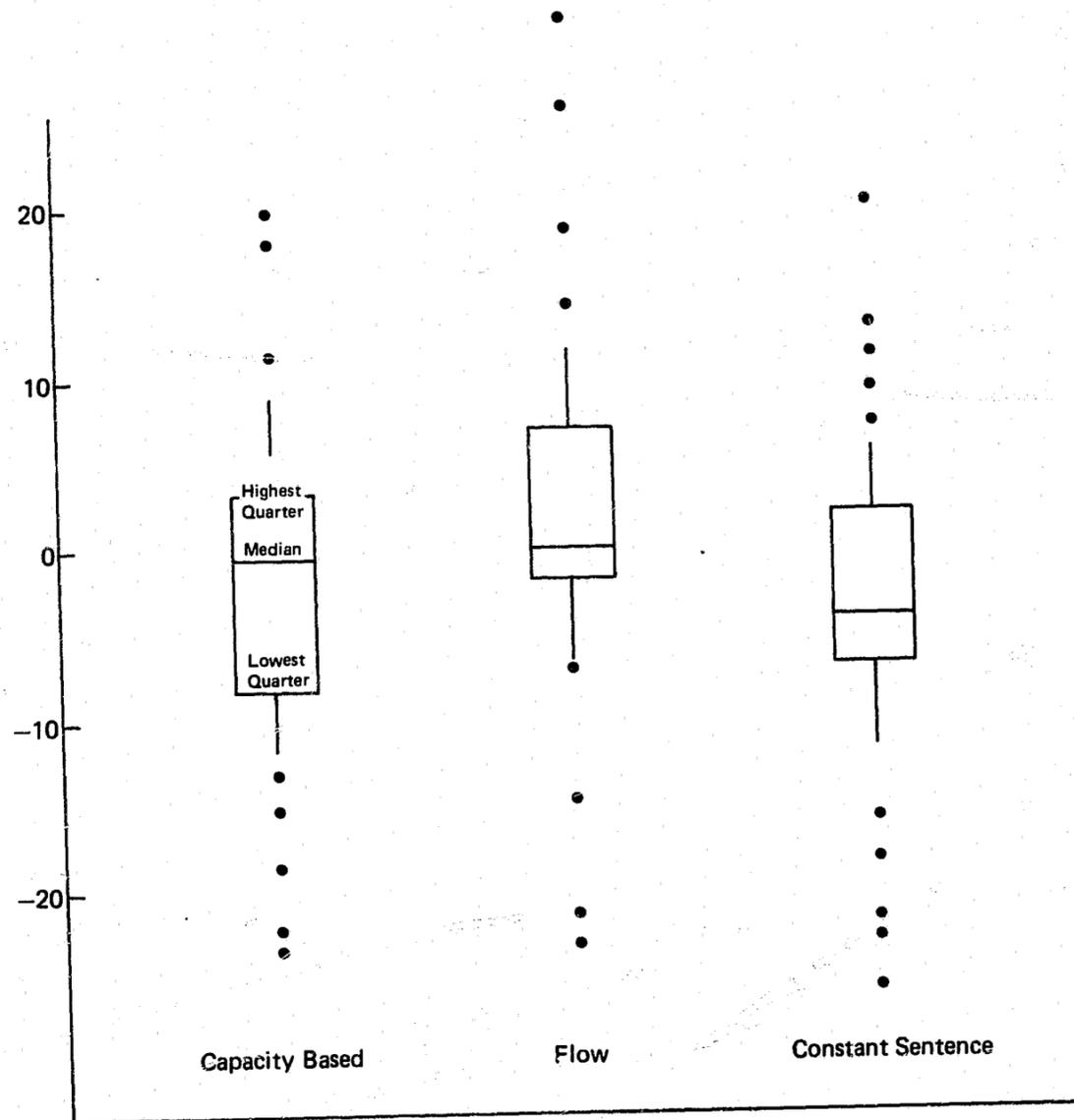
capacity changes (I) and about the actual rates of population change from
their lowest level to the present (II).

From the information now available, none of the three methods
stands out as clearly superior. Both systematic and random errors appear
nearly equal for all methods. Of the random error, about 40 percent is
explicable by discrepancies in the 1977 counts reported to NPS by the
states and later corrected. Some of the remaining 60 percent, as measured
by analysis of variance of the errors, reflects the essential stochastic
day-to-day variation of prison populations caused by random arrivals and
departures. While we cannot distinguish this irreducible random component
from pure modeling error by purely statistical means, a conservative
estimate of the random fluctuation would be at least one percent of the
total prison population. If this is so, then the models are sufficiently
precise that in approximately half the states the modeling errors are no
greater than the random variations and measurement errors in the data.

Figure 4.9 displays a comparison of actual prison populations on
December 31, 1978 (vertical scale) and the same variable as projected by
Model III. The chart shows no correlation between error and the size of the
state. A more detailed analysis of variance indicates no systematic rela-
tionship for any of the three projection methods between errors and either
the size of the state or its geographic location. In sum, analysis of these
errors does not indicate further minor adjustments or refinements in the
methods which would increase their precision over one-year intervals.

Recall, however, that these methods are "policy blind." The fact
that the resulting projections can be invalidated at any time by a shift in
criminal justice policy is clearly illustrated by the most recent reported
change in federal prison populations. In 1977, the Attorney General
announced that the Department of Justice would concentrate its resources on
the investigation and prosecution of white collar crime, narcotics viola-
tions, organized crime and official corruption. According to the Adminis-
trative Office of the U.S. Courts, this policy change has contributed to a
substantial decline in the criminal caseload through the deferral of
non-priority cases to state and local authorities and more concentrated
efforts to reach the main manufacturer and distributor of illicit drugs
with somewhat less emphasis on the small street operator.[4] By 1979,
declining arrests and cases filed appear to have been transmitted to the
corrections system, as federal prison populations declined by 12 percent
from 29,803 to 26,233.[5]

Figure 4.9
Comparison of Actual Size of State Inmate Populations
and the Constant Sentence Projection III, 1978
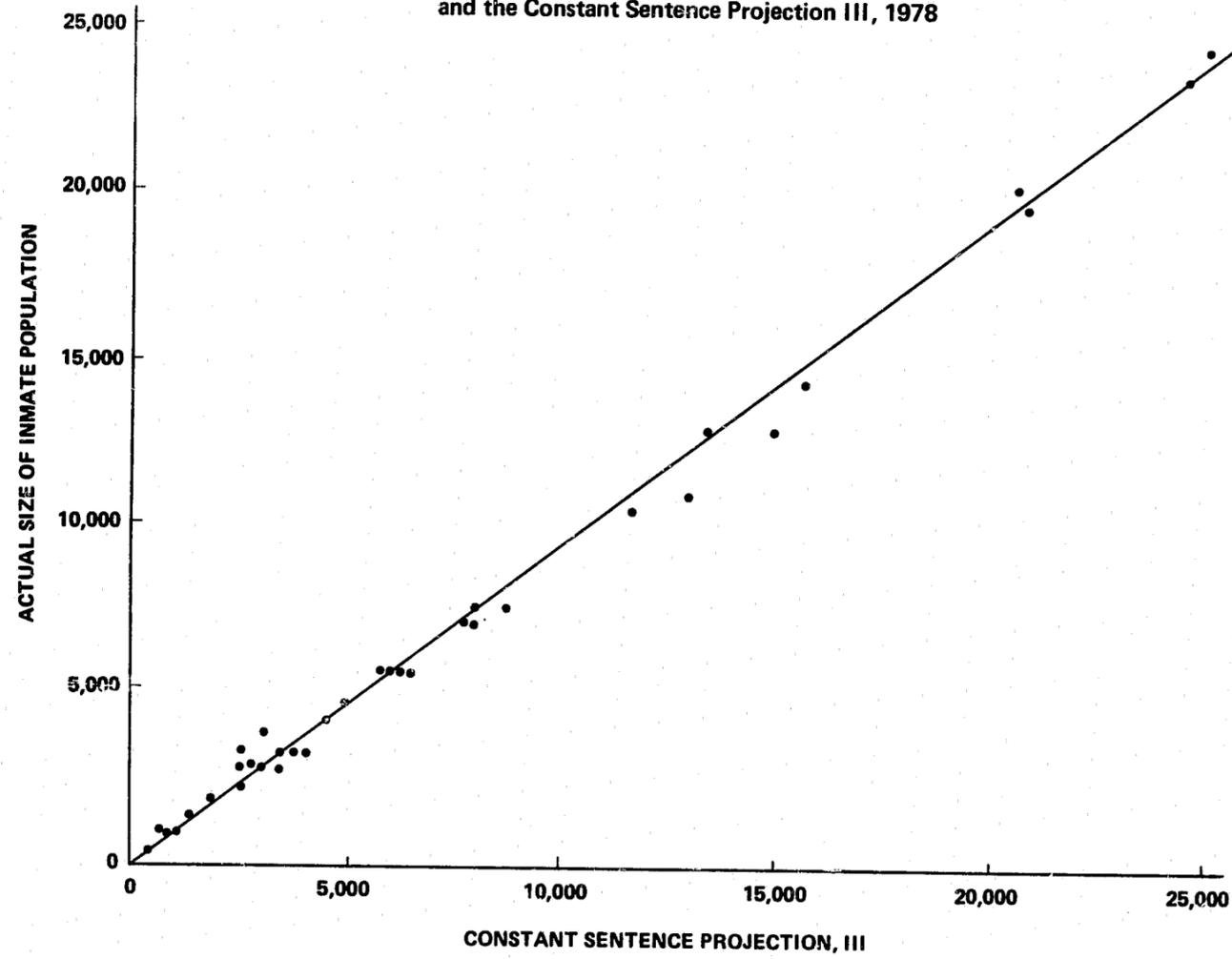
Source: Prisoners in State and Federal Institutions on December 31, 1978, Advance Report (see Note 2(g) of Chapter 2 of this Volume).

Chapter 4: NOTES

1. See Volume IV of this series for case studies of Florida, California, Indiana, Minnesota, and Oregon.

2. New Hampshire, New Mexico, New York, South Dakota, North Dakota, Oregon, Rhode Island, Utah, West Virginia and Wyoming.

3. As Volume III, Chapter 3 will demonstrate, jails need capacity to cover peak loads as well as base loads. This means that the average number of empty units (the difference between peak capacity and average population) will be a larger fraction of the total for small institutions than for large.

4. Administrative Office of the U.S. Courts, 1979 Annual Report of the Director (Washington, D.C., 1979).

5. U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Prisoners in State and Federal Institutions on December 31, 1979, Advance Report, NPS Bulletin SD-NPS-PSF-7A (Washington, D.C.: U.S. Government Printing Office, May 1980).

CHAPTER 5
SUMMARY AND CONCLUSIONS

5.1 Projections and Social Policy

In this report, our interest in projections is practical rather than academic. While speculation on the future size and composition of incarcerated populations is interesting for its own sake, the concern here is the policy and planning process. The analysis of what future correctional populations are going to be like is relevant only as part of the larger inquiry into what we (as a society) are going to do about it. In this context, three features of projections deserve particular attention: their difficulty, their potential dangers, and their potential utility.

This volume has demonstrated at length that accurate projections of correctional populations, even for the short term, are exceedingly hard to formulate. The size and composition of these populations are determined by a very large number of decisions to be made under conditions which are themselves impossible to specify completely. It is not too much to say that if a projection turned out to be very accurate, it would probably be by accident: too many of the basic causal links among decisions--for example, the relation between the decision to create new prison capacity and the decision to sentence offenders to prison--are imperfectly understood.

We dwell on the point because it is central to an understanding of the potential dangers and benefits in projections as part of the policy and planning process. Although the dangers are related, two may be distinguished: the danger of false confidence and the danger of self-fulfilling prophecy. In the first case, an imperfect understanding of the uncertainties in population projections may create either too much activity or not enough. If a high projection is given too much weight, it may lead to the creation of too much new capacity, i.e., more than the demand actually proves to require, and thus to the expenditure of large amounts of money which proves to be unnecessary. On the other hand, if a low projection is given too much weight, it may lead to an overly relaxed attitude, a failure to monitor indicators such as intake rates on a continuing basis, and thus a vulnerability to being taken badly by surprise as happened to most corrections departments in the mid-1970's.

All of this would be bad enough if it were not for the possibility, indeed the likelihood, that the false confidence may become the self-fulfilling prophecy. As described in this volume, there is evidence in at least some jurisdictions that the supply of prison space is among the factors that influence the demand for space rather than the layman's view that the process is reversed. Where this is the case, an unwarranted confidence in high population projections can prove accurate because there

are enough potential prisoners waiting in the wing that any newly created capacity "automatically" gets used. On the other hand, excessive confidence in low population projections may create a different problem in such jurisdictions; in periods of sharply rising crime rates it may mean that society's desire to respond with proportionately more stringent incarceration will be thwarted because there will not be enough capacity to hold the offenders who belong there. There are many factors which may influence the number of prisoners a society wishes to hold. As planning is now done, the role of capacity may be to limit the extent to which these wishes can be realized.

All of this is not to deny, however, that population projections do have their utility. When used sensibly, they can make at least three types of contribution. First, they can help the policymaker gain a fuller appreciation of the forces which determine correctional populations, as well as an understanding of the points at which those forces are exerted. The analysis of projections in our preliminary report, for example, indicated the potential importance in many jurisdictions of the parole board as a population-control mechanism. It alerted the policymaker to the possibility that although certain forms of determinacy might serve some standards of justice and make correctional populations more predictable, they also might make the size of those populations harder to control.

A secondary contribution of population projections is to give the policymaker a better sense of the likely _ranges_ within which the populations can be expected to move. Projections can demonstrate to officials the plausible consequences of continuing to make the kinds of decisions in the future which they have been making in the past, as well as potential effects of significant innovations. Finally, projections can indicate the organizing principles for the data which policymakers should monitor as a kind of warning system, alerting them to fluctuations in the correctional population.

5.2   State and Local Use of Projections

Projections, both those resulting from studies such as this and those prepared by state departments of corrections and other local sources, routinely play a role in the decision of whether and how much to build. Reduced to simplest terms, two kinds of cases for construction appear to be made. The more common case compares a projected future population, whose size is usually extrapolated from observations of past population levels, to the nominally available capacity. When projected populations significantly exceed currently available space, appropriations for additional construction are sought. In an alternate form of this logic, advocates may argue that additional space is required not for some hypothetical future population, but simply to provide more adequate housing for inmates already in the system.

Misgivings about the validity of the logic motivating custodial expansion have been raised by a few opponents of construction, of whom the

most notable spokesman was William G. Nagel. Five years ago[1] Nagel called for a moratorium on prison construction, claiming that the availability of further space was directly responsible for increasing the number of persons confined, with no very persuasive rehabilitative or deterrent effect. He observed the minimal correlation between incarceration and either higher or lower crime rates, and the rather substantial ecological correlation between incarceration and the racial composition of the states. He concludes,

"The massive use of incarceration has not contributed and will not contribute significantly to the abatement of crime or to correction of the flaws in our social fabric."[2]

Control of Population Levels

Projections, we have observed, can be dangerously self-fulfilling prophesies. Perhaps they serve the most admirable purpose when they are self-defeating. Sound projections of prison populations can tell planners what to avoid and even suggest how to do it. Moreover, they can assess the ramifications of various policy alternatives. Correctional administrators and statistical bureaus may not always have direct power over the myriad decisions throughout the process to implement the changes that prison population projections may suggest, but they can monitor indicators, assess consequences, and disseminate the informaton to other key policymakers.

The concept of analyzing the "environmental" impact of policy choices relies on projections. The approach would help rectify the basic imbalance of options and effects we noted above by systematically drawing attention to both levels--of people and space--as well as other system effects and necessary adjustments to the policy change. It is a truism that every improvement bears a price. Consideration of the experiences of state corrections systems in coping with sudden changes in their caseloads suggests that if this price can be anticipated, or at least recognized early, adjustments for its equitable distribution are easier to make. In the absence of planning, burdens seem to fall disproportionately on the least powerful.

The aggregate of policies which determine whom to incarcerate, and for how long, largely defines the range within which a state's incarceration rate can fluctuate. Changes in sanction structures can have a profound impact on prison populations often resulting in unintended changes. A number of states have recently seen either formal or informal redefinitions of the degree of criminality associated with proscribed behavior. In New York the possession and sale of narcotics came under a new and much more stringent section of the criminal code in 1973. While court backlogs postponed the first effects of this legislation for over two years,[3] an accumulation of drug offenders serving nominal life sentences is now beginning to be evident in the latest population statistics. In 1979, before the full effects of the law were evident, the state amended portions of the statute affecting lesser offenders. It is still too early to determine the full

impact of this change. It is entirely possible that parole discretion will be employed to nullify completely any net population effect. It is also possible that the legislatively expressed desires, if faithfully followed, will result in a continued growth in the prison population over many years.

Other changes in criminalization/decriminalization can be less direct. Statutes against commercial fraud, for example, are difficult to enforce without sophisticated prosecutorial resources. A state providing funds for the prosecution of white collar crime, accompanied by a vigorous attempt to gain prison sentences for convicted offenders, might show such an indirect effect in incarcerated populations.

The availability of alternatives to incarceration, both pre-trial and post-trial, has also been suggested as a possible influence on the use of prisons. Probation programs serve many offenders who resemble prison and jail inmates in every respect of which official cognizance may be taken. But for the alternative of probation, some of these might be expected to be incarcerated. On the other hand, evidence for the diversionary nature of some pre-trial intervention programs is mixed. It is possible that the primary effect of such alternatives is rather a widening of the net of social control, and the inclusion within the system of defendants whose cases would otherwise have been dismissed or simply never prosecuted.

Proactive Controls

Any policy decision relating to the criminal justice system that changes the status quo at any of its points potentially affects correctional populations. If the policy change alters the pace, characteristics, or distribution of offenders flowing through the criminal justice system, it can alter the balance between space and people.

Theoretically, for a state to avoid developing "crisis" conditions in its correctional system, it need only provide adequate space to meet the consequences of its policies. However, two fundamental realities present a persistent problem for criminal justice policymaking because they consistently encourage an imbalance between demand and supply.

- There are far more options that can be considered which can change space "demand"--the flow of prisoners into and out of prison--than those possible or plausible, to affect "supply"--or the quantity or quality of space.

- Proposed policies that affect space generally have that as their explicit purpose and so their impact is relatively predictable ("$x million allocated to build or renovate n cells by FY '80.").

Proposals that can affect correctional population levels are myriad, may or may not be intentional, and may focus on any part of the criminal justice process, with unknowable impact. For example, an increase in the number of judgeships may affect dramatically, for a few years, the number of court commitments to prison by reducing case backlogs, although there has been no change in the pattern of offenders or procedures for handling them. (In such a case the impact assessed at the proposal stage of the legislation generally stops at the analysis of improved court workload.)

In addition to changing the penalties for particular crimes, there are, as we have noted, proposals for across-the-board changes in sanction levels through determinate sentencing, mandatory minimum sentences, and sentencing or release guidelines. The precise implications of such legislation for prison populations depend largely on the fine-tuning of penalties which are imposed, which is the primary focus of Volume IV of this report.

While the sentencing juncture is the most intuitively obvious place to expect influences on prison populations, earlier and later interventions in their implementation may also have their effects. Alaska, for example, formally restricted the extent of plea bargaining through legislation.[4] Preliminary research suggests that there has so far been no effect of this legislation, its intent being largely circumvented by alternative means of accomplishing the same objective. In Arizona the issue of prison population was directly addressed by legislation fixing a limit on the capacity of the state's correctional system.[5] Similar control can be exercised indirectly by adjustment of discretionary time granted for good behavior while in correctional institutions.

Reactive Controls

Surely one of the purposes of projections is to help decisionmakers avoid the necessity of reactive controls--legal or political constraints imposed to improve conditions in correctional facilities that have fallen below a tolerable level of adequacy. They are designed to affect population movement or capacity where, for various reasons, a correctional population has exceeded a jurisdiction's ability to maintain it adequately. Court intervention to limit prison or jail population or to enforce correctional standards is a primary example. Similarly, legislatures can impose population ceilings or other measures to encourage observance of standards of adequacy.

Sudden legal or political constraints on population or capacity require drastic and immediate measures by correctional administrators (and cooperation of parole boards and probably judges and district attorneys) to achieve compliance. Mechanisms already in place may be manipulated to reduce incarceration. In jails the options are numerous; among those most frequently exercised are probation, jail credit, Own Recognizance Release and work release. For prisons, parole, good time and work release are all subject to similar adjustment. Other ad hoc (or "reactive") measures may

be initiated, as in South Carolina, in which almost monthly adjustments of eligibility for early release as a Youthful Offender were calculated.

The effect of court intervention on jail population trends was reviewed in Chapter 2. The only six states of the U.S. whose jail populations showed extreme increases between 1970 and 1978 (i.e., by at least twice the Standard Deviation of their 1970 jail populations) were each respondents in civil actions to redress conditions of their prison system (Alabama, Georgia, Louisiana, Maryland, Mississippi, Tennessee). In most of these states, jails swelled with prison backups so that the prison systems could attempt to comply with court orders. Court intervention to limit prison population could also have indirect effects on jails as for example, an increase in sentences to jail in order to reduce the number of sentences to prison.

Because such efforts are extemporaneous and designed to affect, abruptly and significantly, the prison population level that the criminal justice process generates, they can destroy the accuracy of any projected trends calculated before they occur.

Perhaps, however, such dramatic special events are not entirely unforeseeable. A sophisticated planner may well comprehend the consequences of current criminal justice policies, the legislative temper to fund maintenance or construction, and their implications on future correctional adequacy. Planners may also anticipate the level at which conditions of incarceration will no longer be tolerable (or tolerated), and perhaps even predict when that level will be reached.

This raises the problem of the influence of projections on the phenomenon being projected. One might hope that a sufficiently reliable projection would permit planners to obviate these intolerable conditions before they became manifest. A projection which presupposed such corrective action might then have a better chance of accuracy, but fail to provide guidance on where and how that corrective action should be applied. A projection showing undesirable effects of a policy is most valuable if it informs a change in that policy, which may subsequently falsify the projection.

For our projections, then, we have only considered the impact of current policies and processes in the criminal justice process. A comparison of the projected population level of a given state population with the profile of its current capacity and conditions (Volume III) may provide a basis on which to estimate the likelihood of court or legislative intervention, or even the likelihood of preventive policy change. In the event that such adaptation is successful, our projections will be wrong.

98

5.3　Implications of this Study for State and Local Projections

Prison populations are controlled by the rate at which offenders enter and leave institutions. These rates, in turn, reflect policy decisions implemented variously at the local and state levels. Arrivals tend to be locally controlled.

Decisions about pre-trial detention and sentencing to local jails are similarly decentralized. Release from prison, by contrast, comes from the parole board (generally appointed state officials) and/or the granting of time off for good behavior by prison administrators (always at the state level).

In our historical examination of the circumstances of the population increase of the 1970's we found that shifts in the rate of intake (local decisions) accounted for much of the variance in prison population levels, as opposed to longer time served. Our statistics suggested that the usual direction of state level actions was toward reduction of variance. On the average, growth in correctional populations was more likely to occur in states where new prison space was available to absorb that growth.

In developing our projections of prison and jail populations, we found that the most credible results come from attempts to understand the parameters of these intake and release decisions. As long as both function at constant and equal rates, one can expect a stable prison population. In most of the states we examined, however, one or more significant changes had occurred in these processes in the preceding decade. Thus, before we could begin to estimate the present rates of intake and release in a state, we had to determine which observations actually reflected the present level, as distinct from those reflecting previous policies which had subsequently been altered.

It is difficult to provide specific guidance in making this determination. While statistical techniques are available for detecting discontinuities in a time series, they require the ability to specify a model for the random component of the process. This is generally not feasible with criminal justice data, where quantitative theories are not well developed. The only approach with which we felt confident was a combination of exploratory analysis of the data and questioning of relevant observers who were close to the state's decision-making process. At least two classes of change emerged during this examination. The greatest statistical effects were often associated with changes in recordkeeping conventions, as when a group of institutions and their inmates would be transferred from one state agency to another, or from local to state administration. Unadjusted prisoner movement statistics from periods preceding such changes can distort projections based on them to the point of absurdity.

Substantive changes in sentencing policy are often more difficult to detect than these accounting changes. They are often diffused over longer intervals, and may affect less well-defined groups of offenders. No

99

general rule can be offered for dealing with these situations, since their characteristics differ in every state.

In principle, such a rule change could come from any point in the criminal justice system: a change in the criminal code, increased or decreased arrest rate, changes in prosecution or plea negotiation, the introduction of sentencing alternatives or shifts in sentencing philosophy, or changes in release policy. Our case studies indicate that shifts at some of these points are much more directly linked to prison populations than others. The ability (and desire) of one set of actors to countermand the policy changes of others varies with the place and with the issue. In our case studies of sentencing legislation we found that a literal reading of statutory provisions gave little guidance in explaining changes in prison populations because the discretionary latitude remaining in the system permitted prosecutors (and/or others) to implement the law with variable rigor.

Monitoring Indicators

A conclusion which clearly follows from the role of these changes in policy is that the correctional system is the wrong place to look for advance indicators of trends in incarceration. The chain of events which culminates in incarceration is long and passes through the hands of many actors, whose discretion plays a role in determining who is incarcerated, where, and for how long. A comprehensive monitoring system would cluster indicators at each discretionary point in the hope that at least some of them would provide advance warning of changes in policy before they reached the corrections system.

1. **Crime.** We somewhat arbitrarily begin our cluster of candidates with offenses reported to the police. A more ambitious project might seek the social, cultural, and economic antecedents of actual criminal behavior. Understanding the sources of crime has drawn the attention of highly competent researchers for several decades, without producing consensus on which variables play what role in the structure. If the development of a set of indicators for prison population were forced to wait until theoretical agreement could be reached on the causes of crime, the project might never begin. At present, it appears that information on the subsequent parts of the system may have more saliency and immediacy than etiologic indicators.

   As a practical matter the indicators of crime incidence have been largely predetermined by the precedent of the Uniform Crime Reports. The standard definitions for Part I crimes correspond to the violent and property offenses which make up the bulk of the state prison population. They are less useful for public order offenses, federal crimes, and the lesser offenses for which jails are used. One might seriously

question the usefulness of crime statistics as an indication of prison populations. The number of drug sales probably has little to do with the number of drug sales agents imprisoned, since official response to victimless crime depends primarily on the vigor of enforcement.

The comprehensiveness of this cluster of measures might be enhanced by attempts to distinguish the characteristics of specific offenses which make it most probable that the offender will be apprehended and imprisoned (e.g., the severity of the offense). An attempt to quantify the aspects of victimless crime which lead to incarceration might also prove valuable. Because these indicators have never been systematically collected, no empirical test of their usefulness has been made. Until they are studied, we will not know whether they are useful.

2. **Police Practice.** The offender first experiences the discretionary power of the criminal justice system at the point of arrest. Clearance rates range from approximately 16 percent for burglary to 76 percent for homicide.[6] Any change in the clearance rate could send an increased volume of defendants into the court system, who might then, in turn, increase the volumes of conviction of crime and sentence. Clearance rates for major types of crime thus form one of the key indicators for this indicator cluster.

A second important measure of police activity is the number of arrests for public order crimes and other misdemeanors. As noted above, police policy can substantially influence the case volume flowing into the system by a more or less vigorous attack on drug dealing and other victimless crime. Knowing the timing of such changes may help anticipate their effect. For these indicators there is reason to believe that the level of detail is especially important for meaningful interpretation. The easy way to increase the quantity of arrests is to decrease their quality, picking up lesser offenders (or innocent bystanders) for whom no valid case can be prepared. Thus, a simple increase in the number of arrests may have a diluted impact further down the stream as prosecutors and judges screen out the marginal cases.

3. **Prosecution.** Given the role of the prosecutor in screening charges brought in by law enforcement agents, the group of indicators which describe the decision of whether to prosecute, and on what charges, is central to the construction of a comprehensive monitoring study. If a pilot effort were to look at only one transition in an attempt to test the feasibility of developing a set of indicators, the prosecution function would probably be the place to start.

A particularly important question to ask here is whether prosecutors simply transmit the effects of changes in crime and arrest rates, or whether they moderate their influence by reducing the rate of prosecution when the volume of cases goes up (and conversely increase prosecutions during times of low volume). Thus, the kinds of indicators one would monitor are the ratios of burglary (robbery, drugs, etc.) prosecutions to felony arrests for the same crimes. Secondarily, indicators which monitored plea negotiation practices, such as percent of convictions within zero, one, and two degrees of original charge might be informative where available.

About both these sets of indicators two questions must be asked. First, do they change in response to (or concomitantly with) changes in the incoming caseload? Second, are there times when the prosecution policy changes abruptly without evident connection to an external stimulus? Understanding the first of these is important to estimating the future effects of changes in crime and arrest. The simple model which translates a 20 percent increase in arrests to a 20 percent increase in prison intake ignores the possible functional relationships between workload and productivity which these indicators are designed to monitor. Because those relationships may be absolutely crucial, models which overlook them are potentially seriously misleading. The second question addresses the possibility that changes in incarceration policy may be initiated by the prosecutor and transmitted through the remainder of the system.

In interpreting these changes it is important to remember that qualitative indicators can provide information which may be as important as the more traditional numerical measures. Construing a change in the plea negotiation rate as reflecting prosecutorial policy is much sounder if prosecutors or other observers also interpret it as such. Conversely, however, one should be wary of treating reported policy shifts as literal truth if they are not confirmed by data.

4. Courts. The indicator groups named so far have not only followed a chronological path through the criminal justice system, but also reflect increasing levels of complexity. Crimes can only be counted and classified. When we move to the next stage (arrest) we begin to look at ratios of arrests to offenses reported. For prosecutors we move one step further by examining the functional relationship between ratios (prosecution rates) and counts (workload). For courts yet another factor becomes important: delay between prosecution and adjudication. Attempts to reduce delay may lead to a temporary increase in the number of sentenced offenders as backlogs are cleared by increased court activity. They might alternatively reduce the flow of offenders if cases are dismissed because of speedy trial provisions.

Backlogs are partly due to cases awaiting access to limited court resources, partly to the time litigants require to prepare their cases, complete discovery, file and respond to motions and develop evidence, and partly to the efforts of some defenders to keep their clients out of court as long as possible. Where court capacity limits the processing of cases, the effect of an influx of defendants may initially be only to increase the length of court delays without affecting the rate at which prisons receive additional prisoners. Thus, the kinds of indicators which may appropriately be monitored include the distribution of time to trial (for different offenses) along with the usual transition ratios of probability of conviction given offense charged, and probability of prison or jail sentence given conviction offense. Moreover, the effect of court delays on jail population levels should be monitored, since longer waits for pre-trial detainees may mean more of them in jail on any given day. Statistics on the handling of probation and parole violators may also be collected as part of this group of indicators.

5. Corrections. The population measures already collected by the National Prisoner Statistics provide about as much aggregate information as is likely to be available or useful on the national level. A fundamental thesis of this report is that the important gatekeepers and controllers of institutional populations are outside the corrections system, rather than within it. What has not been adequately monitored is the effect of the physical conditions of confinement. This interacts most dramatically with populations when courts find corrections departments to be running institutions so crowded or deteriorated as to be in violation of the Eighth Amendment, and order wholesale removal of inmates from inadequate facilities. Standards of decent confinement are becoming sufficiently well documented, through litigation and accreditation, that identification of likely court-order candidates may be possible through the collection of facility data of the kind reported in Volume III of this series. Because capacity, whether judicially or physically defined, may limit the growth of population, it is also important to continue to monitor construction plans.

6. Parole. In discussing courts we specifically did not suggest that length of sentence be monitored. In most states, and for most offenders, judges do not set time served: parole boards do. They may or may not consider the judicially imposed sentence, but they are bound by it only within broad limits. (An important exception to this generalization is provided by the few states with determinate sentencing laws, where parole discretion has been abolished or substantially weakened. See Volume IV of this series.) Thus, in monitoring trends at the release juncture the important questions are:

- Who exercises discretion over release?

- On what basis are decisions made? (For example, is the type of offense a factor?)

- How much flexibility is available in setting the lengths of prison terms? and

- What changes are occurring in the distributions of prison terms by offense?

7. Recidivism. Defendants who have already been to prison once are likely to get special attention from sentencing judges. As the current population of inmates is released, the number of ex-offenders in the general population, and in the subgroup of criminal defendants, will increase. It is conceivable that such a change could lead to an echo of the 1970's prison population growth in the 1980's as current prisoners come up for the next time around. Analysts might accordingly wish to monitor the size, behavior and treatment of the ex-offender population for its potential effects on future numbers of inmates.

Discovering a shift in one of these transition ratios might tempt one to propagate the new ratio through the system and project a change in prison intake (or population) proportional to the change in the intermediate indicator. For example, if drug felony indictments fall from 20 percent of drug felony arrests to ten percent, one might conjecture that prison intake for these offenses would be halved. Approximately such a change occurred in New York State from 1970 to 1977. The result was not in accordance with the straightforward model. Several complicating factors intervened, including a major revision of the state's criminal drug statutes. The net outcome was that more indictments resulted in convictions and more convictions resulted in sentences to prison or jail, so that intake to these institutions for drug offenses changed but little. In general, we can be very confident that if a prosecutor increases or reduces the rate at which charges are filed, the marginal cases added or removed will not look like a random sample of all cases, and will not have the same probabilities of conviction or incarceration as would "average" cases. It may be possible to decide the direction of the difference (higher or lower) but it is highly unlikely that the amount can be specified with any empirical basis. Moreover, although one might hope to improve the accuracy of a numerical estimate by stratifying the case sample to select instances most nearly resembling the marginal cases, as a practical matter appropriate stratifiers are unlikely to be available. Subjective considerations of evidence quality, the personality of the defendant, and community sentiment are likely to contribute to prosecutorial decisions. Stratification on alleged offense is unlikely to capture much of the variance due to these factors.

Changes in transition ratios may also influence the behavior of actors downstream in the system, who may respond to both workload volume and case quality by changing their own transition probabilities. A court which can only process 70 cases per week per judge will continue to process about 70 cases even if filings double until either (a) more judges are added or (b) dispositions are made easier by an increase in negotiated pleas. Thus, identifying one discontinuity in a time series of transition probabilities is only a first step in understanding the nature and effects of a policy change. The analyst must return to the data to determine whether this change is neutralized, amplified, or simply transmitted through the next stage of the system.

These cautionary notes do not imply that the situation is completely hopeless. They should serve, however, to limit the range of generalization to which projection models are subjected, and to highlight the uncertainty which properly attends any attempt to project the future behavior of sensitive decisionmakers. One might despairingly conclude that since these considerations do not lead to single point projections, they cannot contribute to corrections planning. On the contrary, it is essential to understand the principle that prison populations, like many social indicators, are controlled by multiple independent decisionmakers, each of whom increases the uncertainty of projection. Two influences follow immediately from this conclusion. The first is that plans must maintain flexibility to cope with changing situations. A study of the movement of cases through the system can help quantify the range within which such changes may be expected to occur, and may provide one or two years' advance warning of the possible direction of major shifts. The second corollary has to do with the role of coordination among criminal justice agencies. One way both to anticipate future population fluctuations and to mitigate their adverse effects is to establish mechanisms whereby the policies of criminal justice actors can be monitored, and information on their possible effects fed back to both the decisionmakers themselves and to other agencies directly bearing the consequences of the decisions. Judges, for example, may wish to take account of the availability of jail space in setting bail amounts. Such adjustment will be both fairer and more accurate if every judge bases his or her decisions on the same information than if some judges maintain frequent informal contacts with jail masters while others rely only on annual reports or hearsay.

5.4   Conclusion

If one reviews the major innovations which have characterized the present decade of criminal justice programs, one underlying feature which most share is the exercise of discretion. Court cases and guidelines have helped to define the discretionary roles of arresting officers, prosecutors and judges; diversion and screening programs have been instituted to formalize and channel the discretion of these actors to allocate both community and criminal justice resources to selected defendants or offenders; patrol

allocation and enforcement strategies reflect either implicit or explicit exercises of discretion; parole boards are developing new kinds of support-ive services and new concepts of due process to improve their ability to make sound release decisions. There are two important factors which emerge from this brief catalog: first, that many of these innovations may have major, and not fully anticipated, effects on the incarcerated population of the United States; and second, that the decisions regulating both the influx and departure of prisoners are largely exterior to the institutional corrections component of the criminal justice system.

In light of these factors, the population crisis confronting many of the nation's corrections agencies takes on a special significance: corrections administrators have faced a rapidly accelerating number of prisoners whose flow in and out of the system they do not control. The corrections administrator has some control over the security classification of inmates, and limited ability to reallocate space within an institution. He has virtually no control over how many people come through the gates or how long they stay. Under such circumstances, it is natural for the corrections specialist to see prison populations as determinate, externally defined natural phenomena which can be tabulated, possibly anticipated, but not controlled. From the broader perspective of the entire criminal jus-tice system, this deterministic view appears as an anomaly. The existing population of our prisons is a direct result of decisions to put people in and take people out. Many of the individual decisions may be made in dis-regard or ignorance of their eventual impact on the prison population, but in the aggregate reflect implementation of either implicit or explicit policies. It is these policies which control the size of the prison popu-lation, and it has been the goal of this study to attempt to understand where these policies are formulated, how they are implemented, and what effects they have on inmate populations.

We have found that answering these questions involves skills both of art and of science, that rigorous quantitative characterizations even of past incarceration levels is often complicated by inconsistency in data collection procedures, and that the trends on which one might seek to base projections are subject to sudden discontinuities and reversals. The projections and methods presented in this volume are thus both hypothetical and approximate. They reflect results which might be expected in the unusual cases where present trends continue without interruptions, where historical data are measured accurately, and where random variation does not distort results. Despite these impediments, they provide useful illustrations of the short-term trends we may expect in jail and prison populations, indicating that some further increase is likely at the state and federal levels, but that the period of most rapid growth seems to have passed, and that stable prison populations are a possibility for the future.

This study clearly documents the complexity of the decision process which establishes prison populations. It is a product of literally millions of discretionary transactions among actors with independent goals, following policies which may or may not be uniformly defined and implemented. The

We can also say that the regions of the country vary tremendously in their choices about how many prisoners they wish to hold, and that it is not clear that this regional variation has much justification beyond his-torical precedent. Alternatives to incarceration such as restitution, diversion, probation, community service and early release are much more extensive in some jurisdictions than in others. If we are to move toward a more comprehensive approach to corrections, every jurisdiction must have and exercise a graded series of options of which incarceration is only the last resort for cases where it can be clearly justified, and never a residual disposition which is used simply because nothing else is available. In placing incarceration at one end of a spectrum of sentencing options, we must be mindful of the danger that every added program creates the possi-bility of ensnaring a larger share of the population in the net of social control. A capacity effect may apply to non-incarcerative sanctions as well as to prisons, so that planners need to maintain deliberate control over the criteria for placement not only in prisons and jails, but in community-based programs as well.

This volume has confronted one primary question: What expectations can we form about the size of the prison population? We conclude our dis-cussion with an increased awareness that this is only one component of the much larger problem of the future direction the correctional system should take. The use of prisons and jails depends on society's beliefs about the purposes they are intended to serve, their perceived ability to achieve these goals, and the availability of alternative means to reach the same ends. At every turn we encounter fundamental questions about the purposes of corrections, and we also are reminded that the system continues to operate in the absence of any consensus on the answers to these questions. Our work on the determinants of prison population does not lead to answers to these questions, but it does highlight the fact that broader contextual questions need to be raised in order for our narrow question about popula-tion to be fully understood.

characteristically discretionary nature of these decisions makes their aggregate impact on the corrections system difficult, or perhaps fundamentally impossible, to predict because the uncertainty of large numbers of stochastic decisions is compounded by the fact that decision rules can, and do, change from time to time. These rule changes complicate the task of projection in two ways. The obvious problem is that future changes in policy may occur without warning, or, if warnings are given, they may be overlooked by the analyst. The more subtle problem is that past changes may not be well-documented either. A projection model which tries to use past data to document the statistical characteristics of a policy may simply describe an abandoned or non-existent policy if its data are drawn from a period spanning one of these major unannounced policy shifts.

The state of the modeler's art is highly sophisticated in simulating the behavior of systems whose operating characteristics are fully understood. Unfortunately, the rules of criminal justice processing are not only difficult to quantify, but may not even remain stationary long enough for a quantification effort to be completed or used. Models which purport to estimate the effects of policies not yet implemented are particularly unreliable. Any projection model, including the ones developed for this study, is a device for estimating the logical consequences of a set of assumptions. Where these assumptions refer to past policy, their validity can at least be tested with historical data. In estimating the effects of future policies, the empirical foundations are much more tenuous, and the opportunities for testing their validity much less rigorous. Thus the claims that can be made for any projections of correctional futures are necessarily modest.

The same systemic uncertainties which cause pessimism about the ability of models to provide a definitive projection of correctional futures are grounds for optimism about the ability of the criminal justice system to control its own future. In particular, this study emphasizes that building more capacity is not the only available response to a disparity between capacity and population. Alternatives exist at every juncture of the system, and more alternatives need to be developed. We can look at crowded prisons as meaning either "not enough space," or "too many people." Given the significant role that construction may play in influencing the growth of prison populations, the choice between those two perspectives may be an absolutely critical one.

If the capacity theorists are right, responding to crowding by increased capital expenditures for new institutional space can provide at best a temporary alleviation of the crowding problem, and will ultimately result in a new equilibrium of more prisons, more prisoners, and the same crowded conditions as before. Whether this new equilibrium is desirable is a value question beyond the scope of our statistical research. We cannot say whether society should have more or fewer prisoners. What we can say is that there appears to be evidence that a decision to build more prisons seems to imply a decision that there should be more prisoners.

Chapter 5: NOTES

1. William G. Nagel, The New Red Barn: A Critical Look at the Modern American Prison (New York, Walker and Co., 1973): 180.

2. _____, "On Behalf of a Moratorium on Prison Construction," Crime and Delinquency (April 1977).

3. U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Institute of Law Enforcement and Criminal Justice (NILECJ), The Nation's Toughest Drug Law: Evaluating the New York Experience, Final Report of the Joint Committee on New York Drug Law Evaluation (Washington, D.C.: U.S. Government Printing Office, 1978).

4. A. M. Gross, "Plea Bargaining--the Alaska Experience" (unpublished).

5. U.S. Department of Justice, Federal Bureau of Investigation, Crime in the United States 1978: Uniform Crime Report (Washington, D.C.: U.S. Government Printing Office, 1978): 176.

6. Ariz. Laws 1977, ch. 142, 187.

APPENDIX A

Supporting Data for Prison and Jail Population Movements

Preceding page blank

SUPPORTING DATA FOR PRISON AND JAIL POPULATION MOVEMENTS

Preceding page blank

Table A.1

Inmates of Federal, State and Local Institutions, 1970-1978

Year	Total State and Federal Inmates	Federal Inmates	State Inmates	Total State and Federal Inmates per 100,000 Civilian Pop.	Federal Inmates per 100,000 Civilian Pop.	State Inmates per 100,000 Civilian Pop.	Inmates In Local Jails	Local Jail Inmates per 100,000 Civilian Pop.
1970	196,429[1]	20,038	176,391	97	10	87	160,863[2]	80
1971[3]	198,061	20,948	177,113	97	10	87		
1972	196,183	21,713	174,470	95	11	84	141,588[4]	69
1973	204,349	22,815	181,534	98	11	87		
1974	218,205	22,361	195,844	104	11	93		
1975	242,750	24,131	218,619	115	11	104		
1976	263,291	26,799	236,492	124	13	111		
1977	284,461	28,650	255,811	132	13	119		
1978	294,580	26,391	268,189	136	12	124	153,162[5]	71

[1] U.S. Department of Justice, Bureau of Prisons, Prisoners in State and Federal Institutions for Adult Felons, National Prisoner Statistics (NPS), Bulletin No. 47 (Washington, D.C.: U.S. Government Printing Office, April 1972), p. 2. The NPS table excludes Alaska, Arkansas, Rhode Island and the Indiana State Reformatory.

[2] 1970 data from U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Criminal Justice Information and Statistics Service (NCJISS), 1970 National Jail Census, Statistics Center Report SC-1 (Washington, D.C.: U.S. Government Printing Office, February 1971).

[3] For 1971-1978, federal and state data are from the NPS Bulletins, Prisoners in State and Federal Institutions on December 31, for the appropriate year (see Note 2(b) through (g) in Chapter 2), and refer to prisoners with sentences over one year.

[4] 1972 data from U.S. Department of Justice, LEAA, NCJISS, The Nation's Jails, Report No. SD-J-4 (Washington, D.C.: U.S. Government Printing Office, May 1975).

[5] 1978 data from U.S. Department of Justice, LEAA, NCJISS, Census of Jails and Survey of Jail Inmates, NPS Bulletin No. SD-NPS-J-6P (Washington, D.C.: U.S. Government Printing Office, February 1979), p. 3.

Table A.2

State Prison and Local Jail Populations and Incarceration Rates by State and Region, 1970
(Excludes Federal Prison Population of 20,038)

Region and State	Civilian Population (in thousands)	TOTAL Number Incarcerated (% of Total)	TOTAL Number Incarcerated Per 100,000 Civilian Population	STATE Number of Prison Inmates (% of Total)	STATE Prison Inmates Per 100,000 Civilian Population	LOCAL Number of Jail Prisoners (% of Total)	LOCAL Jail Prisoners Per 100,000 Civilian Population
Total	201,723	337,266 (100%)	167	176,403 (100%)	87	160,863 (100%)	80
NORTHEAST	48,930	60,053 (18%)	123	28,595 (16%)	59	31,458 (20%)	64
Maine	986	758	77	516	52	242	25
New Hampshire	738	577	78	244	33	333	45
Vermont	446	184	41	162	36	22	5
Massachusetts	5,672	4,179	74	2,053	36	2,126	38
Rhode Island	917	—	—	—	—	—	—
Connecticut	3,022	1,568	52	1,568	52	—	—
New York	18,228	29,458	162	12,059	66	17,399	95
New Jersey	7,128	10,140	142	5,704	80	4,436	62
Pennsylvania	11,793	13,189	112	6,289	53	6,900	59
NORTH CENTRAL	56,452	71,150 (21%)	126	41,941 (24%)	74	29,209 (18%)	52
Ohio	10,646	15,105	142	9,185	86	5,920	56
Indiana	5,195	6,822	131	4,137	79	2,685	52
Illinois	11,067	11,705	106	6,381	58	5,324	48
Michigan	8,880	14,868	167	9,079	102	5,789	65
Wisconsin	4,424	4,951	112	2,973	67	1,978	45
Minnesota	3,810	3,061	80	1,585	41	1,476	39
Iowa	2,828	2,438	86	1,747	62	691	24
Missouri	4,646	6,371	137	3,413	73	2,958	64
North Dakota	607	305	50	147	24	158	26
South Dakota	661	698	105	391	59	307	46
Nebraska	1,477	1,824	124	1,001	68	823	56
Kansas	2,211	3,002	136	1,902	86	1,100	50
SOUTH	62,024	131,245 (39%)	211	69,590 (39%)	112	61,655 (38%)	99
Delaware	545	596	109	596	109	—	—
Maryland	3,872	7,944	205	5,186	134	2,758	71
Dist. of Columbia	739	4,645	629	1,423	193	3,222	436
Virginia	4,484	8,064	180	4,648	104	3,416	76
West Virginia	1,747	2,032	116	938	54	1,094	62
North Carolina	4,984	8,549	172	5,969	120	2,580	52
South Carolina	2,526	6,007	238	2,726	108	3,281	130
Georgia	4,523	11,839	262	5,113	113	6,726	149
Florida	6,749	18,599	275	9,187	136	9,412	139
Kentucky	3,189	5,542	174	2,849	89	2,693	85
Tennessee	3,913	6,890	176	3,268	84	3,622	92
Alabama	3,418	6,808	199	3,790	111	3,018	88
Mississippi	2,203	3,366	153	1,730	79	1,636	74
Arkansas	1,921	1,224	—	—	—	1,224	64
Louisiana	3,611	8,235	228	4,196	116	4,039	112
Oklahoma	2,531	5,854	231	3,640	144	2,214	87
Texas	11,069	25,051	226	14,331	129	10,720	97
WEST	34,317	74,818 (22%)	218	36,277 (21%)	106	38,541 (24%)	112
Montana	691	627	91	260	38	367	53
Idaho	712	847	119	411	58	436	61
Wyoming	330	404	122	231	70	173	52
Colorado	2,177	3,547	163	2,066	95	1,481	68
New Mexico	1,006	1,703	169	742	74	961	95
Arizona	1,768	3,603	204	1,461	83	2,142	121
Utah	1,062	1,013	95	491	46	522	49
Nevada	484	1,445	299	690	143	755	156
Washington	3,343	5,141	154	2,864	86	2,277	68
Oregon	2,097	3,287	157	1,800	86	1,487	71
California	19,652	52,705	268	25,033	127	27,672	141
Alaska	274	171	—	—	—	171	62
Hawaii	721	325	45	228	32	97	13

SOURCES: Civilian population figures represent estimates for July 1, 1970 from U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Estimates and Projections, Series P-25, No. 878 (Washington, D.C.: U.S. Government Printing Office, March 980).

State prison population figures refer to prisoners sentenced more than a year as reported in U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Criminal Justice Information and Statistics Service (NCJISS), Prisoners in State and Federal Institutions for Adult Felons, National Prisoner Statistics (NPS) Bulletin, Number 47 (Washington, D.C.: U.S. Government Printing Office, April 1972), pp. 10-11.

Local jail population figures from U.S. Department of Justice, LEAA, NCJISS, 1970 National Jail Census, Statistics Center Report SC-1 (Washington, D.C.: U.S. Government Printing Office, February 1971), pp. 2, 10.

Table A.3

State Prison and Local Jail Populations and Incarceration Rates by State and Region, 1972
(Excludes Federal Prison Population of 21,713)

Region and State	Civilian Population (in thousands)	TOTAL Number Incarcerated (% of Total)	Number Incarcerated Per 100,000 Civilian Population	STATE Number of Prison Inmates (% of Total)	Prison Inmates Per 100,000 Civilian Population	LOCAL Number of Jail Prisoners (% of Total)	Jail Prisoners Per 100,000 Civilian Population
Total	206,461	316,058 (100%)	153	174,470 (100%)	84	141,588 (100%)	69
NORTHEAST	49,449	55,536 (18%)	112	28,174 (16%)	57	27,362 (19%)	55
Maine	1,017	720	71	473	46	247	24
New Hampshire	771	523	68	240	31	283	37
Vermont	460	234	51	230	50	4	1
Massachusetts	5,745	3,703	64	1,856	32	1,847	32
Rhode Island	941	340	36	340	36	--	--
Connecticut	3,059	1,818	59	1,818	59	--	--
New York	18,321	26,883	147	11,693	64	15,190	83
New Jersey	7,276	8,796	121	5,279	73	3,517	48
Pennsylvania	11,859	12,519	106	6,245	53	6,274	53
NORTH CENTRAL	57,109	61,070 (19%)	107	37,554 (22%)	66	23,516 (17%)	41
Ohio	10,710	13,080	122	8,276	77	4,804	45
Indiana	5,270	5,864	111	3,847	73	2,017	38
Illinois	11,160	10,524	94	5,630	50	4,894	44
Michigan	9,000	12,619	140	8,471	94	4,148	46
Wisconsin	4,508	3,803	84	2,036	45	1,767	39
Minnesota	3,867	2,408	62	1,337	35	1,071	28
Iowa	2,855	1,843	65	1,306	46	537	19
Missouri	4,715	5,779	123	3,533	75	2,246	48
North Dakota	619	304	49	179	29	125	20
South Dakota	671	639	95	344	51	295	44
Nebraska	1,508	1,695	112	953	63	742	49
Kansas	2,226	2,512	113	1,642	74	870	39
SOUTH	64,353	136,086 (43%)	211	80,625 (46%)	125	55,461 (39%)	86
Delaware	564	279	49	279	49	--	--
Maryland	4,004	7,796	194	5,578	139	2,218	55
Dist. of Columbia	734	6,715	915	2,500	341	4,215	574
Virginia	4,646	8,065	173	4,946	106	3,119	67
West Virginia	1,780	2,112	118	1,058	59	1,054	59
No. Carolina	5,157	10,718	208	8,263	160	2,455	48
So. Carolina	2,609	5,621	215	3,197	122	2,424	93
Georgia	4,694	14,468	308	8,225	175	6,243	133
Florida	7,315	18,486	253	10,382	142	8,104	111
Kentucky	3,271	4,837	148	2,941	90	1,896	58
Tennessee	4,036	6,701	166	3,329	82	3,372	84
Alabama	3,487	6,604	189	3,632	104	2,972	85
Mississippi	2,263	3,377	149	1,879	83	1,498	66
Arkansas	1,989	2,560	128	1,619	81	941	47
Louisiana	3,705	6,761	182	3,421	92	3,340	90
Oklahoma	2,613	5,475	209	3,667	140	1,808	69
Texas	11,486	25,511	222	15,709	137	9,802	85
WEST	35,550	63,366 (20%)	178	28,117 (16%)	79	35,249 (25%)	99
Montana	712	564	79	283	40	281	39
Idaho	751	788	105	377	50	411	55
Wyoming	342	454	133	262	77	192	56
Colorado	2,343	3,352	143	1,925	82	1,427	61
New Mexico	1,056	1,496	142	597	57	899	85
Arizona	1,946	3,283	169	1,529	79	1,754	90
Utah	1,118	1,056	94	581	52	475	42
Nevada	525	1,302	248	646	123	656	125
Washington	3,382	5,018	148	2,608	77	2,410	71
Oregon	2,178	3,041	139	1,856	85	1,185	54
California	20,131	42,318	210	16,970	84	25,348	126
Alaska	297	270	91	183	62	87	29
Hawaii	769	424	55	133	39	124	16

SOURCES: Civilian population figures represent estimates for July 1, 1972 from U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Population Estimates and Projections, Series P-25, No. 878 (Washington, D.C.: U.S. Government Printing Office, March 1980).

State prison population figures refer to prisoners sentenced more than a year as reported in U.S. Department of Justice, Law Enforcement Assistance Administration (LEAA), National Criminal Justice Information and Statistics Service (NCJISS), Prisoners in State and Federal Institutions on December 31, 1971, 1972, and 1973, National Prisoner Statistics (NPS) Bulletin SD-NPS-PSF-1 (Washington, D.C.: U.S. Government Printing Office, April 1972), pp. 10-11.

Local jail population figures from U.S. Department of Justice, LEAA, NCJISS, The Nation's Jails, A report on the census of jails from the 1972 Survey of Inmates of Local Jails, Report Number SD-JA-4 (Washington, D.C.: U.S. Government Printing Office, May 1975), pp. 1, 23-24.

Table A.4

Total Males in Federal and State Adult Correctional Facilities
by Type of Crime -- March 31, 1978

	Total	Type of Crime Violent	Property	Public Order Or Other
NORTHEAST	33,117	14,957 (45%)	12,435 (38%)	5,725 (17%)
Maine	834	349	346	139
New Hampshire	236	119	92	25
Vermont	117	50	39	28
Massachusetts	2,297	1,886	231	180
Rhode Island	557	335	144	78
Connecticut	--	--	--	--
New York	16,498	4,749	8,578	3,171
New Jersey	5,701	3,179	1,491	1,031
Pennsylvania	6,877	4,290	1,514	1,073
NORTH CENTRAL	52,339	27,734 (53%)	17,386 (33%)	7,219 (14%)
Ohio	11,687	6,349	3,071	2,267
Indiana	3,671	2,343	1,128	200
Illinois	10,289	7,193	2,343	753
Michigan	11,841	5,402	3,894	2,545
Wisconsin	2,937	1,451	1,261	225
Minnesota	1,790	929	720	141
Iowa	1,700	694	982	24
Missouri	5,003	1,933	2,434	636
North Dakota	283	122	104	57
South Dakota	--	--	--	--
Nebraska	1,055	280	560	215
Kansas	2,083	1,038	889	156
SOUTH	100,000	44,238 (44%)	41,165 (41%)	14,597 (15%)
Delaware	0	0	0	
Maryland	6,845	3,223	1,980	1,642
Dist. of Columbia	1,002	551	323	128
Virginia	7,246	4,028	2,222	996
West Virginia	1,238	479	591	168
North Carolina	13,421	3,717	7,627	2,077
South Carolina	5,339	1,954	2,347	1,038
Georgia	8,592	4,666	3,233	693
Florida	16,263	8,244	5,481	2,538
Kentucky	3,441	1,175	1,643	623
Tennessee	4,792	1,938	2,320	534
Alabama	--	--	--	--
Mississippi	1,675	602	753	320
Arkansas	2,274	625	1,521	128
Louisiana	1,832	756	783	293
Oklahoma	3,526	1,659	1,385	482
Texas	22,514	10,621	8,956	2,937
WEST	32,935	16,147 (49%)	9,232 (28%)	7,556 (23%)
Montana	600	152	288	160
Idaho	769	272	375	122
Wyoming	409	149	158	102
Colorado	2,331	1,304	769	258
New Mexico	1,692	546	549	597
Arizona	2,815	1,378	828	609
Utah	789	232	502	55
Nevada	1,141	617	393	131
Washington	3,694	1,556	1,635	503
Oregon	639	245	358	36
California	17,269	9,360	3,149	4,760
Alaska	394	148	134	112
Hawaii	393	188	94	111
Total States	218,391	103,076 (47%)	80,218 (37%)	35,097 (16%)
Federal	23,916	7,169 (30%)	5,468 (23%)	11,279 (47%)
Total State plus Federal*	242,307	110,245 (46%)	85,686 (35%)	46,376 (19%)

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

*Data are missing on 8 percent of prisoners

Table A.5
Total Females in Federal and State Adult Correctional Facilities by Type of Crime -- March 31, 1978

	Total	Type of Crime Violent	Property	Public Order Or Other
NORTHEAST	878	378 (43%)	195 (22%)	305 (35%)
Maine	11	10	0	1
New Hampshire	0	0	0	0
Vermont	0	0	0	0
Massachusetts	1	1	0	0
Rhode Island	16	8	5	3
Connecticut	0	0	0	0
New York	470	160	129	181
New Jersey	179	109	19	51
Pennsylvania	201	90	42	69
NORTH CENTRAL	2,133	805 (38%)	1,022 (48%)	306 (14%)
Ohio	611	225	386	0
Indiana	143	45	63	35
Illinois	289	152	105	32
Michigan	450	200	170	80
Wisconsin	133	64	57	12
Minnesota	66	30	36	0
Iowa	106	19	21	66
Missouri	166	30	112	24
North Dakota	3	0	3	0
South Dakota	--	--	--	--
Nebraska	71	18	10	43
Kansas	95	22	59	14
SOUTH	4,412	1,943 (44%)	1,361 (31%)	1,108 (25%)
Delaware	0	0	0	0
Maryland	220	90	65	65
Dist. of Columbia	0	0	0	0
Virginia	291	97	61	133
West Virginia	41	19	10	12
North Carolina	601	317	180	104
South Carolina	258	116	93	49
Georgia	383	204	137	42
Florida	746	375	171	200
Kentucky	134	56	34	44
Tennessee	254	90	44	120
Alabama	--	--	--	--
Mississippi	35	11	13	11
Arkansas	103	60	30	13
Louisiana	207	87	34	86
Oklahoma	164	58	87	19
Texas	975	363	402	210
WEST	1,764	504 (29%)	518 (29%)	742 (42%)
Montana	0	0	0	0
Idaho	21	6	9	6
Wyoming	16	7	1	8
Colorado	60	16	30	14
New Mexico	87	22	25	40
Arizona	153	51	100	2
Utah	32	7	21	4
Nevada	63	20	32	11
Washington	180	62	60	58
Oregon	92	44	40	8
California	1,021	256	183	582
Alaska	24	6	9	9
Hawaii	15	7	8	0
Total States	9,187	3,630 (40%)	3,096 (34%)	2,461 (27%)
Federal	1,636	293 (18%)	602 (37%)	741 (45%)
Total State plus Federal*	10,823	3,923 (36%)	3,698 (34%)	3,202 (30%)

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

*Data are missing on 8 percent of prisoners.

Table A.6
Total Males in Federal and State Adult Correctional Facilities by Race/Ethnicity -- March 31, 1978

			Race/Ethnicity			
	Total	White	Black	American Indian	Asian	Hispanic
NORTHEAST	36,257	13,118 (36%)	19,383 (53%)	45 (0%)	8 (0%)	3,703 (10%)
Maine	736	719	8	8	1	0
New Hampshire	264	250	11	0	1	2
Vermont	127	123	1	2	0	1
Massachusetts	2,719	1,311	1,300	2	2	104
Rhode Island	652	476	154	1	1	20
Connecticut	2,850	1,360	1,160	5	0	325
New York	16,492	4,364	9,316	27	2	2,783
New Jersey	5,542	1,489	3,584	0	1	468
Pennsylvania	6,875	3,026	3,849	0	0	0
NORTH CENTRAL	55,050	26,666 (48%)	27,035 (49%)	579 (1)	24 (0%)	746 (1%)*
Ohio	12,438	5,972	6,383	1	2	80
Indiana	4,454	2,748	1,689	0	0	17
Illinois	10,407	3,834	6,105	28	10	430
Michigan	12,261	4,804*	7,447	10	0	*
Wisconsin	2,937	1,589	1,207	80	1	60
Minnesota	1,778	1,335	291	125	5	22
Iowa	1,723	1,369	314	17	0	23
Missouri	5,005	2,489	2,495	13	0	8
North Dakota	281	213	11	54	0	3
South Dakota	570	403	11	152	0	0
Nebraska	1,041	574	374	57	0	36
Kansas	2,155	1,336	708	42	6	63
SOUTH	108,524	44,648 (41%)	57,968 (53%)	785 (1%)	32 (0%)	5,091 (5%)
Delaware	--	--	--	--	--	--
Maryland	6,840	1,719	5,099	12	10	0
Dist. of Columbia	2,213	26	2,184	3	0	0
Virginia	7,241	2,907	4,325	6	1	2
West Virginia	1,248	1,069	179	0	0	0
North Carolina	13,967	6,105	7,533	324	4	1
South Carolina	5,359	2,175	3,181	2	1	0
Georgia	8,592	3,382	5,210	0	0	0
Florida	16,567	7,250	8,511	218	2	586
Kentucky	3,451	2,378	1,072	1	0	0
Tennessee	4,830	2,652	2,168	7	1	2
Alabama	2,481	954	1,527	0	0	0
Mississippi	1,492	489	1,003	0	0	0
Arkansas	2,310	1,217	1,092	0	1	0
Louisiana	5,813	1,426	4,327	0	0	50
Oklahoma	3,526	2,263	1,002	212	12	37
Texas	22,594	8,626	9,555	0	0	4,413
WEST	35,477	22,635 (64%)	8,724 (25%)	943 (3%)	417 (1%)	2,758* (8%)
Montana	589	483	5	90	0	11
Idaho	783	673	21	29	2	58
Wyoming	409	319	18	25	1	46
Colorado	2,017	1,035	195	19	0	568
New Mexico	1,693	562	196	32	0	903
Arizona	2,782	1,386	543	83	9	761
Utah	789	579	72	10	3	125
Nevada	1,144	733	337	20	1	53
Washington	3,571	2,537	714	167	16	137
Oregon	2,413	1,940	298	72	13	90
California	18,217	11,896*	6,017	154	150	*
Alaska	594	285	75	222	6	6
Hawaii	476	207	33	20	216	0
Total States	235,308	107,067 (46%)	113,110 (48%)	2,352 (1%)	481 (0%)	12,298** (5%)
Federal	26,254	11,764 (45%)	9,393 (36%)	429 (2%)	109 (0%)	4,559 (17%)
Total State plus Federal***	261,562	118,831 (45%)	122,503 (47%)	2,781 (1%)	590 (0%)	16,857** (6%)

Source: Survey of State and Federal Adult Correcitonal Facilties (PC-2), 1978.

*Data from Michigan and California did not permit identification of Hispanic prisoners. All Hispanics in these states are reported in the "white" column.

**Because a substantial number of Hispanic prisoners are not reported, totals are conservative.

***Data are missing on 2 percent of prisoners.

Table A.7
Total Females in Federal and State Adult Correctional Facilities by Race/Ethnicity -- March 31, 1978

			Race/Ethnicity			
	Total	White	Black	American Indian	Asian	Hispanic
NORTHEAST	1,096	379 (35%)	646 (59%)	4 (0%)	1 (0%)	66 (6%)
Maine	11	9	0	2	0	0
New Hampshire	0	0	0	0	0	0
Vermont	0	0	0	0	0	0
Massachusetts	112	67	45	0	0	1
Rhode Island	20	9	9	1	0	1
Connecticut	103	39	62	1	0	57
New York	470	114	299	0	1	7
New Jersey	179	53	118	0	0	0
Pennsylvania	201	88	113	0	0	0
NORTH CENTRAL	2,137	880 (41%)	1,201 (56%)	39 (2%)	0 (0%)	17 (1%)*
Ohio	611	222	388	1	0	0
Indiana	144	82	62	0	0	7
Illinois	292	99	179	7	0	5
Michigan	450	122	323	0	0	2
Wisconsin	132	69	57	4	0	0
Minnesota	66	48	15	3	0	0
Iowa	79	49	27	3	0	0
Missouri	166	79	83	4	0	0
North Dakota	3	1	1	1	0	0
South Dakota	26	15	0	11	0	0
Nebraska	73	38	28	5	0	2
Kansas	95	56	38	0	0	1
SOUTH	4,589	1,698 (37%)	2,711 (59%)	36 (1%)	--	143 (3%)
Delaware	--	--	--	--	--	--
Maryland	220	41	179	0	0	0
Dist. of Columbia	0	0	0	0	0	0
Virginia	293	102	191	0	0	0
West Virginia	41	29	12	0	0	0
North Carolina	560	213	324	22	1	0
South Carolina	258	103	155	0	0	0
Georgia	383	133	250	0	0	5
Florida	743	254	480	4	0	0
Kentucky	134	77	57	0	0	0
Tennessee	250	120	130	0	0	0
Alabama	196	73	123	0	0	0
Mississippi	35	13	22	0	0	0
Arkansas	103	50	53	0	0	0
Louisiana	222	65	157	0	0	0
Oklahoma	164	84	70	10	0	138
Texas	987	341	508	0	0	
WEST	1,837	1,070 (58%)	539 (29%)	60 (3%)	71 (4%)	97 (5%)
Montana	0	0	0	0	0	0
Idaho	21	20	1	0	0	0
Wyoming	16	12	0	3	1	0
Colorado	60	27	17	0	3	13
New Mexico	88	26	10	4	0	48
Arizona	153	87	32	8	3	23
Utah	32	20	4	1	0	7
Nevada	63	28	29	2	2	2
Washington	180	110	61	7	0	2
Oregon	92	54	30	6	0	*
California	1,075	660	344	20	51	0
Alaska	38	18	9	9	2	0
Hawaii	19	8	2	0	9	0
Total States	9,659	4,027 (42%)	5,097 (53%)	139 (1%)	73 (1%)	323* (3%)
Federal	1,757	536 (31%)	954 (54%)	21 (1%)	3 (0%)	243 (14%)
Total State plus Federal**	11,416	4,563 (40%)	6,051 (53%)	160 (1%)	76 (1%)	566* (5%)

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

*Data from California do not permit identification of Hispanic prisoners. All such inmates are counted under "white."

**Data are missing on 2 percent of all prisoners.

120

Table A.8
Total Males in Federal and State Adult Correctional Facilities by Age -- March 31, 1978

			Age			
	Total	Under 18	18-24	25-34	35-44	45 Years and Over
NORTHEAST	37,044	3,158 (9%)	13,138 (36%)	14,212 (38%)	4,552 (12%)	1,984 (5%)
Maine	422	0	157	181	48	36
New Hampshire	264	3	84	87	60	30
Vermont	121	1	63	39	12	6
Massachusetts	2,302	14	624	1,038	436	190
Rhode Island	652	0	293	246	74	39
Connecticut	3,500	779	1,271	968	303	179
New York	18,553	2,038	6,676	6,867	2,228	744
New Jersey	4,357	285	1,643	1,733	465	231
Pennsylvania	6,873	38	2,327	3,053	926	529
NORTH CENTRAL	50,227	1,722 (3%)	23,112 (46%)	16,083 (32%)	5,714 (11%)	3,596 (7%)
Ohio	12,410	380	5,130	4,302	1,409	1,189
Indiana	2,817	83	1,621	716	196	201
Illinois	10,354	197	4,765	3,829	1,024	539
Michigan	11,787	400	5,084	3,517	1,793	993
Wisconsin	2,938	17	1,371	1,100	320	130
Minnesota	1,790	13	981	545	167	84
Iowa	1,723	39	812	444	278	150
Missouri	5,008	570	2,806	1,033	399	200
North Dakota	280	1	129	103	28	19
South Dakota	--	--	--	--	--	--
Nebraska	1,032	19	364	494	100	55
Kansas	88	3	49	0	0	36
SOUTH	100,845	1,794 (2%)	38,437 (38%)	38,647 (38%)	13,159 (13%)	8,808 (9%)
Delaware	0	0	0	0	0	0
Maryland	6,845	79	2,706	2,733	783	544
Dist. of Columbia	1,057	7	554	278	126	92
Virginia	7,249	134	2,562	3,001	940	612
West Virginia	1,248	116	469	410	147	106
North Carolina	14,002	299	5,379	5,346	1,712	1,266
South Carolina	5,344	369	1,739	2,170	748	318
Georgia	8,592	122	3,801	3,056	916	697
Florida	16,361	135	6,016	6,477	2,369	1,364
Kentucky	3,451	102	1,534	955	436	424
Tennessee	5,194	59	2,030	2,136	569	400
Alabama	--	--	--	--	--	--
Mississippi	1,675	14	699	575	200	187
Arkansas	2,273	190	986	492	321	284
Louisiana	1,832	10	824	688	216	94
Oklahoma	3,208	32	1,113	1,174	564	325
Texas	22,514	126	8,025	9,156	3,112	2,095
WEST	33,010	177 (1%)	10,863 (33%)	14,468 (44%)	4,887 (15%)	2,615 (8%)
Montana	600	8	233	238	71	50
Idaho	783	0	371	263	98	51
Wyoming	409	28	172	153	38	18
Colorado	236	0	134	59	26	17
New Mexico	1,716	2	767	633	223	91
Arizona	2,777	8	907	1,170	464	228
Utah	774	2	239	381	142	10
Nevada	1,144	3	388	446	182	125
Washington	3,749	21	1,497	1,473	455	303
Oregon	2,423	82	821	753	383	384
California	17,269	19	4,819	8,461	2,689	1,281
Alaska	598	4	293	200	66	35
Hawaii	532	0	222	238	50	22
Total States	221,126	6,851 (3%)	85,550 (39%)	83,410 (37%)	28,312 (13%)	17,003 (8%)
Federal	25,455	218 (1%)	5,032 (20%)	11,212 (44%)	5,719 (22%)	3,274 (13%)
Total State plus Federal*	246,581	7,069 (3%)	90,582 (37%)	94,622 (38%)	34,031 (14%)	20,277 (8%)

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

*Data are missing on 8 percent of all prisoners.

121

Table A.9
Total Females in Federal and State Adult Correctional Facilities by Age -- March 31, 1978

	Total	Under 18	18-24	25-34	35-44	45 Years and Over
NORTHEAST	973	33 (3%)	343 (35%)	406 (42%)	121 (12%)	70 (7%)
Maine	--	--	--	--	--	--
New Hampshire	0	0	0	0	0	0
Vermont	0	0	0	0	--	--
Massachusetts	--	--	--	--	--	--
Rhode Island	20	0	7	8	4	1
Connecticut	103	2	43	40	10	8
New York	470	29	169	179	61	32
New Jersey	179	0	64	80	18	17
Pennsylvania	201	2	60	99	28	12
NORTH CENTRAL	1,664	10 (1%)	691 (42%)	665 (40%)	200 (12%)	98 (6%)
Ohio	611	1	244	259	75	32
Indiana	144	1	64	57	14	8
Illinois	289	0	138	102	37	12
Michigan	--	--	--	--	--	--
Wisconsin	134	1	50	53	18	12
Minnesota	66	0	35	21	4	6
Iowa	79	0	23	33	17	6
Missouri	170	6	59	67	23	15
North Dakota	3	0	0	1	0	2
South Dakota	--	--	--	--	--	--
Nebraska	73	1	30	30	8	4
Kansas	95	0	48	42	4	1
SOUTH	4,361	37 (1%)	1,494 (34%)	1,786 (41%)	679 (16%)	365 (8%)
Delaware	--	--	--	--	--	--
Maryland	220	2	75	104	27	12
Dist. of Columbia	0	0	0	0	0	0
Virginia	291	3	93	128	43	24
West Virginia	41	0	13	11	11	6
North Carolina	556	5	196	231	73	51
South Carolina	258	13	82	89	52	22
Georgia	388	4	150	134	60	40
Florida	748	5	246	312	117	68
Kentucky	134	0	52	54	17	11
Tennessee	243	0	69	118	40	16
Alabama	--	--	--	--	--	--
Mississippi	35	0	14	10	6	5
Arkansas	103	3	37	43	12	8
Louisiana	207	0	74	68	49	16
Oklahoma	162	0	68	56	27	11
Texas	975	2	325	428	145	75
WEST	1,787	4 (0%)	604 (34%)	806 (45%)	251 (14%)	122 (7%)
Montana	0	0	0	0	0	0
Idaho	21	0	7	10	4	0
Wyoming	16	0	5	7	4	0
Colorado	60	0	19	28	11	2
New Mexico	88	0	43	29	12	4
Arizona	153	0	68	54	20	11
Utah	32	0	11	12	5	4
Nevada	63	0	16	31	11	5
Washington	180	0	67	77	26	10
Oregon	92	0	26	26	30	10
California	1,021	0	314	515	120	72
Alaska	42	4	22	7	6	3
Hawaii	19	0	6	10	2	1
Total States	8,785	84 (1%)	3,132 (36%)	3,663 (42%)	1,251 (14%)	655 (7%)
Federal	1,720	4 (0%)	458 (27%)	885 (51%)	260 (15%)	113 (7%)
Total State plus Federal*	10,505	88 (1%)	3,590 (34%)	4,548 (43%)	1,511 (14%)	768 (7%)

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

*Data are missing on 8 percent of all prisoners.

Table A.10
Total Prisoners in Federal and State Adult Correctional Facilities by Sex Distribution -- March 31, 1978

	Total	Males	Females
NORTHEAST	39,361	38,265 (97%)	1,096 (4%)
Maine	740	729	11
New Hampshire	264	264	0
Vermont	127	127	0
Massachusetts	2,443	2,331	112
Rhode Island	648	628	20
Connecticut	3,003	2,900	103
New York	19,087	18,617	470
New Jersey	5,975	5,796	179
Pennsylvania	7,074	6,873	201
NORTH CENTRAL	58,343	56,237 (96%)	2,106 (4%)
Ohio	13,230	12,619	611
Indiana	4,639	4,495	144
Illinois	10,811	10,519	292
Michigan	13,285	12,870	415
Wisconsin	3,126	2,992	134
Minnesota	1,825	1,759	66
Iowa	1,802	1,723	79
Missouri	5,341	5,175	166
North Dakota	283	280	3
South Dakota	596	570	26
Nebraska	1,155	1,080	75
Kansas	2,250	2,155	95
SOUTH	115,878	111,303 (96%)	4,575 (4%)
Delaware	988	940	48
Maryland	7,031	6,822	209
Dist. of Columbia	2,213	2,213	0
Virginia	7,620	7,327	293
West Virginia	1,289	1,248	41
North Carolina	14,593	14,050	543
South Carolina	5,949	5,691	258
Georgia	8,975	8,592	383
Florida	17,985	17,251	734
Kentucky	3,580	3,446	134
Tennessee	5,485	5,235	250
Alabama	2,807	2,609	198
Mississippi	1,761	1,726	35
Arkansas	2,386	2,283	103
Louisiana	6,037	5,830	207
Oklahoma	3,690	3,526	164
Texas	23,489	22,514	975
WEST	37,857	36,046 (95%)	1,811 (5%)
Montana	600	600	0
Idaho	804	783	21
Wyoming	425	409	16
Colorado	2,320	2,256	64
New Mexico	1,576	1,510	66
Arizona	2,909	2,756	153
Utah	823	799	24
Nevada	1,207	1,144	63
Washington	3,794	3,622	172
Oregon	2,383	2,267	116
California	19,809	18,754	1,055
Alaska	640	598	42
Hawaii	567	548	19
Total States	251,439	241,851 (96%)	9,588 (3%)
Federal	27,548	25,752 (93%)	1,796 (7%)
Total States plus Federal	278,987	267,603 (96%)	11,384 (4%)

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

Table A.11

Total Prisoners in Federal and State Adult Correctional Facilities
by Offense Distributions -- 1973 and 1978

	1973			Public Order or Other	1978			Public Order or Other
	Total	Violent	Property		Total	Violent	Property	
United States	172,990	90,440 (52%)	54,769 (32%)	27,731 (16%)	227,578	106,706 (47%)	83,314 (37%)	37,558 (16%)
NORTHEAST	26,741	16,193 (60%)	5,514 (21%)	5,034 (19%)	33,995	15,335 (45%)	12,630 (37%)	6,030 (18%)
Maine	505	235	182	88	845	359	346	140
New Hampshire	243	111	79	53	236	119	92	25
Vermont	185	61	99	25	17	50	39	28
Massachusetts	2,069	1,485	285	299	2,298	1,887	231	180
Rhode Island	394	184	130	80	573	343	149	181
Connecticut	619	305	112	202	--	--	--	--
New York	12,573	8,033	2,213	2,327	16,968	4,909	8,707	3,352
New Jersey	4,480	2,464	991	1,025	5,880	3,288	1,510	1,082
Pennsylvania	5,673	3,315	1,423	935	7,078	4,380	1,556	1,142
NORTH CENTRAL	35,312	19,250 (55%)	11,745 (33%)	4,317 (12%)	54,472	28,539 (52%)	18,408 (34%)	7,525 (14%)
Ohio	7,169	3,757	2,341	1,071	12,298	6,574	3,457	2,267
Indiana	3,435	1,710	635	1,090	3,814	2,388	1,191	235
Illinois	5,610	3,096	1,337	367	10,578	7,345	2,448	785
Michigan	8,115	4,605	2,669	841	12,291	5,602	4,064	2,625
Wisconsin	2,045	906	948	191	3,070	1,515	1,318	237
Minnesota	1,354	697	572	85	1,856	959	756	141
Iowa	1,409	445	786	178	1,806	713	1,003	90
Missouri	3,355	1,955	1,176	224	5,169	1,963	2,546	660
North Dakota	162	56	69	37	286	122	107	57
South Dakota	256	97	146	13	--	--	--	--
Nebraska	854	362	412	80	1,126	298	570	258
Kansas	1,548	754	654	140	2,178	1,060	948	70
SOUTH	80,956	40,022 (49%)	28,519 (35%)	12,415 (15%)	104,412	46,181 (44%)	42,526 (41%)	15,705 (15%)
Delaware	274	125	75	74	--	--	--	--
Maryland	5,220	2,953	1,302	965	7,065	3,313	2,045	1,707
Dist. of Col.	2,069	1,257	509	303	1,002	551	323	128
Virginia	5,003	2,611	1,684	708	7,537	4,125	2,283	1,129
West Virginia	982	441	452	89	1,279	498	601	180
North Carolina	9,895	3,963	4,372	1,560	14,022	4,034	7,807	2,181
South Carolina	3,369	1,732	1,225	412	5,597	2,070	2,440	1,087
Georgia	8,266	4,626	3,027	613	8,975	4,870	3,370	735
Florida	9,085	4,970	2,913	1,202	17,009	8,619	5,652	2,738
Kentucky	2,906	1,588	1,108	210	3,575	1,231	1,677	667
Tennessee	2,998	1,772	994	232	5,046	2,028	2,364	654
Alabama	3,952	2,078	1,561	313	--	--	--	--
Mississippi	1,985	1,088	736	161	1,710	613	766	331
Arkansas	1,744	867	634	243	2,377	685	1,551	141
Louisiana	3,617	2,190	1,088	339	2,039	843	817	379
Oklahoma	3,302	1,318	1,164	820	3,690	1,717	1,472	501
Texas	16,289	6,443	5,675	4,171	23,489	10,984	9,358	3,147
WEST	29,981	15,025 (50%)	8,991 (30%)	5,965 (20%)	34,699	16,651 (48%)	9,750 (28%)	8,298 (24%)
Montana	310	139	142	29	600	152	288	160
Idaho	420	150	205	65	790	278	384	128
Wyoming	284	113	145	26	425	156	159	110
Colorado	1,863	856	719	288	2,391	1,320	799	272
New Mexico	699	331	260	108	1,779	568	574	637
Arizona	1,736	869	555	312	2,968	1,429	928	611
Utah	512	201	271	40	821	239	523	59
Nevada	669	323	240	106	1,204	637	425	142
Washington	2,875	906	1,242	727	3,874	1,618	1,695	561
Oregon	1,593	661	584	348	731	289	398	44
California	18,534	10,189	4,493	3,852	18,290	9,616	3,332	5,342
Alaska	175	87	50	38	418	154	143	121
Hawaii	311	200	85	26	408	195	102	111

Sources: 1973 data from U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Census of Prisoners in State Correctional Facilities, 1973, National Prisoner Statistics Special Report No. SD-NPS-SR-3 (Washington, D.C.: U.S. Government Printing Office, December 1976); 1978 data from the Survey of State and Federal Adult Correctional Facilities (PC-2), 1978.

APPENDIX B

State-by-State Projection Results

For states which housed sentenced prisoners in local jails due to crowding in the prison system, the projections reported here attempt to follow the same convention employed by the state in submitting its report to NPS in 1979. In some instances, where the reporting basis changed from prison years, it was necessary to adjust the data to reflect these changes. These conventions are reported in the "Notes" Section of the projections.

We are also aware of major policy changes in many states which may affect the validity of projections. These, too, are documented in the "Notes" Section, although no estimation of their effects has been attempted.

Preceding page blank

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	3,943	4,323	4,360	4,698	4,827	5,195
1980	4,301	4,875	4,667	5,183	5,828	5,570
1981	6,194	7,080	4,983	5,661	4,967	5,631
1982	6,418	7,470	5,300	6,136	4,916	5,682
1983	6,502	7,696	5,617	6,611	4,871	5,727

Notes:
- Court Order
- Jail backlog of 1,342 in 1978 is included in NPS

STATE: ALASKA STATE PRISON POPULATION, 1979-1883

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	501	609	561	613	513	597
1980	479	631	581	657	495	615
1981	462	648	601	699	482	628
1982	448	662	623	741	471	639
1983	575	857	645	783	461	649

Notes:
- Jail and Prison combined

	(Over 1 Year)	(Other)
1978	284	293
1977	256	264
1976	333	222

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	3,174	3,506	3,277	3,537	3,075	3,349
1980	3,325	3,815	3,529	3,927	3,018	3,406
1981	4,925	5,696	3,726	4,246	2,975	3,449
1982	5,344	6,286	3,925	4,561	2,938	3,486
1983	5,289	6,341	4,126	4,876	2,906	3,518

Notes:
- 1978 criminal code provides mandatory sentences, links parole eligibility to available capacity.

STATE: ARKANSAS STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,464	2,748	2,573	2,781	2,449	2,685
1980	2,405	2,807	2,664	2,972	2,400	2,734
1981	2,360	2,852	2,761	3,155	2,363	2,771
1982	2,322	2,890	2,860	3,336	2,331	2,803
1983	2,289	2,923	2,962	3,516	2,304	2,830

Notes:

STATE: CALIFORNIA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	20,814	21,882	20,558	21,988	22,057	23,067
1980	20,598	22,108	20,262	22,240	22,285	23,733
1981	20,420	22,270	20,004	22,422	22,122	23,896
1982	20,277	22,413	19,782	22,570	21,985	24,033
1983	20,151	22,539	19,583	22,695	21,864	24,154

Notes:
- 1977 Determinate Sentencing (Revised 1978)
- 1971, 1973 Parole Rate Reversals
- 1969-1973--39 percent reduction in California Rehabilitation Centers from 3132 to 1897

STATE: COLORADO STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,327	2,601	2,456	2,656	2,349	2,579
1980	2,270	2,658	2,502	2,792	2,302	2,626
1981	2,227	2,701	2,555	2,923	2,266	2,662
1982	2,190	2,738	2,611	3,049	2,235	2,693
1983	2,158	2,770	2,670	3,174	2,208	2,720

Notes:

STATE: CONNECTICUT STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	3,642	4,004	3,444	3,716	3,277	3,563
1980	3,682	4,204	3,540	3,940	3,218	3,622
1981	3,624	4,262	3,646	4,154	3,173	3,667
1982	3,575	4,311	3,755	4,365	3,135	3,705
1983	3,539	4,363	3,867	4,573	3,101	3,739

Notes:
- Prison and Jail Combined

	(Over 1 year)	(Other)
1977	1647	1318
1976	1923	1316

STATE: DELAWARE STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,095	1,267	1,171	1,271	1,220	1,368
1980	1,142	1,398	1,236	1,388	1,189	1,399
1981	1,134	1,450	1,304	1,502	1,165	1,423
1982	1,168	1,544	1,372	1,616	1,145	1,443
1983	1,182	1,610	1,442	1,728	1,128	1,460

Notes:
- Prison and Jail Combined

	(Over 1 year)	(Other)
1978	823	307
1977	812	258
1976	684	269

STATE: GEORGIA STATE PRISON POPULATON, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	11,230	11,956	11,582	12,408	11,083	11,723
1980	11,079	12,107	11,975	13,197	10,951	11,855
1981	11,403	12,693	12,398	13,958	10,849	11,957
1982	11,435	12,935	12,832	14,708	10,763	12,403
1983	11,346	13,024	13,272	15,452	10,688	12,118

Notes:
- "Includes approximately 2,000 state inmates housed in county facilities (not due to overcrowding)"

STATE: HAWAII STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	607	727	625	681	583	675
1980	696	886	635	717	564	694
1981	706	944	648	752	549	709
1982	687	963	662	786	537	721
1983	671	979	676	820	526	732

Notes:
- Prisons and jails combined

	(Over 1 year)	(Other)
1978	420	209
1977	364	136
1976	327	161

STATE: DISTRICT OF COLUMBIA PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,723	3,025	2,849	3,077	2,718	2,970
1980	2,669	3,097	2,915	3,249	2,666	3,022
1981	2,621	3,145	2,988	3,412	2,626	3,062
1982	2,580	3,186	3,066	3,572	2,592	3,096
1983	2,545	3,221	3,145	3,731	2,562	3,126

Notes:
- Prison and jail combined

	(Over 1 Year)	(Other)
1978	2,530	314
1977	2,240	567
1976	2,299	650

STATE: FLORIDA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	20,348	21,400	21,426	22,878	19,550	20,482
1980	21,539	23,091	22,441	24,613	19,357	20,675
1981	22,696	24,670	23,501	26,303	19,208	20,824
1982	23,401	25,735	24,577	27,977	19,083	20,949
1983	24,257	26,935	25,660	29,642	18,973	21,059

Notes:
- Gideon releases 2,400 inmates
- 1967 Sentences between one and three years transferred to state jurisdiction (gradual)
- 1974 Gun Law: 3 year minimum
- 1975 25 year minimum for certain felonies
- 1977 Does not include 253 state inmates held locally
- 1978 Does include 391 state inmates held locally

STATE: IDAHO STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	762	900	828	902	714	818
1980	733	929	872	982	692	840
1981	711	951	917	1,061	675	857
1982	698	976	962	1,138	661	871
1983	707	1,025	1,008	1,216	649	883

Notes:

STATE: ILLINOIS STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	10,273	10,961	11,153	11,951	10,268	10,876
1980	10,377	11,365	11,910	13,124	10,142	11,002
1981	10,627	11,863	12,685	14,279	10,045	11,099
1982	12,060	13,610	13,467	15,427	9,964	11,180
1983	12,399	14,171	14,249	16,575	9,892	11,252

Notes:
- Determinate sentencing in 1978 (State estimates eventual increase of 1,100/year
- 1970-1972 Removal of short-term misdemeanants from state
- 1974 Reduce use of civil drug treatment
- 1972 Four Year minimum for Class I felony
- 1978--368 inmates subtracted as "residual adjustment"

134

STATE: INDIANA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	4,873	5,305	5,095	5,483	4,770	5,136
1980	4,938	5,562	5,333	5,915	4,694	5,212
1981	6,002	6,870	5,584	6,336	4,636	5,270
1982	5,787	6,775	5,839	6,751	4,587	5,319
1983	5,587	6,675	6,096	7,166	4,544	5,362

Notes:
- 1977 decrease in "other prisons" from 700 to 452

STATE: IOWA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,130	2,390	2,131	2,305	2,008	2,214
1980	2,211	2,593	2,207	2,467	1,976	2,072
1981	2,291	2,773	2,290	2,622	1,765	2,103
1982	2,281	2,843	2,374	2,776	1,739	2,129
1983	2,248	2,876	2,460	2,928	1,716	2,152

Notes:

135

STATE: KANSAS STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,169	2,431	2,377	2,571	2,179	2,397
1980	2,114	2,486	2,515	2,807	2,134	2,442
1981	2,073	2,527	2,656	3,038	2,099	2,477
1982	2,038	2,562	2,801	3,267	2,070	2,506
1983	2,007	2,593	2,945	3,495	2,044	2,532

Notes:

STATE: KENTUCKY STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	3,348	3,692	3,369	3,635	3,196	3,476
1980	3,306	3,794	3,420	3,808	3,137	3,535
1981	2,993	3,561	3,481	3,969	3,093	3,579
1982	3,399	4,113	3,548	4,126	3,055	3,617
1983	3,514	4,336	3,617	4,281	3,022	3,650

Notes:

STATE: LOUISIANA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	6,092	6,590	7,502	8,056	5,891	6,311
1980	5,990	6,692	7,852	8,682	5,804	6,398
1981	7,249	8,225	8,220	9,292	5,737	6,465
1982	7,574	8,783	8,594	9,894	5,680	6,522
1983	7,505	8,807	8,970	10,494	5,631	6,571

Notes:
- 1973-77 gradual code revision
- 1977 does not include 780 state prisoners in local jails due to Court Order
- 1978 includes 1,190 state prisoners in local jails due to Court Order

STATE: MAINE STATE PRISON POPULATIONS, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	608	728	661	721	618	714
1980	583	753	672	760	599	733
1981	595	811	685	795	583	749
1982	646	912	699	831	571	761
1983	639	939	714	866	559	773

Notes:

STATE: MARYLAND STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	7,343	7,901	7,611	8,173	6,737	7,197
1980	7,895	8,729	7,799	8,623	6,017	6,627
1981	7,957	8,991	8,008	9,054	5,684	6,408
1982	8,726	9,996	8,225	9,475	5,628	6,464
1983	9,756	11,286	8,449	9,891	5,578	6,514

Notes:
- Growth rate excludes 921 state inmates held locally, who are, however, included in projected counts to correspond to jurisdictional accounting practice
- 394 inmates (1978)

STATE: MASSACHUSETTS STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,858	3,170	2,851	3,079	2,221	2,441
1980	2,790	3,230	2,929	3,265	2,055	2,355
1981	2,963	3,527	3,016	3,444	2,021	2,389
1982	2,989	3,651	3,106	3,618	1,992	2,418
1983	2,950	3,690	3,197	3,791	1,967	2,443

Notes:
- Moratorium on intake, September 1973 - September 1974
- 1977 Growth rates exclude 59 state inmates held in local jails, who are however, included in projected counts to correspond to jurisdictional accounting practice.
- 1978 includes 119 inmates held locally to ease crowding
- 1972 data from Massachusetts Department of Corrections differs from NPS

STATE: MICHIGAN STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	16,412	17,332	15,795	16,893	14,134	14,886
1980	17,897	19,281	16,907	18,581	13,840	14,896
1981	18,195	19,917	18,044	20,244	13,721	15,015
1982	18,098	20,088	19,189	21,899	13,621	15,115
1983	18,799	21,087	20,334	23,554	13,533	15,203

Notes:
- 1971 changes in narcotics laws (effect ended 1974)
- 1977 gun law (state estimates additional intake of 200/year)
- 1977 crash program to clear court backlog contributed approximately 800 to intake
- 1977 growth rate excludes 58 state inmates held in local jails, who are, however, included in projected counts to correspond to jurisdictional reporting practice
- 1978 includes 70 inmates held in local facilities

STATE: MINNESOTA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,723	1,951	1,843	1,997	1,743	1,931
1980	1,695	2,019	1,891	2,117	1,704	1,970
1981	1,664	2,062	1,944	2,230	1,674	2,000
1982	1,633	2,093	1,999	2,341	1,649	2,025
1983	1,973	2,553	2,056	2,452	1,627	2,047

Notes:

STATE: MISSISSIPPI STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,858	2,096	1,907	2,065	1,878	2,076
1980	1,808	2,146	1,884	2,108	1,837	2,117
1981	1,491	1,863	1,867	2,143	1,806	2,148
1982	2,369	2,943	1,855	2,175	1,779	2,175
1983	2,632	3,322	1,844	2,204	1,756	2,198

Notes:
- 1977 excludes 575 state prisoners held in local jails
- 1975-77 intake limited and 1,056 bedspaces closed pursuant to Court Order re Gates v. Collier
- 1978 excludes 919 state prisoners held in local jails

STATE: MISSOURI STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	5,444	5,908	5,770	6,206	5,323	5,717
1980	5,351	6,007	6,013	6,663	5,242	5,798
1981	6,138	7,020	6,271	7,107	5,179	5,861
1982	6,327	7,371	6,534	7,546	5,127	5,913
1983	6,266	7,432	6,798	7,982	5,080	5,960

Notes:

STATE: MONTANA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,126	1,302	670	730	405	477
1980	1,249	1,519	707	799	388	490
1981	1,397	1,755	746	866	377	501
1982	1,422	1,846	785	931	367	511
1983	1,397	1,871	825	997	358	520

Notes:

STATE: NEBRASKA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,317	1,511	1,315	1,427	1,250	1,402
1980	1,392	1,680	1,334	1,498	1,219	1,433
1981	1,494	1,866	1,359	1,565	1,195	1,457
1982	1,566	2,014	1,384	1,630	1,175	1,477
1983	1,560	2,066	1,411	1,693	1,157	1,495

Notes:

STATE: NEVADA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,265	1,453	1,402	1,522	1,281	1,435
1980	1,583	1,895	1,474	1,654	1,249	1,467
1981	2,122	2,584	1,551	1,783	1,225	1,491
1982	2,226	2,780	1,627	1,911	1,204	1,512
1983	2,563	3,243	1,705	2,039	1,186	1,530

Notes:

STATE: NEW HAMPSHIRE STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	230	298	257	283	238	290
1980	225	321	259	295	228	300
1981	220	340	260	306	220	308
1982	252	406	262	316	213	315
1983	295	487	264	326	207	321

Notes:

STATE: NEW JERSEY STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	5,713	6,191	5,763	6,199	5,664	6,074
1980	5,623	6,299	5,781	6,407	5,579	6,159
1981	5,489	6,311	5,816	6,596	5,514	6,224
1982	5,863	6,859	5,860	6,776	5,459	6,279
1983	5,918	7,044	5,910	6,950	5,411	6,327

Notes:
- 1975 restrictions on intake to stabilize population (now under litigation)
- 1979 new criminal code becomes effective September
- 1977 excludes 255 state prisoners held in local jails
- 1978 excludes 70 state prisoners held in local jails

STATE: NEW MEXICO STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,453	1,659	1,576	1,708	1,471	1,639
1980	1,590	1,902	1,631	1,827	1,331	1,557
1981	1,608	1,998	1,689	1,941	1,166	1,424
1982	1,763	2,243	1,750	2,054	1,146	1,444
1983	1,789	2,337	1,811	2,165	1,128	1,462

Notes:
- 1979 determinate sentencing (state projects growth to 1,800 in 1985).

STATE: NEW YORK STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	20,766	21,832	20,852	22,268	18,527	19,427
1980	20,760	22,278	21,871	23,991	17,327	18,553
1981	20,595	22,455	22,933	25,673	17,189	18,691
1982	20,452	22,598	24,010	27,338	17,073	18,807
1983	23,492	26,116	25,094	28,996	16,971	18,909

Notes:
- 1978 includes 269 inmates held at Rikers Island due to crowding.

STATE: NORTH DAKOTA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	234	302	264	290	235	285
1980	220	316	276	314	224	296
1981	209	327	287	337	216	304
1982	200	336	299	359	209	311
1983	192	344	311	381	203	317

Notes:

STATE: NORTH CAROLINA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	13,542	14,358	13,513	14,465	12,826	13,350
1980	14,429	15,639	13,927	15,329	12,680	13,676
1981	15,431	16,987	14,374	16,160	12,568	13,788
1982	15,573	17,387	14,835	16,977	12,473	13,883
1983	15,466	17,494	15,301	17,783	12,390	13,966

Notes:

STATE: OHIO STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	12,768	13,556	13,703	14,667	11,888	12,558
1980	12,617	13,731	14,534	15,992	11,538	12,474
1981	12,492	13,856	15,390	17,292	11,433	12,579
1982	12,386	13,962	16,255	18,583	11,344	12,668
1983	12,293	14,055	17,121	19,873	11,266	12,746

Notes:

STATE: OKLAHOMA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	4,197	4,591	4,228	4,556	4,023	4,349
1980	4,058	4,612	4,357	4,841	3,955	4,417
1981	5,059	5,841	4,497	5,113	3,903	4,469
1982	5,325	6,265	4,641	5,381	3,859	4,513
1983	5,327	6,385	4,788	5,646	3,821	4,551

Notes:
- 1977-December 31 custody population differs from 1978 January 1 jurisdictional population by 465 inmates
- 1978 data exclude inmates with split sentences (part probation, part prison). In 1977 there were 346 inmates with sentences under one year, including those with split sentences

STATE: OREGON STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	2,707	3,007	2,968	3,204	2,727	2,979
1980	2,644	3,070	3,148	3,508	2,674	3,032
1981	2,719	3,255	3,335	3,805	2,623	3,072
1982	2,714	3,338	3,524	4,100	2,600	3,106
1983	2,677	3,375	3,714	4,394	2,570	3,136

Notes:
- 1978 state programs to increase use of probation in felony cases
- parole guidelines

STATE: PENNSYLVANIA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	7,251	7,805	7,359	7,903	7,222	7,704
1980	7,250	8,040	7,406	8,192	7,123	7,803
1981	7,190	8,160	7,476	8,458	7,046	7,880
1982	7,114	8,236	7,557	8,713	6,981	7,945
1983	7,048	8,302	7,645	8,961	6,925	8,001

Notes:
- 1970 transfer of jurisdiction from local to state
- significant decrease in intake in 1977

STATE: RHODE ISLAND PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	590	708	648	706	592	684
1980	630	808	662	748	572	704
1981	536	738	678	788	558	718
1982	493	719	696	826	545	731
1983	479	733	713	865	534	742

Notes:
- Includes prison and jail combined

	(Over 1 year)	(Other)
1978	508	141
1977	522	163
1976	490	162

STATE: SOUTH CAROLINA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	7,191	7,741	7,627	8,191	6,724	7,184
1980	7,105	7,887	8,035	8,883	6,629	7,279
1981	7,202	8,174	8,458	9,558	6,556	7,352
1982	8,178	9,398	8,888	10,228	6,495	7,413
1983	8,906	10,352	9,318	10,896	6,441	7,467

Notes:
- 1973 transfer between state and local
- 1975 armed robbery mandatory minimum sentence
- 1978 includes 724 prisoners held in local jails to ease overcrowding

STATE: SOUTH DAKOTA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	500	606	577	629	463	543
1980	477	629	617	697	397	501
1981	460	646	657	763	386	512
1982	446	660	689	819	376	522
1983	433	673	740	896	367	531

Notes:

STATE: TENNESSEE STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	6,054	6,550	6,022	6,476	5,397	5,796
1980	6,190	6,908	6,308	6,986	5,268	5,826
1981	6,920	7,868	6,607	7,485	5,205	5,889
1982	7,075	8,193	6,912	7,978	5,152	5,942
1983	7,009	8,259	7,218	8,468	5,106	5,988

Notes:
- 1978 includes 114 state inmates housed in local jails to ease overcrowding

STATE: TEXAS STATE PRISON POPULATIONS, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	23,992	25,158	25,211	26,897	25,216	26,320
1980	23,750	25,400	26,278	28,788	24,980	26,542
1981	23,564	25,586	21,709	24,315	24,805	26,717
1982	23,408	25,742	28,542	32,440	24,657	28,685
1983	23,270	25,880	29,647	34,193	24,526	26,996

Notes:
- 1978 adjustment residual of 489 inmates

STATE: UTAH STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	843	991	922	1,004	853	971
1980	813	1,021	948	1,068	829	995
1981	817	1,077	978	1,130	810	1,014
1982	909	1,233	1,008	1,192	794	1,030
1983	1,033	1,429	1,039	1,251	780	1,044

Notes:

STATE: VERMONT STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	391	483	436	476	423	497
1980	372	502	445	505	407	513
1981	402	572	456	532	396	524
1982	436	646	468	558	386	534
1983	433	673	479	585	377	543

Notes:
- Includes prison and jail combined

	(Over 1 year)	(Other)
1978	279	137
1977	307	146
1976	345	92

STATE: VIRGINIA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	8,063	8,655	8,130	8,728	7,527	8,021
1980	9,048	9,954	8,366	9,246	7,424	8,124
1981	9,419	10,565	8,624	9,744	7,345	8,203
1982	9,261	10,579	8,891	10,233	7,279	8,269
1983	9,157	10,627	9,162	10,716	7,221	8,327

Notes:
- 1977 excludes 824 state inmates confined in local jails
- 1978 excludes 1,174 state inmates confined in local jails

STATE: WASHINGTON STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	4,483	4,893	4,668	5,026	4,663	5,023
1980	4,849	5,467	4,898	5,436	4,577	5,085
1981	5,239	6,039	5,138	5,834	4,519	5,143
1982	5,277	6,211	5,381	6,229	4,471	5,191
1983	5,410	6,478	5,627	6,623	4,429	5,233

Notes:

STATE: WEST VIRGINIA STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	1,099	1,271	1,162	1,262	1,115	1,255
1980	1,063	1,307	1,167	1,311	1,086	1,284
1981	1,035	1,335	1,176	1,356	1,063	1,307
1982	1,012	1,358	1,187	1,399	1,045	1,325
1983	992	1,378	1,199	1,441	1,028	1,342

Notes:

STATE: WYOMING STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	409	503	438	480	393	465
1980	468	618	454	516	379	479
1981	713	953	472	550	367	491
1982	766	1,060	491	585	358	500
1983	749	1,077	509	619	350	508

Notes:

STATE: WISCONSIN STATE PRISON POPULATION, 1979-1983

Projection Model:	Capacity		Linear Growth		Intake-Release	
Estimate:	Low	High	Low	High	Low	High
1979	3,567	3,923	3,527	3,805	3,031	3,303
1980	3,913	4,453	3,691	4,107	2,919	3,297
1981	4,046	4,728	3,863	4,399	2,876	3,340
1982	4,106	4,908	4,038	4,690	2,840	3,376
1983	4,059	4,955	4,215	4,979	2,809	3,407

Notes:

APPENDIX C
Projection Computation Methods

C-1   Capacity Model

C-2   Linear Growth Model

C-3   Intake-Release Model

This appendix is intended to give the reader sufficiently explicit directions to permit the reproduction of any of the policy-blind population projections, or their extension to future years. It does not address rationale, refinements, or caveats beyond the information provided in the text of this volume.

APPENDIX C-1

Capacity Model

APPENDIX C-1: Sample Worksheet

Projection I: CAPACITY   State Arizona

	A	B	C	D	E	F
	Δ Capacity	↓↓A	↓b	.3xC	B + D	E + ↓F
1976	0	X	X	X	X	X
1977	129	X	X	X	X	X
1978	192	0	X	X	0	3329
1979	1682	129	0	0	129	3357
1980	0	192	129	38	230	3587
1981	0	1682	192	58	1740	5327
1982	X	0	1682	505	505	5832
1982	X	0	0	0	0	5832

160

Capacity Model

METHOD: I: Capacity

DESCRIPTION: Future changes in prison population are projected from increases (decreases) in planned available rated capacity.

DATA REQUIREMENTS: P_0 = total number of prisoners in custody at the beginning of the projection period. The logic of the method applies to persons physically housed in state facilities, i.e., excluding inmates under state jurisdiction but housed in local or other non-state facilities.

ΔC_t (for $-2 \leq t \leq 3$) = actual or planned changes in official rated capacity in year t. If rated capacities are defined ambiguously, the projection will share that ambiguity.

FORMULA: $P_t = P_{t-1} + \Delta C_{t-2} + .3 \, \Delta C_{t-3}$

WORKSHEET:
Column A: changes in capacity for each review.
Column B: column A copied two years later.
Column C: column B copied one year later.
Column D: column C multiplied by 0.3.
Column E: sum of columns B + D.
Column F: in year 0, population in custody in years 1-5, sum of the number immediately to the left (column E) and the number immediately above (column F_{t-1}).

PROCEDURE:
1. Enter capacity changes for the past two years, this year, and the next three years in Column A.
2. Complete columns B through E as described above.
3. Enter the current year's inmate population at the head of column F.
4. Compute successive entries of column F by adding the number to the left (column E) to the number above (column F_{t-1}).

Preceding page blank

CONTINUED

2 OF 3

APPENDIX C-2

Linear Growth Model

METHOD: II. Linear Growth

DESCRIPTION: Future population changes are estimated as equal to
                           the average of recent past population changes.

DATA REQUIREMENTS: P_t (for $t \leq 0$) = The series of past inmate populations
                           in years t.

FORMULA: $P_t = P_0 + t(P_x - P_0)/x$,

                           where x is the year at which the extrapolated trend begins.

WORKSHEET: Column "Population": Raw series of inmate counts.
                           Column "Adjusted Population": (see below)

PROCEDURE: 1. Enter the historical series of inmate population
                               counts.
                           2. Find out historical events which have changed either
                               the account basis or the substantive meaning of
                               statistics reported in the population series. Some of
                               these are documented in state or national (NPS)
                               reports. Many are not. Ideally, projections should be
                               prepared with as much knowledge of these events as can
                               be gathered from any source.
                           3. Adjust the population series to be as consistent as
                               possible. If a group of inmates is transferred to
                               (from) local jurisdictions at some point, add (subtract)
                               the group to (from) one part of the series. If
                               precise data are not available, guess. Approximately
                               the right answer is preferable to exactly the wrong
                               answer.
                           4. Examine the adjusted population series to determine
                               whether a straight line reasonably approximates
                               the series. Use any information that's available:
                               correlation coefficient, graphs, analysis of residuals,
                               or external data sources. If a straight line seems
                               plausible, go to step 5. Otherwise, delete the first
                               year's data and repeat step 4.
                           5. Enter the year at which the linear trend begins (the
                               earliest year not deleted in step 4) on line A.
                           6. Complete lines B through F.
                           7. Continue the series of adjusted populations by adding
                               lines F to each preceding year's population.
                           8. Undo any adjustments made in step 3 to return the series
                               to correspond to current counting practices. Enter
                               the results in the column "Population."

APPENDIX C-2: Sample Worksheet

	POPULATION	ADJUSTED POPULATION
1970	_____	_____
1971	_____	_____
1972	_____	_____
1973	_____	_____
1974	_____	_____
1975	_____	_____
1976	_____	_____
1977	_____	_____
1978	_____	_____
1979	_____	_____
1980	_____	_____
1981	_____	_____
1982	_____	_____
1983	_____	_____

A. First year of linear trend
B. Adjusted population in that year _____
C. Adjusted population at beginning of projected period _____
D. C – B _____
E. (Present year) – A _____
F. D/E _____

APPENDIX C-3

Intake-Release Model

Intake-Release Model

METHOD: III. Intake-Release

DESCRIPTION: Future Intake is projected as equal to present intake. Future release is projected as a function of past intake. Future population changes are projected as the difference between intake and release.

DATA REQUIREMENTS: P_0 = Total number of prisoners under jurisdiction (or in custody) at the beginning of the projection period.

A_t (for $t \leq 0$) = intake in past years.

F_t (for $t \leq 0$) = release in past years, whatever definitions of intake and release are chosen should be employed consistently over all years.

FORMULAE: let $a + bt$ be a regression equation for intake as a function of years

let $c + dt$ be a regression equation for release as a function of years

let S = starting year for regression
    L = last year for regression

then $\text{lag} = \dfrac{a+c}{b} + \dfrac{(b-d)\ (S+L)}{2xb}$

$k = \lfloor\text{lag}\rfloor$ = whole number part of lag
$m = \text{lag} - k$ = fractional part of lag

$P_t = P_{t-1} + A_0 + (m-1) \times A_{t-k} - mA_{t-k-1}$

WORKSHEET: Column A: (for past years) Intake
(for future years) Intake in year immediately before the beginning of the projection period.
Column B: column A, copied k years later
Column C: column B, copied 1 year later.
Column D: column B, multiplied by (1-m)
Column E: column C, multiplied by m
Column F: (for past years) number of prisoners released
(for future years) sum of columns D + E
Column G: column A minus column F
Column H: (in past years) population
(in future years), sum of the number immediately to the left (column G) and the number immediately above (column H_{t-1})

Preceding page blank

PROCEDURE:

1. Copy past intake, release and population data in section 1.

2. Examine the sequence of intake data to determine whether a straight line reasonably approximates the series. Use any information that is available: correlation coefficient, graphs, analysis of residuals, or external data sources. If a straight line seems plausible, go to step 3. Otherwise, delete the first year's data and repeat step 2.

3. Compute a regression equation.
    $\text{Intake}_t = a + bt + e_t$

4. Examine the sequence of release data in the way described in step 2.

5. Compute a regression equation.
    $\text{Release}_t = c + dt + e_t$

6. Compute lag, k, and m as described in part 3 of the worksheet.

7. Return to section 2 of the worksheet and fill column A with the most recent intake rate.

8. Copy column A into column B, shifting down k years.

9. Copy column B into column C, shifting down one year.

10. Multiply each number in column B by (1-m) and write the result in column D.

11. Multiply each number in column C by m and write the result in column E.

12. Add columns d + e. Write the result in column F.

13. Subtract F from A. Write the result in G.

14. On each line in column H write the sum of the number immediately to the left (column G) and the number immediately above (H_{t-1}).

15. The projection is column H.

1.

A. INTAKE		F=Release	H=Population

1970
1971
1972
1973
1974
1975
1976
1977
1978

2.

A	B	C	D	E	F	G	H
A_c	$\downarrow k A$	$\downarrow B$	(1-m) x B	mxC	D + E	A - F	G + $\downarrow$H

1979
1980
1981
1982
1983

3.

Intake = a + bt   a = _____   b = _____

Release= c + dt   c = _____   d = _____

S = starting year of regression

L = last year of regression

$$\text{lag} = \frac{a-c}{b} + \frac{(b-d)(S+L)}{2xb} = \underline{\hspace{2cm}}$$

k = whole number part of lag = _____

m = fractional part of lag = lag-k = _____

APPENDIX D

The Relationship between Prison Populations and Prison Capacities

In 1976 Congress asked the National Institute of Law Enforcement and Criminal Justice to "survey existing and future needs in correctional facilities," and to report on the ability of federal, state and local programs to meet those needs. This Congressional mandate followed a five year period of accelerated growth in the incarcerated population which was without recent precedent in its suddenness and magnitude. It reflected a general concern that continued population growth would soon surpass the available housing for prisoners, if it had not already done so, resulting in unsafe or unsanitary degrees of crowding. Indeed, such crowding had already come to the attention of federal courts in Mississippi and Alabama, where crowding was found to be so intense as to violate the eighth amendment's prohibition of cruel and unusual punishment.

Without exception[1] states were projecting unabated growth in the number of inmates in state custody, and were approaching their respective legislative committees with capital and operating budgets based on this continued growth. As we subsequently found, extensive prison construction was underway to provide housing for the populations which were anticipated over the next several years.

We might imagine employing a hypothetical projection device, feeding it appropriate data about a state's prison system, and producing an estimate of the numbers of inmates requiring shelter and care over the next n years. A state legislature sharing this proactive planning model might be expected to appropriate funds for additional construction whenever it believed projected population levels would exceed the supply of available housing.

We might distinguish such proactive spending from the actions of a state where construction money becomes available only in reaction to some more or less catastrophic symptom of trouble in the prisons--murder, riot, scandal or litigation. Such a reactive system would build only as much as was needed to alleviate the crowding of inmates already in custody. To complete the array of planning types, we should include states where construction simply does not occur (of which there have been about eight over the last 20 years) and states where construction, when it occurs, is not in any direct sense a response to population change.

This hypothetical typology of planning behavior carries the implicit assumption that prisoners are in some sense an independent variable, and prison space a response made sooner or later and more or less accurately as the states' abilities and desires dictate.[2] In contrast to this is a model, most recently articulated by William Nagel[2] in his support of the moratorium on prison construction, which suggests that available space will be filled, regardless of any of the usually assumed causal linkages between crime and punishment. This view is still consistent with national behavior by the criminal justice system if we imagine the incarceration decision as an optimization problem solved under the constraint of limited prison space. If such a constraint is operating, the expected sanction level (measured

by time in prison) will vary inversely with the offense level, so that the prisoner population remains stable.

Understanding the mechanics of the relationship between capacity and population was clearly central to both preparation and use of the projections of inmate population levels implied by the Congressional mandate. If some version of the planning model held, it made sense to look at transition probabilities in the criminal justice system--arrest given crime, prosecution given arrest, conviction given prosecution, and incarceration given sentence. We might seek for stability among these ratios, or look for possible alterations in their values as laws were changed, rules of judicial procedure modified, or criminal justice policy reformulated. Some sort of simple (or complicated) extrapolation of the time series of prison populations or admissions might give us a sufficient projection of future prison populations. If not, some more elaborate model of criminal processing might be needed, but projections would still treat the number of prisoners as a natural phenomenon subject to natural laws like those found in the physical sciences.

If the contrary view prevailed, such exercises seemed inappropriate. If capacity constraints dominated, the number of prisoners clearly reflected a choice, not a natural phenomenon. Moreover, if a system's population routinely approximated these constraints, it would mean that the levels of crowding which prevailed might not be alleviated simply by the opening of new prisons, since these could relax the constraints and allow greater numbers of inmates to be held at the old levels of crowding. The complexity of the situation was further exacerbated by the possibility that projections which showed increasing populations--perhaps including our own--might be used to justify the very new construction required to allow the population increase to occur. This made it conceivable that any projection we produced might be correct if only enough people believed it.

Like many questions about governmental behavior, the task of describing the relationship between capacity and population is susceptible to evidence but not proof. The only information available is historical in nature: documents and statements by experts and decision-makers in the field, and the records of past changes in capacity and population. These can never be wholly free of ambiguity. Experts have presented support for both sides of the case. Some correctional administrators have told us exactly which mechanisms they use to adjust populations to stay within their capacities. Others have described episodes where capacities were adjusted to match populations. Some of these adjustments reflect construction, others are done with a pencil.[3]

All of the usual problems of trying to identify a system's operating characteristics only from its history alone are in force here. We cannot claim that either prisons or prisoners provide a random input to the system. Both may reflect public attitudes, the health of society, economic well-being, the politics of crime control and any number of other potentially confounding variables which we cannot even list, let alone measure.

Systematic biases may obscure real effects or create artifactual ones. For example, the date of a prison's opening is several years after any presumed perception of need and decision to act occur. An extremely efficient system can begin to populate a prison two years after the decision to build. Five years is probably a more typical delay. This lag will vary from state to state and era to era (depending on elections, the construction industry, climate, and a host of other factors), further confusing the modeling task.

The period covered by our data (1955 to 1976) may be unrepresentative of current practice. The abruptness of growth in the incarcerated populations over the last five years has been taken by some observers to suggest that the rules of the game have been largely abandoned in the 1970's and that historical trends established earlier are unlikely to be reliable descriptions of current practice.

Finally, we have little more than informed choices to guide us in selecting the functional form our model should take. As far as we could tell, the literature appeared to stop at articulating the problem, usually not in the form of an empirical question, but rather as a premise. To a considerable extent the exact form of the model is dictated by computational convenience rather than any actual knowledge of the appropriate forms. We have tried to minimize the impact of this uncertainty by using alternate forms, general rather than specific models, and definitions which remain invariant under some of the expected ambiguities, but we are under no illusion of having produced the definitive answer to these problems. What we present here is a mechanism for quantifying the questions which arise and some preliminary statistical results which suggest the possibility that the questions have interesting answers and policy implications.

As part of our study of prison populations, we gathered data on openings of prisons in every state in every year from 1955 to 1976, producing a 50 x 21 matrix of capacity changes indexed by state and year. We also knew (from National Prisoner Statistics reports) the number of prisoners in each of these 50 x 21 state-years. Our analytic model was designed to describe the relationship of these two arrays of data. Correlations were computed on all 50 states combined, so that the estimated parameters are descriptive of relationships for the aggregate of state years. In any particular state, different results may be obtained. Moreover, the correlations reflect a cross-sectional element due to the differences among states, and are thus not exactly equivalent to simple univariate time series.

Let P_t denote the change in prison population in year t. Let C_t be the change in prison capacity in the same year. Our model attempts to estimate the pair of variables (P_t, C_t) as a function of the past series $(P_{t-1}, P_{t-2} \ldots, C_{t-1}, C_{t-2} \ldots)$. There are thus four sets of terms in this model, relating, respectively, the correlations of:

- past population with future population

- past capacity with future population

- past population with future capacity, and

- past capacity with future capacity.

If we array these four sets of terms in a matrix, the following structure emerges:

$$P \to P \quad C \to P$$
$$P \to C \quad C \to C$$

where "C -> P" is to be read as "the effect of past changes in capacity on future populations," and so on.

The following notation will simplify description of the model. The matrix can take one of four forms:

Block diagonal: X   0

                       0   X

if C and P are unrelated

Block upper   X   X
triangular:

                 0   X

if capacity provides a leading indicator of population but population does not lead capacity

Block lower   X   0
triangular:

                 X   X

in the converse case, or

Full: X   X

         X   X

if feedback occurs in both directions with capacity "driving" population which in turn "drives" capacity, and so on.

Each of these four cases corresponds to a view of the corrections system represented in the projection literature we reviewed. The second case is in some ways the most interesting, since it matches the construction "moratorium" model. The third might be called the Naive Projectionist's model, and corresponds to the view which seems implicitly to prevail in many—but not all—state corrections departments. The fourth model was incorporated in some of the early simulation models which were prepared for the Preliminary Report to Congress and which we there identified as a "Dynamic Model" of the corrections system. Case 1, the block diagonal matrix, can be identified for these purposes as providing the null hypothesis against which the other models are to be tested.

This matrix formalism was suggested by Peter E. Caines,[4] and the tests for non-zero blocks are those of Granger[5] and Sims.[6] A recent theorem by Caines simplifies and generalizes these tests. In essence the tests are reduced to a pair of analyses of covariance in which the semipartial correlations (in OLS) of past capacity changes on present population changes, "controlling for" past population changes, and past population changes on present capacity changes, "controlling for" past capacity changes. The F-tests are given by:

$$F_{P \to C} = \frac{[R^2(C, P) \to C - R^2(C \to C)]/df_n}{[1 - R^2(C, P) \to C]/df_d}$$

where $R^2(C, P) \to C$ is the squared multiple correlation of the regression estimating present capacity as a function of past population and capacity

$R^2(C \to C)$ is the same for capacity as a function only of past capacity, and

df_n, df_d are the respective degrees of freedom for the numerator and denominator

and the same formula with P and C everywhere interchanged for $F_{C \to P}$.

The prison population in each year substantially resembles that of the year before, in part because it includes many of the same people. By the very nature of the release process, we have each year's disturbance propagated through the future years potentially until the release of the last inmate in the cohort. (In practice we would expect effects to damp out much sooner since most inmates serve only two or three years, and time served may sometimes be adjusted to even out the population.) This means that a priori we can expect that the residuals of any population model ought to be serially autocorrelated, as in fact they are, with .9 < r < 1.0 for most states. Since significance tests in OLS assume independent residuals this autocorrelation will lead to bias unless corrected. Two-stage least squares is the standard solution for such situations. In this case, however, the functional relationship of populations from year to year is sufficiently close that we were able to remove most of the serial correlation simply by first order differencing of the population series. Thus wherever "P" or "population" occurs in this discussion, "first differences of population" is to be understood.

Capacity data likewise refer to first differences, but for additional reasons. Disturbances in the capacity of a system persist for even longer than those in the population--prisons stay around for decades, even for centuries--and so differencing is called for on statistical grounds alone. It also makes the regression coefficients have direct interpretation since P and C are measured in comparable units. Finally, by dealing only with changes in capacity we are spared the necessity of producing an absolute measure of capacity. We knew from attempts to survey the capacities of state and federal institutions for other parts of this project that "capacity" denoted a particularly ambiguous and fluid concept. Some care was needed to insulate our tests from these ambiguities.

We might have chosen to employ some physical standard based on our own notions of decent housing conditions, or those of some outside body. However, if our goal was to describe actual populations, then what local administrators considered to be the capacity was probably more relevant than what outsiders considered it ought to be. This left two choices: official ratings and actual behavior. Official "rated capacities" are supplied to the American Corrections Association by most institutions. These ratings can change from year to year without reflecting any real physical changes in the plant. To standardize the definition we used the rating supplied at the earliest date for which information was available.[8] The behavioral measure was simpler. We simply recorded the number of actual occupants present on December 31, 1978. It should be noted that although this latter definition of capacity has units measured in population, the capacity series thus generated can remain fully independent of the population series, since all the reference dates for capacity definition are at a single instant. In the discussion which follows, numerical results are based on the behavioral measure.

Figure 1 displays the OLS regressions of the capacity and population first differences for lags of one to six years. Note that all coefficients in the capacity equation are close to zero, yielding an F-ratio virtually equal to one. Even the largest of the coefficients, C_t with P_{t-3} is less than .01. Its 95 percent confidence interval is (-.006, +.026). Every 95 percent confidence interval in the equation includes zero, and even the sum of the upper 95 points for all the population terms is under 0.1. The data are thus strongly in conformity with the part of the model which states that changes in population do not prefigure changes in capacity. This null result does not, of course, prove that no relationship exists, since we might need either more years[9] or a different functional form[10] to detect a hidden true effect.

The part of Figure 1 which shows the regression for P tells a different story entirely. Several of the coefficients are significantly different from zero, including three with $p < .001$. The first-order AR coefficient is large enough that some caution is still appropriate in reading the individual regression coefficients. The partial correlation of P_t with P_{t-1} is .21, which does not introduce the kind of problems raised by the undifferentiated series, but should still warn of possible contamination. (By the time the regression is completed, the residuals are not significantly auto-

correlated, and the significance tests based on the semipartial correlations are not biased by the serial correlation; therefore no further action was taken to whiten the P series.)

The clearly interesting coefficients are those describing the regression of past capacity changes with present population. There is little relationship between changes in capacity and changes in population in the same or the next year, but a substantial echo of capacity appears in the population series after two years, perhaps extending to the three year term ($p < .05$). The fact that the coefficient is near 1.0 is particularly reassuring, since it corresponds with the intuitive notion of one inmate per unit of capacity.

Figure 2 shows similar univariate regression coefficients for a model employing only three years of lag terms. Arranged in the matrix display, it is clear that the upper triangular form most nearly approximates the results. In Figure 3 we show another three year lag estimation, this time using multivariate regression instead of OLS. The results differ in numerical value, but not in the relative magnitudes of the off-diagonal terms. The difference in numerical value occurs because the residual process in the second case is a joint residual process, i.e.:

$$\begin{bmatrix} \text{error (P)} \\ \text{error (C)} \end{bmatrix} - \begin{bmatrix} P_t, P_{t-1} \cdots \\ C_t, C_{t-1} \cdots \end{bmatrix}$$

In Figures 4, 5, and 6 we present a test of the sensitivity of the results to increasing the number of lag terms. Figure 4 displays the R^2 obtained with the pure AR models of population and capacity, respectively. Figure 5 shows R^2 for the joint models, and Figure 6 superimposes the two. The F-test of the semipartial correlations is generated directly by the increase in R^2 of Figure 5 over Figure 4. For the C -> P model, after two years F = 15.865, df = 2 and 676, $p < .001$. Thereafter the F ratios decline as additional degrees of freedom are consumed, but remain significant beyond the .001 level. For the P -> C model the F-ratios are negligible, as Figure 6 indicates.

Both estimation and logical problems remain. The regression equations yield residuals whose variance increases with the size of the state, violating an OLS assumption. To correct this, the same equations were rerun replacing each variable by

$$\text{sign}(X)*\log[\text{abs}(X + .5)]$$

compressing the larger variances. While this rendered the regression coefficients difficult to interpret, it left the structure of the equations virtually unaltered: terms in the capacity equation were still negligible, while the population equation was dominated by one-year-lagged P and two-year-lagged C. Significance levels were approximately the same as for the untransformed variables.

We also substituted the official definitions of capacity for the behavioral definition, again with no discernible structural change in the models. The first differences of the two capacity series correlate .90, so that we appear to have escaped the ambiguities of the capacity definition.

Other possible intervening variables may be hypothesized to be driving both capacity and population. From the unlimited pool of such potential confounding effects we have tested two: the number of reported Part I index crimes and the number of persons unemployed. Neither shows significant relationships to either of our main variables.

We have yet to test the stability of these results at different periods and in different regions of the country. Inspection of the correlation matrices shows no reason to expect an interaction of the main effects with time. In studying other aspects of the prison problem we have repeatedly found that "the South is different." This finding may well apply again. We also need to subject these preliminary results to further refinements of the estimation procedures, and explore further for possible hidden relationships in the P -> C series. In the absence of such refinement, we consider these results as tentative but useful evidence for the role of physical constraints as a population limiter, and for the idea that prisons once built, soon find inmates.

Figure 1

OLS Models of Capacity and Population

$$P_t = -.015 \, C_t$$
$$+ .211^* \, P_{t-1} \quad + .046 \, C_{t-1}$$
$$- .047 \, P_{t-2} \quad + 1.020^* \, C_{t-2}$$
$$+ .021 \, P_{t-3} \quad + .321 \, C_{t-3}$$
$$+ .151^* \, P_{t-4} \quad + .021 \, C_{t-4}$$
$$- .095 \, P_{t-5} \quad + .043 \, C_{t-5}$$
$$+ .036 \, P_{t-6} \quad - .363 \, C_{t-6}$$
$$+ 113$$

$^*p < .001 \quad F = 7.49^* \quad dF = 13;668$

$$C_t = -.0007 \, P_t$$
$$+.0056 \, P_{t-1} \quad +.0406 \, C_{t-1}$$
$$+.0048 \, P_{t-2} \quad +.0218 \, C_{t-2}$$
$$+.0097 \, P_{t-3} \quad +.0703 \, C_{t-3}$$
$$-.0010 \, P_{t-4} \quad +.0189 \, C_{t-4}$$
$$+.0378 \, C_{t-5}$$
$$+49$$

$F = 1.07 \quad dF = 10;671$

	ΔP_{t-1}	ΔC_{t-1}
ΔP_t	.202	.070
ΔC_t	.006	.042

one year lag

	ΔP_{t-2}	ΔC_{t-2}
ΔP_t	-.050	1.012
ΔC_t	.005	.024

two year lag

	ΔP_{t-3}	ΔC_{t-3}
ΔP_t	.056	.318
ΔC_t	.010	.071

three year lag

FIGURE 2

Univariate Regression Coefficients

of Capacity and Population

	ΔP_{t-1}	ΔC_{t-1}
ΔP_t	.364	.130
ΔC_t	.053	.051

one year lag

	ΔP_{t-2}	ΔC_{t-2}
ΔP_t	-.107	.261
ΔC_t	.037	.014

two year lag

	ΔP_{t-3}	ΔC_{t-3}
ΔP_t	.033	.098
ΔC_t	.009	.079

three year lag

FIGURE 3

Multivariate Regression Coefficients

of Capacity and Population

Figure 4

Squared Multiple Correlations AR Models
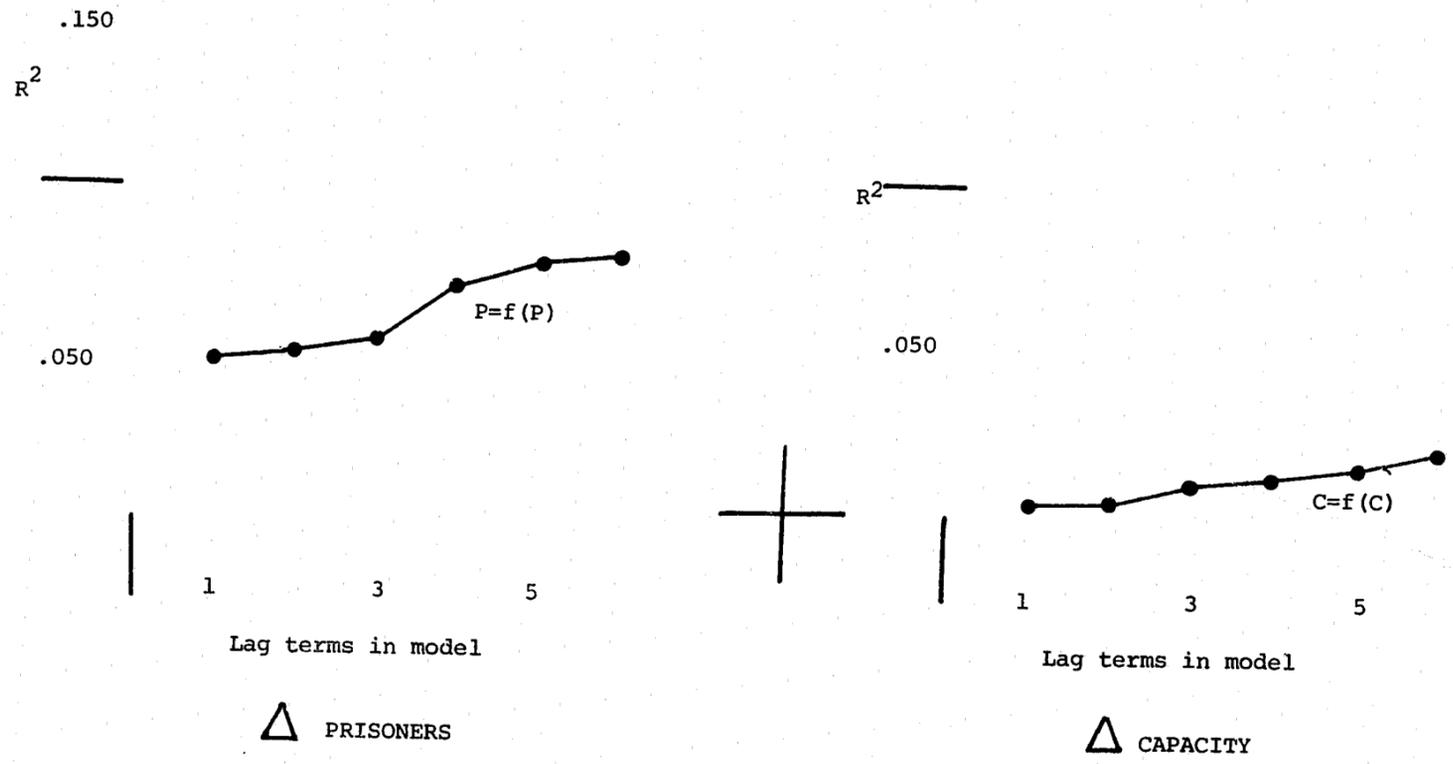
Figure 5

Squared Multiple Correlations Joint Models
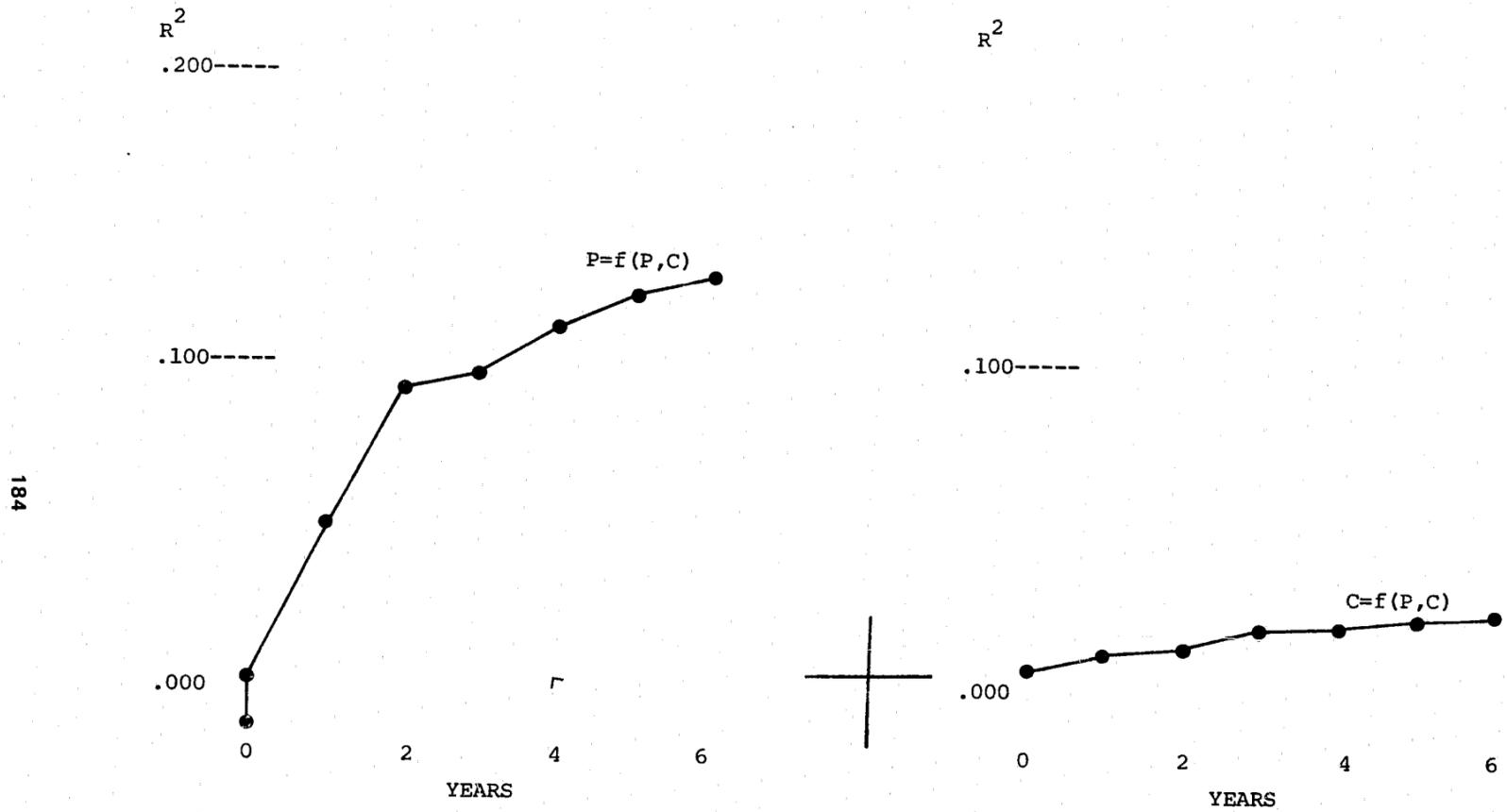
Appendix D: NOTES

1. Based on 26 states which provided us information.

2. W. G. Nagel, "On Behalf of a Moratorium on Prison Construction," _Crime and Delinquency_ (April 1977): 154-172.

3. Automation is everywhere. One large corrections department has an on-line computer to keep track of rated capacity.

4. P. E. Caines and C. W. Chan, "Feedback Between Stationary Stochastic Processes," _IEEE Transactions on Automatic Control_ AC20 (August 1975): 498ff.

5. C. W. J. Granger, "Economic Processes Involving Feedback," _Inform. Contr._ 6 (1963): 28-48.

6. C. A. Sims, "Money, Income and Causality," _Amer. Econ. Rev._ 62 (1972): 540-552.

7. P. E. Caines, "Weak and Strong Feedback Free Processes," _IEEE Transactions on Automatic Control_ (October 1976): 737-739.

8. In some cases this differed from the opening data because we did not have ACA directories for every year.

9. Six years of lag terms were entered in the equations. The C_t equation stops at P_{t-4} because the partial correlation of $P_{t-5} = -.002$, and SPSS refused to proceed without a parameter change.

10. For instance, since prisons rarely close, we might want to recode all negative P's to zero before testing.

Figure 6

Figure 6

.200

.150

P=f(P,C)

R^2

.100

.100

P=f(P)

.050

.050

C=f(P,C)

.000

.000

C=f(C)

0 1 2 3 4 5 6

0 1 2 3 4 5 6

Lag terms in model

Lag terms in model

△ PRISONERS

△ CAPACITY

187
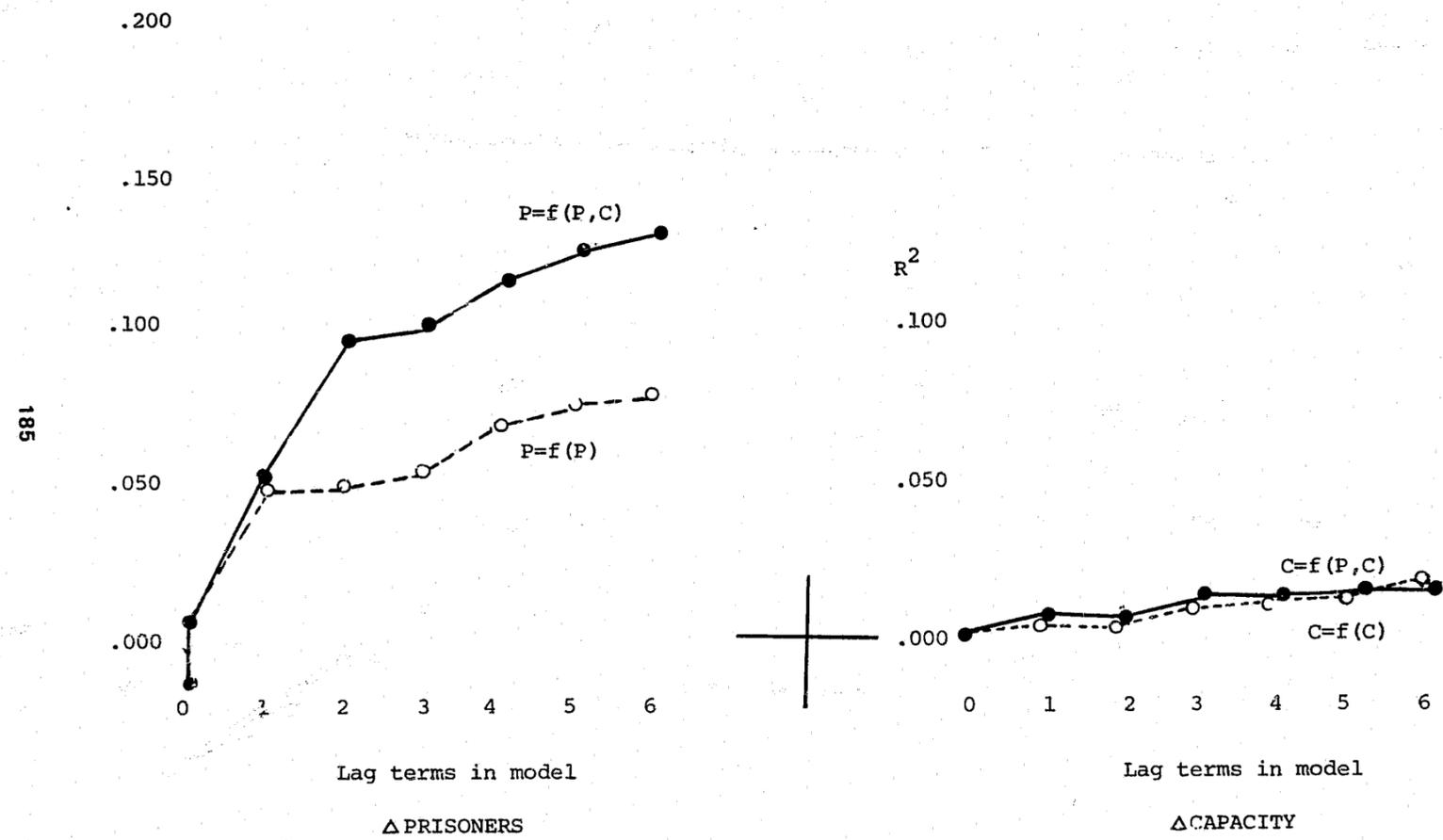
Summaries of Selected State and Local Projection Reports

● Projections for Delaware Population and Anticipated
  Commitments and Detentions in Juvenile Correctional
  Institutions, 1975-1990 (C Harold Brown, Division of
  Urban Affairs, University of Delaware, January 1974)

This report develops a careful demographic projection of the
state's population in each age cohort and applies the ratio of juveniles
detained per 1000 juvenile population to future estimated juvenile populations.
Recognizing that this ratio may not be constant over the next 15 years,
these projections are provided, based on 11.75, 12.75, and 13.75 detainees
per 1000 of juvenile population. The first of these three is the average
of actual rates for 1971-1973. The second and third are presented without
empirical foundation. There is no test of the assumption that detained
populations are proportionate to civilian populations, and no discussion of
the range of variability or why the alternative projections employ only
ratios higher than past experience.

189

Preceding page blank

- Regional Corrections Program for Roanoke Valley,
  Virginia (Helmuth, Obata & Kassabaum, Architects and
  Wilbur Smith & Associates, Planners, June, 1972)

Projections for this study also multiply a projected total population (this time ignoring age distribution) by an incarceration rate. The rate for this study is based on the total number of detentions occurring during each year from 1966 to 1970. A person detained four times during the year would be counted four times regardless of the lengths of detention. A second ratio was then computed between this number and the average daily count for 1970. The product of the two ratios was multiplied by projected future civilian population to yield projected average daily inmate population. (The authors seem unaware that these steps could have been combined into a single ratio of jail population to civilian population with no change in results.) The choice of ratio used in the projection shows much the same arbitrary approach as the Delaware study. After finding an average ratio of one detention per year per 16.6 citizens, the projections use a ratio of 1:15 (i.e., 10% more) with only the following justification:

> "Considering, then, the growth deterrents of the study region (e.g., topography, flood plains) and the trend toward increased urbanization, the incarceration for the population projections was established at 1:15.0."

- Implications of expected changes in U.S. population for correctional institutions (Director, Division of Biometry, NIMH Memorandum dated July 9, 1975)

Yet another use of demographic projections is presented in this short memorandum. 1985 incarcerated populations are projected on the assumption that the same fraction of the white, male 25 to 34-year-olds (and other population subgroups) will be institutionalized in 1985 as were so counted in the 1970 census. In 1970 about 3 percent of the highest risk population (black men between 18 and 34 years of age) were locked in prisons, reformatories, local jails, or work houses. A U.S. Census projection (Series D) indicates a 61 percent increase in the size of this highest risk population subgroup by the fraction of its members actually incarcerated in 1970; the author estimates a 38.7 increase in the total number of inmates by 1985. The population levels projected for 1985 were actually reached in mid-1978, about three years after the projections were made, and at a growth rate of 100 percent greater than that projected.

- Beyond a straight line fit - Probation [sic] Projection
  Techniques which use Readily Available Data (Tom G. Crago
  & Scott Hormas, ACA, Proceedings of 106th Annual Congress
  of Corrections, 1976)

Although the title alludes to probation, the data describe new
court commitments to prison in each quarter from 1971 to 1976. The variables
used in the projection are the state unemployment rate for the preceding
chapter, the number of Colorado males age 18 to 49, and a weight reflecting
average seasonal differences among quarters. An ordinary least squares
regression of these three series on new commitments produces a multiple
correlation of .92. If the statistical residuals of this model were
uncorrelated, so that ordinary tests of statistical significance could be
applied, this high a correlation would exclude chance as a cause of the fit
with high (over 99%) confidence. The residuals are, however, highly
correlated. Both unemployment and commitments have readily visible seasoned
fluctuations, and both commitments and the population estimates grow over
time. A simple equation which predicts commitment merely as a linear
function of years since 1900 plus a quarterly adjustment yields a multiple
correlation of .84, only slightly less than the .92 of the unemployment
model.

Actual prison populations are projected for Colorado as a linear
function of three variables, projected commitments during the quarter, the
level of parole revocation (a three-point scale), and the fraction of all
commitments with indeterminate minimum sentences (lagged nine months). The
future prison population created by these projections is an extremely
stable one, partly because three of the variables (unemployment, indeterminate
sentences, and parole revocations) become constants for most of the projection
periods. Projected populations range from 2134 to 2086.

About the National Institute of Justice

The National Institute of Justice is a research, development, and evaluation center within the U.S. Department
of Justice. Established in 1979 by the Justice System Improvement Act, NIJ builds upon the foundation laid by
the former National Institute of Law Enforcement and Criminal Justice, the first major Federal research
program on crime and justice.

Carrying out the mandate assigned by the Congress, the National Institute of Justice:

- Sponsors research and development to improve and strengthen the criminal justice system and related civil
  justice aspects, with a balanced program of basic and applied research.
- Evaluates the effectiveness of federally-funded justice improvement programs and identifies programs that
  promise to be successful if continued or repeated.
- Tests and demonstrates new and improved approaches to strengthen the justice system, and recommends
  actions that can be taken by Federal, State, and local governments and private organizations and
  individuals to achieve this goal.
- Disseminates information from research, demonstrations, evaluations, and special programs to Federal,
  State and local governments; and serves as an international clearinghouse of justice information.
- Trains criminal justice practitioners in research and evaluation findings, and assists the research
  community through fellowships and special seminars.

Authority for administering the Institute and awarding grants, contracts, and cooperative agreements is vested
in the NIJ Director, assisted by a 21-member Advisory Board. The Board recommends policies and priorities and
advises on peer review procedures.

NIJ is authorized to support research and experimentation dealing with the full range of criminal justice issues
and related civil justice matters. A portion of its resources goes to support work on these long-range priorities:

- Correlates of crime and determinants of criminal behavior
- Violent crime and the violent offender
- Community crime prevention
- Career criminals and habitual offenders
- Utilization and deployment of police resources
- Pretrial process: consistency, fairness, and delay reduction
- Sentencing
- Rehabilitation
- Deterrence
- Performance standards and measures for criminal justice

In addition, the Institute focuses on priorities identified by the Congress, including police-minority relations,
problems of victims and witnesses, and alternatives to judicial resolution of disputes.

Reports of NIJ-sponsored studies are reviewed by Institute officials and staff. The views of outside experts
knowledgeable in the report's subject area are also obtained. Publication indicates that the report meets the
Institute's standards of quality, but it signifies no endorsement of conclusions or recommendations.

Harry M. Bratt
Acting Director