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Basic Issues in Corrections Performance

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James L. Underwood
Acting Director

Basic Issues in Corrections Performance

Gloria A. Grizzle
Project Director

Jeffrey S. Bass
J. Thomas McEwen
Deborah M. Galvin
Ann G. Jones
Harriet D. Mowitt
Ann D. Witte

July 1982

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National Institute of Justice

National Institute of Justice
James L. Underwood
Acting Director

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FOREWORD

This document is one of four produced under the National Institute of Justice's Performance Measurement Program, a long-range research program to improve performance measurement practices in criminal justice agencies. Like its companions, it entails a review and synthesis of performance and measurement concepts for the purposes of conceptualizing the general problem and of developing an agenda for future performance measurement research.

Each report deals with performance in the context of some function of the criminal justice system: Police, Prosecution and Public Defense, Courts, and Adult Corrections. "Performance" is therefore discussed in terms of the objectives and activities specific to that function as well as in terms of the general definitional and measurement issues frequently raised in the context of public accountability and administration. The result is a balance between the concreteness of the daily realities of quantitative management and the abstractness of measuring an elusive concept called public agency performance.

The volumes don't advocate a host of new measures, a "bottom line" or formula for improving the administration of the police function. So many measures of performance have already been proposed that agency managements are faced with the prospect of expensive automation in order to produce an over-abundance of statistics. Rather than promote that kind of expenditure, the Institute embarked upon this effort to sort out perceived measurement needs and to crystallize competing perspectives on performance. The fact that each volume in this series offers a different perspective on the subject affirmed our assessment that we are still some way from mechanical application of measurement schemes.

Each volume contains an integrated, thoughtful assessment of some key performance issues, yet there is little redundancy. We encourage researchers and practitioners to read all four conceptualizations in order to familiarize themselves with the range of perspectives that can be taken. We hope that the studies will encourage others to refine their thinking on this difficult subject and to make other contributions to this critical but as yet under-developed aspect of criminal justice administration.

James L. Underwood
Acting Director
National Institute of Justice

PREFACE

In 1978, the National Institute of Justice organized and funded a consortium to develop criminal justice performance measurement theory. Edwin Zedlewski has ably guided and assisted the consortium as the National Institute's project manager. This report summarizes the work of the corrections team in that consortium. Other teams in the consortium, and their project directors and institutional affiliations, are:

Criminal Justice System	Stuart Jay Deutsch Georgia Institute of Technology Atlanta, Georgia
Courts	Thomas J. Cook Research Triangle Institute Research Triangle Park, N.C.
Police	Gordon P. Whitaker University of North Carolina Chapel Hill, N.C.
Prosecution and Public Defense	Joan E. Jacoby Jefferson Institute of Justice Studies Washington, D.C.

We profited from the interaction with these other teams and thank them for their reviews of our work, suggestions, and sharing of their drafts and working papers.

We are grateful to the many corrections administrators who permitted us to visit their agencies during the course of this research. In exchange for their frank discussions about goals, objectives, and activities we have guaranteed them anonymity and so cannot thank them individually here.

Several practitioners and researchers gave generously of their time to review working papers and/or drafts of this final report: Martha R. Burt and John Hall, the Urban Institute; Marilyn C. Slivka; William R. Blount, University of South Florida; Peter C. Buffum; Alvin W. Cohn, Administration of Justice Services, Inc.; Simon Dinitz, Academy for Contemporary Problems; and Robert M. Carter, University of Southern California. We also appreciate the comments and suggestions of the anonymous reviewers whose services were obtained by the National Institute of Justice.

ABSTRACT

This report outlines a framework for assessing the performance of adult correctional programs in prisons, jails, probation, parole, and community-based facilities. The framework addresses the following issues:

- the correctional program whose performance will be measured;
- who is asking what questions about the program's performance;
- what use performance information will have;
- which and whose informational needs the performance measurement system will serve;
- the likely consequences of not serving some informational needs;
- the benchmarks against which performance will be compared;
- what the program does and how it goes about doing what it does;
- what effect goals have on performance measurement design;
- what theory guides one's choice of what to measure;
- how to interpret measurement; and,
- how to construct measures.

Because of the diversity of program activities and the complexity of correctional goals and objectives, it is concluded that no single set of performance measures can be appropriate for all correctional programs, in general. The emphasis for future research, therefore, is on the implementation of a framework for the measurement of specific programs.

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CHAPTER I

INTRODUCTION

Measuring Corrections Performance reports on the first phase of a long-range performance measurement study. The purpose of this first effort is to define the many problems and issues which face those who want to assess the performance of corrections. It is anticipated that the audience for this work will be primarily criminal justice researchers and practitioners. To respond to the diversity of corrections goals, objectives, programs, and environments, as well as the multiplicity of performance measurement users and uses, the following chapters suggest a comprehensive framework, or approach, to the process of measurement. The framework does not recommend a unique set of definitive measures, but rather a set of guidelines for deciding what to measure and how. The framework seeks to help people interested in measuring corrections performance define their own measurement needs and develop a set of performance measures appropriate to those needs.

To introduce the proposed performance measurement approach, this chapter offers the following background information:

- definitions of the performance measurement terms;
- identification of the users and uses of performance comparisons; and,
- review of how the proposed approach builds on past corrections measurement work.

This background information identifies the terms, the audience, and the history of the performance measurement framework.

To conclude the introduction, we summarize the major concerns or questions to be dealt with in this book and outline how the book is organized. In this final section, we review the contents of each chapter and explain how each chapter contributes to the development of a comprehensive framework for performance measurement in corrections.

DEFINITIONS OF PERFORMANCE MEASUREMENT TERMS

Performance measurement means obtaining information useful to someone in assessing how well an organization or program is doing. This general definition is based upon two concepts about measurements. First, one cannot measure an organization or program itself. Measurement is always of some quality or attribute of the organization or program (Thorndike and Hagen, 1977: 9). Second, the act of measurement is the process of classifying data and relating it to those qualities or attributes of performance identified as being important (Carmines and Zeller, 1979: 10). Before measurement can take place, then, it is critical to be clear about which attributes or qualities of an organization's or program's performance are important.

In discussing performance measurement, a distinction first needs to be made between performance measures, performance measurements, and performance comparisons. A performance measure is an instrument or indicator that can be used to

describe how well programs or organizations are working. For example, "the percentage of offenders in a community-based residential corrections program who complete the amount of restitution agreed upon" is a measure of one attribute of a community-based residential corrections program. A performance measurement is the information or quantity ascertained for a specified program for some specified period of time by obtaining data and relating it to the attribute the measure addresses. For example, "48% of offenders in the Kanmo Restitution Center during 1980 completed the amount of restitution agreed upon." Judging how well a program is working requires comparing the measurement with either measurements for other programs, measurements of the same program made at previous points in time, or some standard, goal, objective, or target set for the program. An example of a comparison with other programs would be, "The Kanmo Restitution Center's 48% restitution completion rate is 8% higher than the average rate for all restitution programs." An example of a comparison made with some previous point in time would be, "The 1980 restitution completion rate for the Kanmo Restitution Center is 5% lower than its rate for 1979." An example of a comparison with a target set for the program would be, "The Kanmo Restitution Center's 48% restitution completion rate exceeds the target set for it in 1980 by 3%.

To assess how well a program is working, one must have all three tools--performance measures, performance measurements, and performance comparisons. Performance comparisons are not possible without first having performance measurements, and performance measurements are not possible without first having performance measures. It is the performance comparisons, however, upon which judgments about performance, in contrast to nonevaluative descriptions, are based.

USERS AND USES OF PERFORMANCE COMPARISONS

It is worthwhile, when thinking about performance measurement, to have in mind the uses to which performance comparisons are likely to be put. From the perspective of correctional administrators, tasks that could be aided by using performance comparisons include those listed below:

- estimating demand or need for a program
- deciding who shall be served
- setting priorities among programs
- assessing the sources of and level of program support
- deciding how much money to request to operate a program
- justifying staffing requests
- justifying the total budget request
- allocating resources among competing programs
- deciding to expand, continue, or discontinue programs
- deciding on future studies, projects, and pilot projects
- accepting or rejecting a program strategy or approach
- making objectives operational
- providing incentives to attain objectives
- developing workload standards
- scheduling work
- diagnosing operational problems that hinder attaining objectives
- monitoring conformance to fiscal, policy, and product constraints
- negotiating collective bargaining contracts
- determining the appropriate skill composition of program staff.

Not all users of performance information share the managerial perspective or have responsiblity for the managerial tasks listed above. Users taking other perspectives toward corrections performance measurement can be expected to develop their own list of tasks for which performance information is needed. For example, a researcher might want performance information in order to test some theory about the relationship believed to exist between some mix of program activities and their effect upon such conditions as the future crime rate or the stability and cohesion of the family in America.

Who is likely to want information about the performance of corrections programs? Many people, ranging from the general public to the individual employee and client, are interested in some dimension of corrections performance. A list of potential users of performance information would include, at a minimum, the public, legislators, chief executives, agency heads and administrators, program managers, planners, and budgeters.

No single set of performance comparisons is appropriate to all users. Some researchers assume that the kind of information desired is stratified by decision-making level in an organization and that the importance a person places upon a particular dimension of performance depends upon that person's location in the decision-making hierarchy (Anthony, 1965; Weiss, 1972; Wholey, et al., 1970). Based upon Weiss' work, for example, one might expect that information interest would vary as follows: Top policymakers would be interested in information about a program's overall effectiveness, whereas the program director would focus upon overall effectiveness plus knowing which features of the program are most essential to effectiveness. Direct-service staff would want to know the specific techniques that could best be used when operating the program and upon which techniques to concentrate. Funders and scholars would want information allowing them to test propositions about program effects. The public's concern would focus upon the wise and efficient use of its tax dollars. The client would be interested in judging effectiveness from the perspective of the client's own values (Weiss, 1972: 14-15).

In the public sector, however, there are several factors that make it difficult to compartmentalize different types of performance comparisons in terms of who will use them. Among these factors are diffused authority, policy mixed with administration, and the efforts of chief executives, department heads and program managers to build coalitions and support for their program. For example, as any observer of legislative appropriation hearings is well aware, legislators, as top policymakers, cannot be confined to questioning corrections agency staff members about matters of overall program effectiveness. The literature on public budgeting contains many examples of the operational detail and program minutia into which legislators are fond of delving (Anton, 1966; Turnbull, 1967; Wildavsky, 1979). For this reason, the approach taken in this book is not to prescribe certain types of performance information for some users and other types for other users. The approach is to help users of performance information select performance measures, measurements, and comparisons suited to their own needs, however they choose to define those needs.

REVIEW OF HOW THE PROPOSED APPROACH BUILDS ON PAST CORRECTIONS MEASUREMENT WORK

This study builds on and reacts to previous and on-going corrections measurement work. For example, there have been numerous evaluation studies designed to measure the success or failure of particular corrections procedures or treatments.

The oft-cited work of Lipton, Martinson and Wilks (1975) reviews 231 such studies. Although these studies provide numerous measures, none of the studies--singly or together--provides a comprehensive measurement approach. Each study concentrates specifically on certain correctional practices and their impacts. The measures are primarily outcome-oriented. Lipton et al.'s seven categories of outcome measures address the following issues: "recidivism, institutional adjustment, vocational adjustment, educational achievement, drug and alcohol readdiction, personality and attitude change, and community adjustment." (Lipton et al., 1975, 12-14) In our work, we attempt to expand the definition of performance measurement beyond the impact-orientation emphasized by the treatment studies reviewed by Lipton et al. Outcome is included as an essential part--but only a part--of the comprehensive approach to performance measurement. (See Table IV-1.)

Two recent methodological studies focus upon corrections outcome measurement. Michael Maltz (1980) concentrated upon the problems and issues surrounding one outcome measure--recidivism. Robert Willstadter (1979) developed and tested an instrument to measure another outcome--community adjustment of ex-offenders. Both of these outcome measures fit into one dimension in our approach to performance measurement.

Finally, Jack Reynolds (1979) has recently completed a manual for probation and parole agencies to use when assessing program effectiveness. The measures suggested focus on the process of case management as well as program outcomes.

Two works that provide more comprehensive approaches to corrections performance measurement are: 1)the standards compiled by the American Correctional Association (ACA, 1976 and 1977); and 2)the prison/parole monitoring project of the Urban Institute (Burt, 1980). The ACA approach is all-encompassing in that it presents what it considers to be an exhaustive list of activities in all correctional alternatives (prisons, probation, parole, jails, and community-based programs) and standards by which those activities may be judged. ACA standards are primarily process-oriented. Measures derived from the standards concentrate for the most part on the immediate product of the corrections process--such as number of hours spent counseling, types of therapy (or supervision) provided, number of clients served/per corrections officer, and so on. The longer-term results of corrections programs, such as treatment success or failure, or client behavioral modification (social adjustment, drug/alcohol rehabilitation), are not included as concerns of ACA standards.

The Urban Institute, on the other hand, emphasizes outcome--in both the short- and the long-term. As pointed out in its final report, the Urban Institute recommends measures that address the following goals of prisons and parole: security; humane treatment--life and safety; humane treatment--health; humane treatment--programs and services; and post-release success. Areas of performance that are covered by this selection of measures extend from the assessment of routine prison conditions (overcrowding, safety, prison atmosphere), to the measurement of prison treatment results (basic skills, vocational skills medical and mental health services) to the evaluation of post-release success (employment, recidivism).

Our work combines the process-orientation of the ACA and the outcome-approach of the Urban Institute. Starting with the activity level, we attempt to link the activities to their potential outcomes over time. Measures are then proposed for each activity and impact. The measures are chosen based on what people want

to know about performance and what activities are selected for analysis. Chapter IV outlines in detail how the scope of performance measurement can be defined and how the appropriate questions about performance can be identified. The most important feature of the proposed performance measurement framework is its adaptability to a choice of performance dimensions. The dimensions selected depend on one's measurement-information needs.

MAJOR CONCERNS TO BE DEALT WITH IN THIS BOOK

A major concern of our performance study is that the proposed framework be utilized. As one anonymous reviewer of our work stated, "if the users shun a serious attempt at developing and utilizing effective measures of performance, this study and the ones to follow will have been almost wasted." To ensure that the approach is accepted by potential users, this reviewer suggested that potential measures of performance:

- be stated in words and concepts that are understandable to practioners.*
- not use a lot of staff time to accumulate necessary data.*
- be a positive aid to making good resource allocation decisions.
- have the ability to give clues not only to the question 'what works' but also 'what works, for whom and under what conditions'.
- look at quality of performance.*
- look at outputs in such a way that assist and not complicate analysis of evaluation both before and after implementation.
- sort out programs that although may be efficient, are not very effective.*
- are timely -- taking into account that users are often under constraints to make program and budget recommendations with comparatively short time horizons.*
- allow for meaningful program comparison across a variety of measures.*
- are compatible with measures of performance from the rest of the criminal justice system allowing for meaningful systemwide studies.*
- fit in with established or developing decision-making/resource allocation systems.
- appraise categories of programs.
- operate well under changing circumstances and uncertain conditions.
- assess a range of effects -- for example, criminality, cost, and community adjustment measures.*
- focus on results, not activities.
- assess not only program costs and benefits but how they change at the margins.*
- not be costly to use.*
- are effective under the pilot program study conditions.
- are designed both for monitoring day to day performance, and for evaluating programs.

These criteria are guidelines for the designer of performance measures to follow, in order to guarantee the usefulness of the product. Those criteria which are asterisked (*) are ones that we specify in our "typology of measures" (Table IV-1) or "criteria for assessing proposed Measures" (Table IV-2).

The ultimate concern of this book is to respond to the mandate of the study, as outlined by the National Institute of Law Enforcement and Criminal Justice (1978: 9):

> ...identify key functions and factors within each agency and place them in a broad measurement framework...review the range of practices that currently exist within the criminal justice system to create a framework flexible enough to accommodate different styles of operation throughout the country...

The study of corrections performance measurement, as outlined in the following chapters, continually emphasizes the fact that a comprehensive approach to measurement is the goal. In the section on how this book is organized, below, the response to the National Institute's mandate is described, chapter by chapter.

HOW THIS BOOK IS ORGANIZED

For the newcomer to the criminal justice field, Chapter II describes what corrections agencies are and do. The ideas about performance measurement discussed in the chapters that follow are based upon the picture of adult corrections painted by this chapter. Chapter II places adult corrections within the context of the larger criminal justice system, describes the organizational patterns popular in the United States, and summarizes the roles played by the various actors in the corrections subsystem.

Chapter II also discusses goals and the stages of organizational development--two characteristics that affect the performance measures that would be appropriate for a given adult corrections program. The bulk of Chapter II describes what corrections agencies do, i.e., their activities or functions. As one reads the descriptions for community-based programs, probation and parole, and prisons and jails, the great diversity of adult corrections activities and the difficulty of capturing this diversity when developing performance measures becomes apparent.

Chapter III considers a number of issues confronted when thinking about corrections performance measurement. These issues are organized within the major tasks of establishing the scope and focus for the performance measurement system and developing performance measures. Among the issues that need resolution when determining the scope of the measurement system are the following: what effect will goals and theories have upon system design, should the system measure only what corrections agencies can control, and should the measures that both affect and describe performance be included? When developing performance measures, one must consider how one decides what to measure, what dimensions of performance should be measured, whose measurement needs should be served, how one decides which measures to include in a performance measurement system, how measures can be combined to summarize performance.

Chapters IV and V suggest more advanced procedures for corrections performance measurement than those considered in Chapter III. Chapter IV raises issues confronted when using performance measurements--how the problems of implementing controlled experiments ought to be resolved, how measurements ought to be interpreted, and against what benchmarks performance ought to be

judged. Next it discusses models that might be used to describe different dimensions of a program's performance. Finally, Chapter IV presents theoretical and statistical models for identifying the effect of corrections programs upon outcomes of interest, such as post-release criminal activity and employment. Chapter V concludes this exploration of corrections performance measurement theory by laying out an agenda of issues that merit future research.

In summary, this book sets forth a comprehensive but flexible approach to performance measurement. It does not prescribe a list of measures for judging the performance of all corrections programs. Indeed, we assume that there is no single set of measures suitable for all users, uses, and programs. Instead, we provide a framework that individual users can adapt to serve their particular performance measurement needs and priorities.

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CHAPTER II

OVERVIEW OF CORRECTIONS AGENCIES AND PROGRAMS

The purpose of this chapter is to provide background information on correctional agencies and programs along with their relationships to the performance measurement concepts discussed in the remainder of the book. Corrections can be divided into five programs: probation, parole, prisons, jails, and community-based programs. Each of these is discussed in turn in this chapter, with an emphasis on the process of probation and parole and the programs offered by prisons, jails, and community-based corrections. While it is impossible to describe adequately all correctional processes and programs, there are key foundations that can be developed and related to the material in subsequent chapters.

The chapter is split into two major parts, with the first part covering topics of general applicability to corrections and the second part covering each of the five programs. The first part covers the goals of corrections, the relationship of corrections to the rest of the criminal justice system, typical organizational structures of corrections in the states, and the roles of persons in corrections. These are topics which must be considered when developing a performance measurement system aimed at how well an agency or program is doing. The second part of the chapter defines each program, along with giving information on key processes, clientele descriptions, and refinements of the programs. Throughout the chapter, concepts about performance measurement are introduced which will be examined in much more detail in subsequent chapters.

One word of caution is advisable when reading this chapter. The "typical" correctional agency or program does not exist, as there are so many local variations in the correctional field. Practitioners and researchers who read this chapter will recognize many activities which they have seen in their experiences and perhaps some that they have not seen. It is not claimed that any one agency program has all the activities described in this chapter although an attempt has been made to include the major activities. The point is that performance measurement techniques must be sufficiently flexible to adapt to local considerations and the subsequent chapters in this book offer several alternatives for such adaptation.

GENERAL INFORMATION ON CORRECTIONS

Goals of Corrections

Anyone familiar with the history of corrections in the United States knows that a wide range of goals has evolved as practitioners, academicians, policymakers, and other interested parties have struggled with what it is that corrections should be doing. The result has been that many goals have been articulated and conflicting goals can be found within a single state and even within a single correctional program. The following is a typical list of goals for corrections that can be found in the literature. These goals collectively reflect the conflicts which have developed. However, as seen in later chapters,

it is necessary to be able to link program activities with goals and a subset of the following goals will be of benefit in a particular application:

Revenge, in modern interpretation, is the retaliation of the state through incarceration, capital punishment, or some other form of payment by the individual to the society for transgressions.

Restraint may be defined as restricting the individual's freedom of activity. It may range from placing an offender in a small, narrow solitary confinement cell to requiring an offender to report once a month to a probation or parole officer. Probation and parole conditions place limits on the activities of persons under their auspices.

Punishment is defined as taking some set of the freedoms from the individual, such as incarcerating an offender to remove him from society or requiring the offender to report to a community-based facility, or a probation or parole officer. Note that revenge, restraint, and punishment are overlapping concepts with no clear-cut distinctions.

Protection of Society includes activities for preventing crime and reducing the fear of crime. Prisons, for example, protect society by keeping offenders from committing further criminal acts.

Enhancing Justice, for correctional agencies, has to do with bringing about the sentences which have been imposed by the courts or, in the case of diversion, the decisions which have been made by other parts of the criminal justice system.

Restitution is the offender's paying society or the victim an amount offsetting the loss incurred by the offender's criminal action. The payment may be in the form of financial compensation or work or service to the community.

Reform changes the emphasis from revenge and restraint to treatment and rehabilitation. Correctional programs have reform aspects by providing counseling, educational opportunities, and employment assistance.

Reintegration seeks to bring about change in the offender and to stimulate outside community aid to support the individual in moving away from criminal behavior.

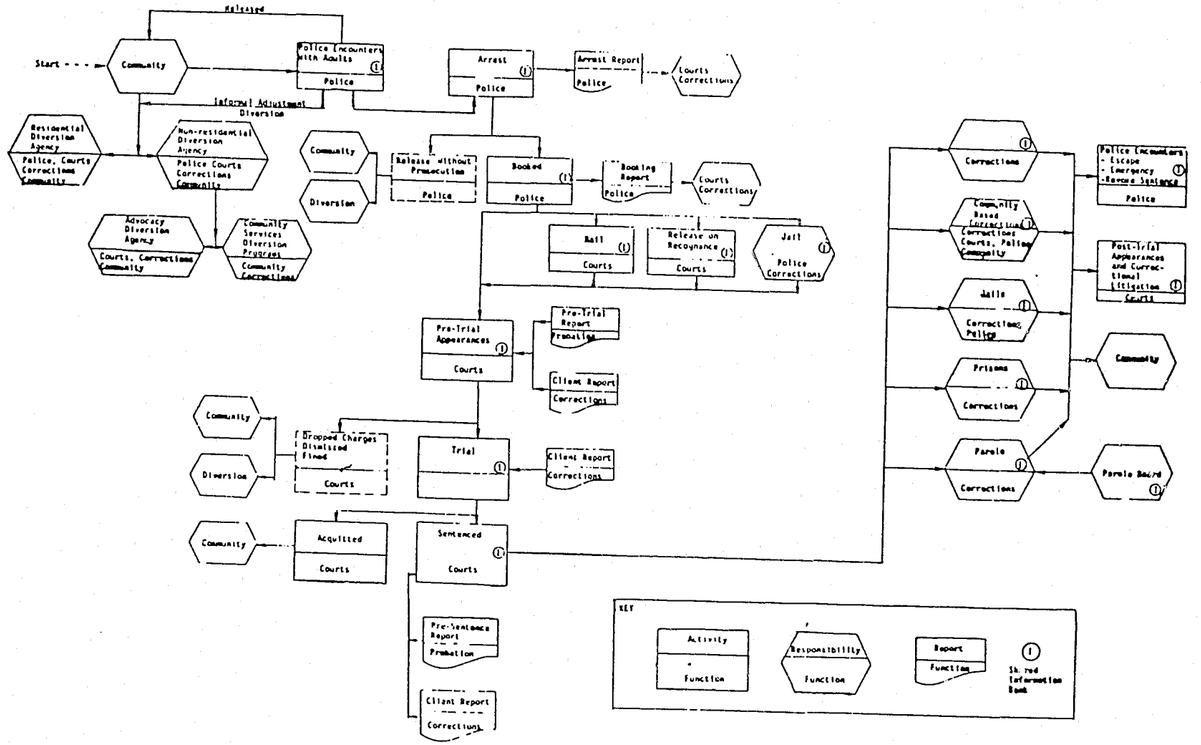
In Chapter III, goals will be discussed from a slightly different viewpoint in order to develop their relationship with performance measurement. Some of the relevant issues are (1) deciding whose goals should be recognized, (2) handling inconsistent goals within the same correctional program, (3) determining the actual goals of a program, and (4) relating performance measures to goals.

Corrections Relationship to the Criminal Justice System

One way to show the relationship of corrections to the criminal justice system is to depict the paths that a person may take through the various subsystems of police, prosecution, courts, and corrections. Figure II-1, which is similar to the well-known flow diagram first presented in the 1967 report by the President's Commission on Law Enforcement and Administration of Justice,

FIGURE II-1

MODIFIED CRIMINAL JUSTICE SYSTEM INTERFACE WITH CORRECTIONAL SUBSYSTEM



shows the relationships between the subsystems with emphasis on the correctional subsystem.

There are several aspects between corrections and the rest of the criminal justice system that are worth highlighting. First, police, prosecutors, and courts to a lesser degree exercise discretion over initially accepting clients. Police can control to a certain extent the number of arrests they make while corrections, on the other hand, is the recipient of the decisions and actions of the other subsystems. It has little choice over the type and volume of clients received, although it may have input on placement (Goldfarb and Singer, 1973), (Schrag, 1971).

Second, Figure II-1 shows the many points at which a person can enter the correctional subsystem. The criminal justice subsystems are becoming more intertwined as the importance of their interrelationships are recognized and as information networks are developed. For example, the probation agency provides the courts with a presentence report. Correctional intake requires police and court data for inmate classification. Police need data from the courts and corrections to keep abreast of who is on probation, parole, or in a community-based facility. New computer applications in criminal justice, such as PROMIS, OBSCIS, and OBTS, further emphasize shared information between sybsystems.

Finally, each subsystem provides services to the other subsystems. The probation presentence report for the courts is one example. Another is the determination of standards for correctional facilities by the court in civil cases brought by inmates (Prigmore and Crow, 1976), and another is the operation of jail facilities by the police in some states. These characteristics help to shape the selection of performance measures between the subsystems or at least an understanding of each other's performance measures.

Organizational Alignments of Correctional Agencies

The majority of states have fragmented organizational structures for correctional functions. For example, jails are operated at the city or county level in forty-two states. Thirteen states have locally operated adult probation departments and all of these have locally operated jails. Ten states have four or more different departments or agencies for providing correctional services. Hawaii, for example, shows the following alignment (ACA Directory, 1979):

Correction Service	Agency
Parole	State Board of Parole and Pardon
Jails and Prisons	Department of Social Services and Housing
Juvenile Probation	Family Court
Misdemeanant Probation	Local

Appendix A gives information on the organizational structure for all states.

A growing number of states have consolidated all corrections services into a single "umbrella" department. Currently, the two most popular forms of umbrella departments are Department of Corrections and Human Resources Agencies. Departments of Corrections combine most state correctional services into an overall agency with the implication that corrections is unique from

other forms of social services or criminal justice activities. Human Resource Agencies include correctional programs as part of an overall mission to deliver social services. These agencies have labels such as "Human Resources," "Social Services," "Health and Welfare," and "Health and Rehabilitation." To date, only Rhode Island, Alaska, and Vermont have placed all corrections services under a single consolidated agency. However, eight other states place all services into a single department with the exception of jails remaining a local operation in four of the states and probation remaining local in the other four.

Several states such as Florida, Georgia, Kentucky, and Maryland have separated adult and juvenile corrections services into two departments. Juvenile corrections services are most likely to be provided at the local level while adult corrections services are provided by the state.

The organizational alignment of a corrections agency has a bearing on performance measures. Whether services are fragmented or consolidated will affect the selection and use of performance measures. Fragmented structures probably present greater difficulties since it may be harder to gain a consensus of the selection of performance measures and to have a uniform application of the measures.

Roles of Persons in Corrections

While the organizational alignment of corrections affects performance measures, the roles and vested interests of the personnel involved in corrections also have a significant impact. The primary distinction in roles is between those who set policy and those charged with implementing policy. The persons in these two groups are likely to have different backgrounds, education, training, experiences, and ambitions which shape their perceptions of corrections and influence their ideas about goals, objectives, and performance measures.

The policymakers, persons generally outside the corrections environment such as elected officials and legislators, are primarily concerned with details of activities and programs. When they appropriate funds for corrections, they look for the overall results and at performance measures related to the highest level of goals such as the safety and well-being of constituents in the community. Policymakers often have influence over the selection of goals and objectives. By control mechanisms, such as funding levels, they can dictate which goals should be attained and the priority of the goals.

Policymakers also include others who are closer to correctional agencies and programs than elected officials and legislators. Judges, researchers, educators, organized groups such as ex-convicts for prison reform, the American Bar Association, and churches have influence on the goals and objectives that correctional agencies establish. While their influence is not direct, they can affect changes in correctional programs and policy.

The correctional workers, those responsible for implementing all outside policy and direction, must be concerned with the day-to-day details of the activities and programs. As a result, they tend to focus more on process measures that indicate how well services are being delivered. They are still concerned with outcome measures, because they must be accountable for the final

results, but their primary concern is with process. The correctional personnel generally adhere to specific job descriptions which prescribe limited roles with task-oriented functions.

This description is obviously a simplistic explanation. While the differences in perspective and concern with performance measures are clearest at the ends of the hierarchy (from elected official to line worker), the administrators, being in the middle of this continuum, must be capable of understanding and facilitating the perspectives and goals and objectives of both the policymakers and the corrections personnel. Correctional administrators vary considerably across the country in terms of their education and experience. Some have moved up through the ranks and their practical experiences influence their philosophy on correctional programs and on performance measurement. Different viewpoints can be found in administrators appointed from outside the correctional system.

Overview of Positions in Corrections

Figure II-2 is a listing from the 1979 ACA Directory of positions which can be found in probation, parole, jails, prisons, and community-based corrections. Many of the position titles reflect the main responsibilities of the position and for the interested reader, Appendix B contains a more complete description of each major position. Figure II-2 demonstrates the spectrum of possible responsibilities and duties in correctional programs as well as the fact that the same position can appear in more than one correctional agency type although the actual position responsibilities may or may not be the same.

All of the positions are obviously not found in all correctional agencies. For example, a small department will not have such specialist positions as grants coordinator, research and evaluation specialist, and litigation specialist. The agency or program activities will dictate the positions needed. Performance measurement is primarily concerned with program activities and does not include the assessment of individual performance. The importance of these positions is that they are a primary data source for quantifying the level of activities in the agency or program and in many cases, the outcome of the activities.

SPECIFIC DESCRIPTIONS OF CORRECTIONAL AGENCIES

With this background, it is now possible to switch from the general overview of corrections to detailed descriptions of probation, parole, jails, prisons, and community-based corrections. The following sections are devoted to each agency type and include the primary functions, the type of clientele, and a description of the process associated with the agency. References are provided which contain further information on the subject and indeed, textbooks are available in each subject area. The aim of the following sections is to lay the necessary groundwork for the concepts of performance measurement which appear in later chapters.

Probation and Parole

Many authors writing about corrections have provided their own definitions

FIGURE II-2

POSSIBLE CORRECTIONS POSITIONS BY AGENCY

Position	Type of Agency				
	Probation	Parole	Prison	Jail	Community-Based Corrections
ADMINISTRATOR					
Director/Chief Officer	*	*	*	*	*
Deputy Administrator	*	*	*	*	*
HEARINGS/COURT COORDINATOR	*	*	*	*	
Hearings/Court Agent	*	*	*	*	
EXECUTIVE MANAGERS/DIVISION DIRECTOR	*	*	*	*	*
Management and Organization Director	*	*	*	*	*
Personnel Director	*	*	*	*	*
Personnel Development/Training Coordinator	*	*	*	*	*
Affirmative Action Coordinator	*	*	*	*	*
Business and Fiscal Director	*	*	*	*	*
Research and Evaluation Director	*	*	*	*	*
Support Services Director	*	*	*	*	*
Food Services Director			*	*	*
Maintenance Director			*	*	*
Public Relations Director	*	*	*	*	*
Pre-Trial Release Director				*	
Contractural and Procurement Services Director			*	*	*
Grants Coordinator	*	*	*	*	*
Physical/Mental Health Director			*	*	*
Treatment Director	*	*	*	*	*
Industrial/Agricultural Director			*		
Community Services Director	*	*	*	*	*
Research & Evaluation Director	*	*	*	*	*
Classification Director	*	*	*	*	*
Security/Transportation Director			*	*	

FIGURE II-2 (cont'd.)

Position	Type of Agency				
	Probation	Parole	Prison	Jail	Community-Based Corrections
MIDDLE MANAGEMENT DIRECTOR	*	*	*	*	*
Court Services	*				
Field Services	*	*			
Case Flow Coordinator	*	*	*	*	
Criminal Justice Coordinator	*	*	*	*	
Diagnostic/Receiving Director	*	*	*	*	
Inmate Complaint Officer			*	*	*
Litigation Specialist			*	*	
Volunteer Coordinator	*	*	*	*	*
Visitor Coordinator			*	*	
Lawyer Coordinator			*	*	
SUPERVISORY MANAGEMENT DIRECTOR	*	*	*	*	*
Second Line Supervisor (Program Design Level)	*	*	*	*	
Security and Control Supervisor			*	*	
Support Services Supervisor			*	*	
Maintenance Supervisor			*	*	
Food Services Supervisor			*	*	
Clerical Supervisor			*	*	
Program Supervisor			*	*	
Front Line Supervisor (Program Operation Level)	*	*	*	*	
Field Services Supervisor	*	*			
Criminal Justice Service Coordinator	*	*			
Case Management Specialist	*	*			
Team Leader	*	*			
Custodial/Correctional Officer Supervisor			*	*	
Counseling/Treatment Supervisor			*	*	
Receiving and Records Supervisor			*	*	

FIGURE II-2 (cont'd.)

Position	Type of Agency				
	Probation	Parole	Prison	Jail	Community-Based Corrections
SUPERVISORY MANAGEMENT DIRECTOR (cont.)					
Industrial Supervisor			*		
Agricultural Supervisor			*		
Vocational Trades Supervisor			*		
Religious Supervisor			*		
Academic Supervisor			*		
Medical Services Supervisor			*		
Library Supervisor			*		
Recreation Supervisor			*		
Work Release Supervisor			*	*	
Pre-Trail Release Supervisor				*	
CORRECTIONAL PERSONNEL	*	*	*	*	*
Generalist	*	*			
Investigators	*	*			
Controls Specialist	*	*			
Assessment/Classification Officer	*	*	*	*	*
Correctional Officer/Custodial Officer			*	*	
Service and Treatment Specialist	*	*	*	*	*
Caseworkers/Social Workers	*	*	*	*	*
Counselors/Treatment Staff Members	*	*	*	*	*
Referral/Resource Specialist	*	*			
Employment Specialist	*	*	*	*	*
Vocational/Educational Specialist	*	*	*	*	*
Institution Adjustment Counseling Staff			*	*	
Psychologists			*	*	*
Psychiatrists			*	*	*
Group Counselors	*	*	*	*	*
Community Adjustment Counselor	*	*			*
Health Care Staff			*	*	*
Nurses			*	*	*

FIGURE II-2 (cont'd.)

Position	Type of Agency				
	Probation	Parole	Prison	Jail	Community-Based Corrections
CORRECTIONAL PERSONNEL (cont.)					
Nurse Practitioners			*	*	*
Paramedics			*	*	*
Physicians			*	*	*
Dentists			*	*	*
Dental Hygienists			*	*	
Medical Specialists			*	*	
Podiatrists			*	*	*
Gynecologists			*	*	
Lab Technician	*	*	*	*	*
Academic Specialists			*	*	*
Teachers/Professors			*	*	*
Vocational Trainers			*	*	*
Industrial Managers/Trainers			*		
Laundry Manager			*	*	
Chaplain/Religious Leaders			*	*	*
Work Release Coordinator			*	*	
Volunteer Coordinator	*	*	*	*	*
Recreational Coordinator			*	*	*
Special Services Coordinator	*	*	*	*	*
Auxiliary Workers	*	*	*	*	*
Secretarial/Clerical	*	*	*	*	*
Volunteers	*	*	*	*	*
Records Clerk	*	*	*	*	*
Statistics Clerk	*	*	*	*	*
Data Processing Specialist	*	*	*	*	*
CLIENTS					
Residential	*	*	*	*	*
Non-Residential			*	*	*
	*	*			*

of probation and parole along with accompanying descriptions. For the purposes of performance measurement, the definitions by Solomon (1976) and Allen and Simonsen (1975) seem most appropriate. Solomon (1976) has defined probation as a program of the criminal justice system by which a person adjudicated or found guilty of a crime either by verdict or guilty plea, is released by the court without commitment to a correctional institution, subject to conditions set by the court and to the supervision of a probation service. Allen and Simonsen (1975) have defined parole as a treatment program in which an offender, after serving part of a sentence in a correctional institution, is conditionally released under supervision and treatment by a parole service. Definitions of probation and parole by other authors are equivalent, for the most part, to these definitions.

There are both similarities and differences between probation and parole. For example, both are alternatives to incarceration. Probation is a sanction by which offenders are not placed in institutions but instead are supervised by the community, while parole implies that the person has been incarcerated in a correctional institution for some period of time before being conditionally released under supervision within a community. There are basic differences in backgrounds between probationers and parolees. Parolees are more likely to be repeat offenders having a history of association with the criminal justice system, while probationers include many first offenders. Probationers will usually not have committed as serious offenses as parolees. Because parolees have been away from their communities for some period of time -- usually 1 to 3 years -- they have different adjustment problems than probationers. The parolee may be returning to a changed local environment with perhaps a different family life, different friends, and different physical surroundings. Parole should also not be interpreted as a reduction in a sentence imposed by the court. It affects where the sentence is to be served but not its duration. Conditions of parole may be as demanding as those experienced in the correctional institution and may present special problems for the parolee when pressures occur which formerly have led to the commission of offenses.

There are also differences in the decisionmaking processes. Parole is almost always an administrative decision by a Parole Board within the corrections system, while the granting of probation is a court function. In either case, information about the offender is usually developed into a formal report and presented to the decisionmaking authority which can then determine whether to release the person to supervision in the community under special conditions. Violation of these conditions means that the person can be placed in, or returned to, a correctional institution. It should be noted, however, that the two revocation procedures are not the same.

Basic Functions of Probation and Parole

Probation and parole have many similar functions at the operational level. Probation and parole officers act as advisors to and agents of the court or parole authority. They are a combination of investigators and counselors at the very personal level of interacting with offenders who have entered the criminal justice system. They must also act within an authoritative setting with the boundaries of authority derived from the legal basis of the court and parole authority.

The three functions which probation and parole have in common are (1) Investigation, (2) Supervision, and (3) Services to Probationers and Parolees. Probation and parole officers conduct investigations and prepare written reports to the court or parole authority to be used as a guide for disposition of the case.

Probation and parole officers also supervise probationers and parolees on an individual basis. They have an overriding concern that the person not violate the conditions of probation or parole. From the strict legal viewpoint, violations must be reported to the court or parole authority for review of rehearing and disposition. In practice, the officers exercise considerable latitude in what is reported and use that latitude to keep the probationer or parolee in the community.

Services to the probationer or parolee could be viewed as part of the supervisory functions. Probation and parole officers assist their clients to modify attitudes and conduct themselves as productive members of the community. Services can include contacts such as home visits with family members, individual and group counseling, vocational and education counseling, and substance abuse treatment. Knowledge of community resources is obviously of importance to probation and parole officers since they may have to assist their clients in obtaining housing, medical attention, child care, legal advice, transportation and financial assistance.

Probation and Parole Resources

In 1977, there were approximately 56,000 employees working in nearly 4,000 probation and parole offices throughout the country. Nearly two-thirds of these personnel were state employees, one-third were local. Approximately 60 percent of the personnel were involved in counseling, 30 percent were clerical employees, and 10 percent were in administrative positions (Bureau of Census, 1977), (U. S. Department of Justice, 1978).

The average staff size for a probation and parole office is approximately 14 employees (U. S. Department of Justice, 1978). Only three percent of the agencies have greater than 100 employees, while one-fourth of the agencies have fewer than five employees.

There have also been studies on the amount of time that probation and parole officers spend on various activities. A typical study described by Carlson and Parks (1979) was conducted by the Virginia Division of Probation and Parole (1976). Officers in Virginia serve both their local judges as probation officers and the Virginia Parole Board as parole officers. For December 1975, all officers reported their activities in 15-minute intervals. The results were as follows:

Activity	Percent of Time
Investigations	19%
P.S.I. Investigations	15%
Other	4%
Travel	12%
Supervision	26%
Probation Face-to-Face	6%
Other Probation	12%
Other Supervision	8%
Other	43%

The "other" category accounting for almost half of the staff's time includes staff meetings, training, administrative duties, public relations duties, and non-working time. Information such as this on the amount of time spent on various activities is important in a performance measurement system. Standards can be established on how much time is collectively devoted to each activity and these standards can become a part of the performance measurement system. Outcome measures on activities can also be related to the amount of time devoted to the activities.

The Probation Process

As defined earlier, probation is a program in which the adjudicated offender remains at liberty, subject to conditions imposed by the court, under the supervision and guidance of a probation officer. Courts have the power to suspend sentence and allow the probation program an opportunity to facilitate the social readjustment of the offender.

The probation process can be described in sequential fashion beginning with a Presentence Investigation (P.S.I.) report on the defendant and the case. The P.S.I. report is submitted to the court at which time the decision for probation is made. Probation conditions are then set and the person is assigned to a probation officer who initially develops a supervisory plan along with rehabilitation activities. The plan is executed by providing the probationer with the necessary services and support from the community resources. During the probation period, progress of the probationer is monitored and the supervisory plan is modified as needed. Probation is terminated either after successful completion of the probation period or by revocation due to a violation of the probation conditions. Chapter III gives a more detailed flow of the probation process in the form of a causal diagram which is a particularly useful technique in relating sequential processes to performance measurement. In the remainder of this section, each step of the sequence will be described in more detail.

The P.S.I. will generally contain the following elements (Solomon, 1976):

- Legal Data
- Prior Record of Defendant
- Biographical Data Including Marital History
- Official Version of the Offense
- Defendant's Version of the Offense
- Medical/Drug History
- Family History
- Defendant's History/Education
- Other Factors Related to the Defendant or Case
- Evaluation
- Recommendation

In practice, the recommendation section may or may not be included in the report, depending on the local preferences of the judges.

The role of the probation officer is obviously important in this initial stage of the probation process. Carter (1967) has performed experiments on what elements are considered by probation officers in developing the P.S.I. report. He showed that the description of the offense and the prior

record of the defendant are almost always considered as critical elements in the report to the court. Other items of importance are psychological and psychiatric data, the defendant's statement, the defendant's attitude, employment history, family history, and age.

Other researchers have discovered some inherent problems with P.S.I. reports. One is that heavy caseloads of the probation workers may prevent a thorough and complete investigation. Further, many offices use pre-printed forms for the reports and a tendency may develop for the court to depend on only a few areas of the form such as number of prior arrests to make the probation decision. Finally, the number of practical alternatives for the court is limited since the judge basically must select among probation, jail or imprisonment. Other factors in the criminal justice system such as overcrowding conditions may override the recommendation in the P.S.I. report.

After a person is placed on probation, the second major function, probation supervision, comes into play. The probation officer has a supervisory responsibility both to the court and to the probationer. These conditions imposed by the court may be divided into general conditions applicable to all probationers and special conditions imposed on a given probationer. From the performance measurement viewpoint, these are important since they serve as the basis against which "successful" or "unsuccessful" probation is determined. From the legal viewpoint, the probation officer has a responsibility to oversee the probationer's actions and to report any major violations of the conditions to the court for further action. Indeed, Klockars (1972) found that some probation officers view themselves as "law- and rule-enforcers" with a basic philosophy that authority and rule abidance are keystones to social adjustment and ought to be enforced during the probation period.

The more usual situation, however, is that probation officers view themselves in a therapeutic role in which probation is a treatment program and they become involved in a wide variety of services to the probationer. A partial list of services includes: employment assistance, individual and group counseling, vocational counseling, substance abuse treatment, housing assistance, medical attention, legal advice, and financial assistance. Probation officers must be aware of the resources in the community and must be able to use them effectively. National standards for corrections have encouraged the development of working relationships with community resources and there has been a shift in recent years from primarily counseling and surveillance activities to that of marshalling and coordinating community resources. These have included employment resources for adults (private industry, labor unions, and employment services), educational resources (adult basic education, vocational training, and commercial training schools), social welfare services (mental health services, neighborhood centers, and private social service agencies), and other relevant community organizations (ethnic and cultural groups, recreational groups, and religious organizations).

The final stage of the probation process is the termination of the sentence either through successful completion of the probation or revocation because of violation of probation conditions. A violation of conditions is termed a "technical violation" and even though the courts must perform the revocation, the recommendation lies with the probation officer who therefore has considerable power in the process. In practice, technical violations do not account for the majority of revocations and what generally happens is that probation officers

will use the threat of revocation as a tactic with the probationer.

There are many other factors which influence the supervisory role of probation officers, including the agency's budget, the caseload of probation officers, organizational structure of the department, and individual philosophies of probation officers. The caseload of probation officers has been the subject of many studies but there is still no agreement on the "correct" ratio of presentence investigators to cases under supervision or "optimal" caseload size. For many years, a standard of 50 cases was thought to be the maximum number of cases for a probation officer to carry but no empirical studies were ever performed in developing this standard. A caseload size of 35 was recommended in 1967 by the President's Commission on Law Enforcement and Administration of Justice, but it too was without empirical foundation. The question of caseload size remains open with no studies being able to relate caseload size to eventual probation success.

The Parole Process

Parole is a form of conditional release granted after a prisoner has served a portion of the imposed sentence in a correctional institution.[1] It is generally granted by an administrative agency on the basis of such factors as the prisoner's adjustment to imprisonment, apparent readiness for release, amount of time served, age, and nature of the offense. The parolee is subject to a variety of conditions and is assigned to a parole officer for supervision and assistance. Violation of parole conditions means a return to imprisonment while successful parole allows the person to continue to participate in the community.

The history of parole is closely tied to the development of indeterminate sentences in this country. Without going into the long history of determinate and indeterminate sentences, the point is that many variations now exist in state laws. Glaser, Cohen, and O'Leary (1966) have identified the following practices:

- Both the maximum and minimum terms are fixed by the court.
- Both the maximum and minimum terms are fixed by the court, but the minimum is not to exceed a fraction of the maximum.
- The maximum term is fixed by the court; the minimum is fixed by law.
- The maximum term is fixed by law for each offense, but the minimum term is fixed by the court.
- The maximum and minimum sentences are fixed by law for each offense.
- The maximum term is fixed by law for each offense, and there is no minimum sentence, but the minimum term set by the parole board at an early hearing is the equivalent to a minimum sentence.
- The maximum sentence is fixed by the court, and there is no minimum sentence.

[1] Parole should not be confused with mandatory release which is a conditional release mandated by statute when an inmate has accumulated "time off" for good behavior or for other reasons such as work credits. Parole officials normally do not participate in the mandatory release process except perhaps as a reviewing authority. Mandatory release does include a provision for the parole authority to provide supervision for a period of time as though the offender were on parole.

- The law fixes the minimum sentence, the maximum period before first parole, and the maximum sentence.
- The law prescribes that the inmate shall be under correctional supervision until he reaches a given age, unless discharged from the sentence earlier, and then he may be paroled at any time.

Carter, McGee, and Nelson (1975:204) have summarized the history of indeterminate sentences as follows:

> The legislatures set upper and lower limits or absolute lengths of sentences which may be imposed by courts for criminal offenses. The courts make specific decisions on each individual case within the parameters of the law. The paroling authority may exercise discretion in whatever leeway is left when the legislatures and courts are through; the amount of this discretion or decisionmaking varies substantially by jurisdiction.

The discretion influences the parole process in a particular state, which in turn affects the performance measurement system. The developer of a performance measurement system must be aware of the legal and discretionary powers which the parole board has and the manner in which these powers are used.

The Paroling Authority

Solomon (1976) states that there are now 53 parole agencies with each state having a parole agency plus the Federal Board of Parole, one in the District of Columbia, and the California Women's Board of Terms and Paroles. The paroling authority is known as the Parole Board or Board of Parole in 25 of the 53 jurisdictions; as the Board of Paroles and Pardons in 9 jurisdictions; as the Board of Probation and Parole in 8 jurisdictions; and by different names in the remaining 11 jurisdictions. In the remainder of this book, the term Parole Board will be used to refer to these agencies.

Three organizational models for parole have evolved: the institutional model, the autonomous model, and the consolidated model. The institutional model is found in juvenile corrections and places the parole process with the staff of correctional facilities. Parole becomes a series of decisions closely tied to institutional programs. The institutional model is based on the premise that decisions are best made by individuals most familiar with the inmate. Criticisms of the institutional model are that the arrangement can make for disparate decisionmaking and that decisions can be influenced by other factors such as overcrowding and discipline rather than the needs of the inmate.

The autonomous model places the Parole Board within an independent agency not associated with a particular institution. This arrangement has also been criticized on the basis that such independent boards are insensitive to institutional programs and do not support particular programs. It is also alleged that these boards do not develop insight into given cases and make decisions on inadequate criteria, with the end result that too often persons are paroled who should not be and others who should be paroled are not.

The consolidated model seeks to combine the best features of the two others by placing the Parole Board within the larger state agency or Department of Corrections. The model is partially a result of a drive toward centralized administration in the correctional field. With the consolidated model, the Parole Board remains an independent decisionmaking body within the larger department, is still sensitive to institutional needs but is not under the direct control of the institution.

Only the independent and consolidated models are found today in adult corrections. O'Leary and Hanrahan (1976) show the trend in the following changes from 1966 to 1972 to 1976 in the 50 states:

	Number of Jurisdictions		
	1966	1972	1976
Autonomous Agency	40	20	25
Larger State Agency or Department of Corrections	10	30	25

Between 1966 and 1972 there was a movement away from the autonomous agency toward the consolidated model. By 1976, however, the trend had changed slightly, with states evenly split between the two types of models.

O'Leary and Hanrahan (1976) also report a trend toward full-time rather than part-time board members:

	Number of Jurisdictions[a]		
	1966	1972	1976
Full-Time	24	28	30
Part-Time	25	18	18
Mixed	3[b]	6	4

[a]Figures include the District of Columbia and the U.S. Department of Parole.

[b]No information is available on these boards.

The change to more full-time members appears to be due to the increasing complexity of the parole process. An increased volume of cases and the need for more standardized approaches to parole decisionmaking have aided the trend. In most states, the governor has the power of appointment to the Parole Board. In some states, the appointment is with the advice and consent of the state legislature and in a few states, the governor appoints from a list of recommendations compiled by another agency.

Parole Boards have been criticized for having too large a caseload of parole hearings per day. The American Correctional Association has established a standard of 15 hearings per day and the National Advisory Council on Standards and Goals a standard of 20 hearings per day. O'Leary and Hanrahan (1976) report a general decrease in hearings per day but most states did not meet the established standards:

Average Number of Cases	Number of Jurisdictions	
	1972	1976
No Hearings	3	2
1-19	10	17
20-29	13	13
30-39	15	12
40 or more	11	8

Models Of Decisionmaking

It has already been stated that the Parole Board in making its decisions looks for changes in the inmate. Key factors in the decision include psychological change, participation in institutional programs, institutional adjustment, criminal record, prior community supervision, and parole plan. Other factors such as the seriousness of the offense and the board's perceptions of the seriousness of potential offenses may also enter into the decision. For example, Parole Boards are usually conservative when dealing with inmates having assaultive tendencies as the board may feel a need to protect society which overrides the institutional goal of rehabilitation. The length of time served is also considered in the decision. Initial hearings may occur after an inmate has served only a short period of time, perhaps six months. Even if the inmate meets many of the parole criteria, the Parole Board may want more time served before granting parole. Finally, Parole Boards are usually sensitive to public opinion and public criticism. Parole decisions may reflect the mood of the public at a particular time rather than a rational decisionmaking process.

In recent years there has been research -- particularly by the U. S. Board of Parole -- with the use of statistical prediction methods in parole decisionmaking. Because these statistical prediction models are especially adaptable to performance measurement systems, it is worthwhile to summarize the research that has been done. Other models and their applications in performance measurement are discussed in Chapter IV.

The parole decisionmaking models began with the analysis of the actual violation rates of parolees over an historical time period to develop tabulations on the success and failure rates of the parolees.

The key to the statistical prediction methods is to relate the probability of success or failure on parole to the characteristics of the parolees. Gottfredson, et al. (1975) have been the pioneers in developing this "actuarial base" approach for the U. S. Board of Parole. Their initial study showed that the following factors were important in determining parole success or failure:

- Commitment offense did not involve auto theft.
- Subject had one or more codefendants (whether brought to trial with subject or not).
- Subject has no prior (adult or juvenile) incarcerations.
- Subject has no other prior sentences (adult or juvenile) -- i.e., probation, fine, suspended sentence.
- Subject has not served more than 18 consecutive months during any prior incarceration (adult or juvenile).
- Subject has completed the 12th grade or received G.E.D.

- Subject has never had probation or parole revoked (or been committed for a new offense while on probation or parole).
- Subject was 18 years old or older at first conviction.
- Subject was 18 years old or older at first commitment (adult or juvenile).
- Subject was employed, or a full-time student, for a total of at least six months during the last two years in the community.
- Subject plans to reside with his wife and/or children after release.

Each time an item is checked for a potential parolee, one point is added to a total score. The scores fall into one of four risk classes: Very good (9-11), good (6-8), fair (4-5), and poor (0-3). These scores are called "salient factor scores" and are related to offense seriousness and average time served before parole in the following manner:

Average Total Time (in months) Served Before Release

	Salient Factor Score			
	9-11 (Very High)	6-8 (High)	4-5 (Fair)	0-3 (Low)
A--Low Severity[2]	6-10	8-12	10-14	12-16
B--Low/Moderate Severity	8-12	12-16	16-20	20-25
C--Moderate Severity	12-16	16-20	20-24	24-30
D--High Severity	16-20	20-26	26-32	32-38
E--Very High Severity	26-36	36-45	45-55	55-65

This procedure has been modified since the initial research but the development from an actuarial basis remains the foundation of the procedure. The approach has been adopted by the U. S. Board of Parole as a guide in making the parole decision. Its developers believe that it enhances the objective of providing fairness to the inmates which appear before the board.

There has been increasing interest in the statistical prediction model and it can be expected that implementation in many states will occur. The statistical prediction model has the advantage to performance measurement that it is more quantifiable than other methods. A researcher could conceivably implement such a system to state needs and determine its success by collecting data on parolees released under the system.

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[2]Low Severity includes minor theft; walkaway (escape without use of force); immigration law; alcohol law. Low/Moderate Security includes possession of marijuana; possession of heavy narcotics, less than $50; unplanned theft; forgery or counterfeiting, less than $50; daytime burglary. Moderate Severity includes vehicle theft; forgery or counterfeiting, more than $50; sale of marijuana; planned theft; possess heavy narcotics, more than $50; escape; Mann Act, no force; Selective Service. High Severity includes sell heavy narcotics; burglary; weapon or nighttime violence; sexual act, force. Very High Severity includes armed robbery; criminal act, weapon; sexual act, force and injury, assault, serious bodily harm; Mann Act, force.

Parole Supervision

Parole supervision is philosophically and operationally similar to probation supervision. Indeed, in many states, parole and probation supervision fall under the same department. Parolees have many of the same requirements for supervision as probationers. However, there are some differences which should be mentioned. The parolee is likely to have a more difficult adjustment period if for no other reason than the fact that the parolee has been absent from the community for an extended period of time ranging from one year to as much as two or three decades. The parolee may find that everything has changed--community, family relationships, social relationships and physical environment. The parolee's label as "ex-con" may mitigate against an easy transition to his new status. Employment is a particular concern since the adult parolee is now older and needs a job to make the parole successful.

Recognizing these needs, parole in many communities overlaps with community-based correctional activities. Parole can start with work or educational release, weekend furloughs, and extended family visitation. These initial release programs permit inmates to leave the institution to seek employment and to work in the community with return to the institution during nonworking hours. A parolee may be released to a halfway house which acts as a transition between imprisonment and community. The halfway house provides a new physical setting with assistance to the parolee in making adjustments.

Prisons

This section deals with prisons which are classified as state operated correctional facilities for convicted adult defendants. States may have only one or two such institutions within their boundaries or they may have several to serve different classes of offenders. Because of the heterogeneous nature of the state prison population, the trend over the years has been to establish specialized institutions. Carter, McGee, and Nelson (1975:122-3) describe the usual pattern found in populous states:

- One institution for adult women.
- One or two for young adults above the juvenile court age with most of its residents being under age 25. Emphasis in such a facility will usually be on education and vocational training.
- One high security prison for long-term, high-risk cases, most of whom will be men with extensive criminal histories.
- One or more open type institutions for men who represent little risk of escape or of future crimes of violence.
- One or more medium-security institutions for average types of men whose risk of escape or rebellion, while real, does not present any unusual threat to public safety. The bulk of a state's prison population is likely to fall in this category. Hence, this type of prison can be replicated in several convenient locations in the state.
- One or two specialized mental hospital type security prisons for the mentally ill prisoner and for a miscellaneous classification of inmates who are not psychotic by medical definition nor insane according to legal standards, but who nevertheless behave in irrational, unpredictable, and often dangerous ways.

This arrangement has the advantage that different classes of inmates can be separated from each other and different programs can be established for particular classes of inmates. There are, of course, many exceptions to this arrangement. Arizona, for example, has only one state prison for adults with psychotic inmates of whatever age or sex transferred to the state mental hospital. Even in the prison, however, younger inmates are kept in a separate compound and women are housed in a separate building across the road from the main prison.

Another frequently found situation is that prisons will have farmland or forestry camps near them. Farms are common in the South and Midwest, while forestry camps can be found in California, Washington, and Pennsylvania. These areas will be worked by members of the prison population with the usual manpower strength being between 60 to 100 workers, although some will have as many as 600 workers.

The traditional prison is known as a "closed" prison which, as the name implies, means that the prison structure has an emphasis on security to prevent escape such as high walls or chain link fences, elevated guard towers, and security windows. The traditional prison design is found in virtually all medium and maximum facilities but there is considerable variation from prison to prison in actual architectural design. The "open" plan is characterized by the absence of these physical constraints and is usually found in minimum security prisons. Forestry camps, farm workers' facilities, and prerelease centers for those soon to be paroled or discharged fall under the category of open facilities. Examples of open facilities include the Correctional Center at Fox Lake, Wisconsin; the State Penitentiary at Vienna, Illinois; and the California Institution for Men at Chino.

The 1974 census of state correctional facilities gave the following data by type of prison:

Type of Prison	Number of Institutions	Inmates	Custodial Personnel
Closed Prison	172	118,708	26,357
Open Prison			
Prison Farms	41	25,402	3,247
Road Camps	80	6,369	1,277
Forest Camps	41	2,483	329
Other Prisons	67	16,279	3,335

In addition, the census found 33 classification or medical centers and 158 community centers.

The Prison Clientele

At the risk of oversimplification, the following represents the main characteristics of the prison population:

- Approximately 95 percent are male;
- The median age is about 30 years and the median age at admission is 27 to 27.5 years;

- Most inmates come from poor and socially disadvantaged families;
- Most are below average in educational achievement;
- Most have inadequate vocational skills and abilities;
- Most have been in juvenile correctional facilities.

Some of the characteristics have obvious connections in a social context. For example, persons from poor families generally have lower educational achievement and lower than average vocational skills. With regard to previous associations with the correctional system, Carter, McGee, and Nelson (1975) report that only one in eight of the male prison population has had no previous commitment to any juvenile correctional institution, local jail, or prison. Nearly half have previously been sentenced to jail or to a juvenile facility and nearly 40 percent have been in prison before.

Prison Goals

It is generally believed that prisons have both custodial and rehabilitation goals. In any particular prison, one goal may predominate, but a treatment-oriented prison cannot operate without some regard for escape or rule infractions while a custody-oriented prison can never neglect the treatment needs of inmates. While these are somewhat contradictory goals, a balance is almost always reached in a particular prison. The emphasis on custodial versus treatment may be the result of the philosophies of the top management of the prison or it may be influenced by persons in positions outside the prison organization.

Prison Organization and Functions

Prisons invariably have a chief executive in charge of all operations who is referred to as warden or superintendent. Beneath the warden position, several organizational variations are possible but regardless of the variation, the functions of a prison can usually be divided into four general categories (Carter, McGee, and Nelson, 1975):

- Management Services
- Custodial Services
- Program Services
- Industrial and Agricultural Services

In large institutions, an associate warden or superintendent may be assigned to each of the functions while in smaller institutions, the functions will be combined under fewer associate wardens. In addition, the warden may have an administrative assistant and a training officer.

The type and number of staff at the prison will depend on the type of institution and the predominant philosophy. Overall, the employment statistics for 1974 for state correctional facilities were as follows (Census of State Correctional Facilities, 1974):

Position	Number
Warden and Assistant Wardens	749
Custodial Personnel	26,966

Treatment and Educational Specialists	
Teachers	1,457
Social Workers	525
Psychologists	158
Psychiatrists	96
Doctors	517
Nurses	308
Other Personnel	11,945

The following paragraphs describe each of the four major functional categories.

Management Services

The operating budget for a prison comes from appropriations provided by the state legislative body. Prison budgets can be very complex since they contain not only salaries and wages of personnel but also all essentials needed to care for hundreds of persons. The budget must also include funds for medical care, education, and other programs. The activities under management services are therefore quite varied and include food service, clothing and laundry, maintenance of buildings and grounds, purchasing, canteen, and personnel records.

Custodial Services

Custodial responsibilities are obviously important in a prison since a major concern is to maintain order. The principal functions normally classified as custodial include the correctional officers' activities, physical security, prisoner discipline, investigations, and contraband control.

The correctional officers will comprise more than half of the employees in the prison. They have many operational functions ranging from daily supervision of inmates to duties which involve technical skills such as acting as foreman in an industrial shop. Investigations and prisoner disciplines are also important activities for custodial services. Investigations are required for rule violations, contraband, dishonest prison employees, and offenses such as prison violence, stealing, and escape attempts. The most serious offenses will result in a disciplinary hearing for an inmate.

Program Services

Most prisons have a "classification" procedure in which newly arrived inmates are examined in detail in order to develop a program tailored to their needs. The classification procedure will include (1) an examination of the inmate's criminal record, (2) a review of educational background and achievements, and (3) series of psychiatric and psychological tests. In larger institutions, a classification committee, usually comprised of the associate warden in charge of program services, the chief of the classification and counseling services, and a psychiatrist, will meet to determine the program needs of an inmate. While the concept of classification is good, it is usually restricted by the availability of programs and the limited number of openings in programs.

Program services are the crux of the rehabilitation of inmates. These

services include:

- Psychiatric Services
- Academic Education
- Vocational Education
- Substance Abuse Treatment
- Health Care Services
- Counseling
- Recreation
- Library Services
- o Religious Programs

Health care services are included since many institutions have their own hospitals and others use locally available facilities. Dental services may also be provided for inmates.

Industrial and Agricultural Services

While industrial and agricultural services have been mentioned as a major function, the fact is that they have not been effectively used in recent years. Many barriers have precluded the establishment of viable prison industries. These barriers include the fact that laws specifically prohibit the use of prison labor in certain industries and the fact that these industries are difficult to keep at a breakeven point. Some industries such as the manufacturing of furniture and automobile license plates still exist, but even in these cases, their utility as rehabilitation programs has been questioned.

One notable exception is the Texas Prison System which has a very strong and active farm and prison industries system. Krajick (1978) reports that Texas has the largest prison land holdings in the nation, with 102,113 acres. About half of the inmates in the system do stoop agricultural labor and about ten percent work in the system's 21 prison industries, which produce everything from dentures to refurbished schoolbuses. Another ten percent do construction and maintenance jobs, and the remaining 30 percent of the inmates are the porters, kitchen workers and other laborers doing activities to keep the prisons running each day. The farm operations produce 70 percent of the food consumed in the prisons, which officials estimate is a savings of eight to nine million dollars a year. At the same time, the Texas system has also come under severe criticism as a dehumanizing and repressive system. Inmates, for example, are not given a nominal wage for their work.

Jails

Most sources define a jail as an institution administered by a local unit of government that has the authority to detain adults for a period of 48 hours or longer. Jails may also be known as detention centers, county prisons, workhouses, and houses of corrections. Specifically excluded are overnight lockups usually found in police stations, because their primary function is to hold arrested persons for brief periods of time prior to an initial court appearance, after which the person will either be released on bail or personal recognizance or sent to jail for continued detention.

Jail functions have evolved over the years to include three primary activities. First, jails detain persons awaiting trial who have not been able to post bail or obtain release by personal recognizance. Second, jails will house

convicted persons sentenced to a term of less than one year (misdemeanants). Third, jails will hold persons convicted but not yet sentenced by the courts.

In addition to these activities, which will be discussed in more detail later, jails are also the recipients in many communities of persons who are considered a threat to the community. In spite of special programs for alcohol abuse, jails in many areas still have large "drunk tanks" for inebriated persons. Katel (1980) describes an extreme case in which the city of Gallup, New Mexico, with a population of 18,000, checked drunks into the jail, 26,000 times in one year. Local jails may also receive mentally disturbed and retarded persons who are perceived to be a threat to the community. These persons must be kept in jail until some other disposition for them can be made -- a procedure which may require a few hours or several days.

Miller (1978) gives three basic objectives of the jail system:

- Enhance Public Safety
- Rehabilitation
- Punishment

Jails enhance public safety by detaining at least temporarily those persons who are deemed a criminal threat to society and to ensure that persons awaiting court action appear for trial. Security is therefore an important element in the daily jail operations since this objective is met by the prevention of escapes and the maintenance of order in the jail.

Rehabilitation is viewed as a proper concern for jails by the American Correctional Association, the National Sheriffs Association, and the National Jail Association. While not all jail administrators share this endorsement, there is a definite trend in recent years for more jails to become involved in rehabilitative programs, even for persons who will be in the jail for short periods of time. The most appropriate group for rehabilitation programs are persons who have been sentenced to jail after conviction.

While not stated explicitly by many jail administrators, punishment is an objective of the jail system. Even if the person is in jail for a brief period of time, the prevalent attitude is one of deprivation of liberty for the alleged offense.

Jail Characteristics

The most common type of jail is one which is a combined detention and sentenced facility in which all prisoners are held. In larger communities, separate facilities can be found with a detention jail solely for persons awaiting trial and sentenced jails for misdemeanants serving their sentences as imposed by the courts.

Jails have traditionally been a responsibility of local government and have also traditionally been placed administratively under the sheriff. Approximately 85 percent of the jails are administered by sheriffs and in most cases, the jail is an additional task to their law enforcement responsibilities. If not under the sheriff, the jail will normally be administered by the city or county department of corrections. It should also be mentioned that one exception to

the local government rule is that the states of Alaska, Connecticut, Delaware, and Rhode Island have no county jails. The state governments operate the jails in these instances.

As reflected in the following statistics from the 1972 Survey of Inmates of Local Jails, most jails are small in size:

Size of Jail	Number	Employment[3] in 1972
1-20 Inmates	2,901	12,127
21-249 Inmates	907	15,837
250 or More Inmates	113	16,334
	3,921	44,298

These figures show that about 75 percent of the jails accommodate no more than 20 inmates. Jails accommodating 250 or more inmates represent only about 3 percent of the total but it is interesting to note that they account for more than one-third of the total jail employees.

The employment by occupational group was as follows in 1972:

Occupational Group	Number	Percent
Correctional officers, including jail supervisors, and line custodial officers	32,445	73.2%
Treatment specialist (social workers, psychologists, psychiatrists)	790	1.8%
Teachers	576	1.3%
Medical staff (doctors and nurses)	1,810	4.1%
Other (clerical and support services)	8,678	19.6%
Total	44,298	100.0%

About three fourths of all jail employees in 1972 were in line correctional officer positions, including guards, jail supervisors, and other line managerial positions. An additional 20 percent were support personnel and only 3 percent were treatment specialists or teachers. While there is considerable literature on the need for special programs in jails, the fact is that sufficient human resources have not been devoted to this function. These figures show a ratio of 1 specialist for every 227 jail inmates while national standards suggest a ratio of 1 specialist for every 30 inmates.

[3] Part-time and full-time.

Jail Clientele

As with the description of prison clientele, some oversimplifications can be made to produce the following general picture of jail clientele from the 1972 census:

- Approximately 95 percent were male;
- About 50 percent were in the 19 to 29 age group and 25 percent were in the 21 to 24 age group;
- About 25 percent had no more than an eighth grade education and 40 percent had no high school education;
- At time of confinement, approximately 40 percent had been unemployed;
- Approximately 75 percent were awaiting trial because they were unable to post the amount of bail set by the courts. Twenty-five percent had been denied bail.

Jail Programs

The majority of jails are too small to have formal rehabilitative programs. However, in the larger jails, particularly sentence-only jails, there are rehabilitation programs for the jail inmates. Many jails will have classification procedures similar to prisons in which a program for a recently arrived inmate will be determined based on the background and characteristics of the person. The classification will not generally be as formal as in prisons, but an attempt will be made to develop a responsive program.

By far, the most frequently encountered program in jails will be religious services. These services may be conducted either by volunteer members of the local ministry or church lay groups. Counseling services may also be provided by organizations such as the Salvation Army or the Alcoholics Anonymous. These organizations will provide services such as helping to secure employment and lodging upon release or offering specialized assistance to overcome problems.

Work release programs were also found in 42 percent of the jails in the 1972 census. Work release programs allow sentenced offenders to hold jobs in the community during the day, returning to the institution at night. These programs have the advantage of low cost for the local jail administration even though some administrative overhead time is required. These programs are often used to allow offenders to continue an educational program.

Another program frequently found with first offenders and misdemeanants is the weekend sentence which prescribes that the convicted person serves a number of weekends in jail but permits regular employment during the week. It has the obvious advantage of maintaining employment and income to the convicted defendant while still punishing the person for the wrongdoing. Persons convicted of driving while intoxicated can frequently be found in weekend sentence programs. There are some complaints from jail administrators about weekend programs because of enforcement procedures and the special provisions needed to process the offenders each weekend in and out of the institution.

Finally, other programs which can be found in some jails across the country are substance abuse treatment programs, recreational facilities, legal assistance,

and other social service programs. The amount and extent of the programs varies considerably from jurisdiction to jurisdiction.

Community-Based Corrections

Community-based correctional programs are activities in the community directly addressed to the offender or ex-offender and aimed at assistance in becoming a law-abiding citizen. These programs make use of community resources to accomplish their aims. The trend in criminal justice has been away from processing the offender through the system ending in placement in an institution; instead, greater emphasis is placed on community services as a more positive correctional action for offenders. Community-based correctional programs began as alternatives to traditional correctional programs such as probation or jail and have gained momentum with the demise of the prison as a rehabilitative force and the failure of probation and parole agencies to demonstrate their effectiveness.

Community-based correctional programs are difficult to describe because of their diverse nature. Some community-based programs are under the local government funding, some are privately funded and some are a combination. Some receive clients from a correctional agency, while others receive clients from another part of the criminal justice system such as the police or the courts. Some are aimed at changing the behavior of the offender by offering services, some by intensive surveillance, and others by group counseling or by placement in work, school, and social environments. Some community-based programs admit only juveniles while others admit only adults. Some have only one type of offender such as drug abuse offenders while others have several types. In short, a community-based program may encompass many combinations of these characteristics, with the particular combination depending on the program's philosophy.

No matter what the arrangement, the functions of community-based programs, as described by Fox (1977), are (1) the mobilization and management of community resources to assist in the rehabilitation of offenders, and (2) the provision of alternatives to incarceration in a way that is compatible with the public interest and safety. It should be obvious that there is overlap between community-based programs and programs offered by probation, parole, prisons, and jail. Indeed, many authors in the correctional field consider probation and parole as community-based correctional programs. Further, in Minnesota, jails are referred to as "community-based corrections" since they offer an assortment of services to jail inmates.

Community-based programs can usually be classified into one of three different categories:

- Halfway Houses
- Work Release, Study Release, and Furloughs
- Non-facility Programs

Halfway houses are relatively small facilities usually located in residential communities. Residents of halfway houses participate in the daily life of a community by working, going to school, and participating in other community programs. The majority of halfway houses are halfway "out" houses or prerelease houses. Offenders may be released from jail or prison to these houses, usually in the community in which they intend to live, 60 to 90 days immediately preceding

their release on parole. The general purpose is to acclimate the offender gradually into the community. The halfway house personnel will usually assist the person in obtaining employment and other basic needs. The Brooke House in Boston, Massachusetts, opened in 1965 as a halfway house for men released from Massachusetts correctional institutions and has expanded its services since then. By 1974, its services included two residences for parolees, a drop-in center, the first credit union in the country for offenders in a halfway house, a drug treatment program, a nonresidential walk-in center for releasees from county houses of corrections and a facility that provides a thirty-day housing service, and a program for training personnel in the community correctional field.

Halfway "in" houses are halfway houses for offenders who have been diverted from the major correctional institutions of jail and prison. Many of these are for persons who have problems too serious to allow them to remain at home but not sufficiently serious to warrant institutionalization. These houses have been variously called (1) halfway houses, (2) reintegration centers, (3) community correctional centers, (4) alcohol detoxification units, (5) drug abuse centers, and (6) restitution houses.

Work release, study release, and furloughs are included as community-based programs because they are designed to preserve contacts with the family and the community so that a prisoner's reintegration into society will be easier. Work release and educational programs were discussed earlier in the section on jails in which it was mentioned that this procedure allows the prisoner to leave the jail during working hours and to spend the remainder of the time on weekends, holidays, and nights in the jail. Fox (1977) reports that home furloughs have been used by Arkansas and Mississippi for over 15 years and became part of the criminal justice system in a formal way after Congress authorized their use in the federal system in 1967.

Evaluation or work release, study release, and furlough programs have shown mixed results. Of interest from a performance measurement viewpoint is that some researchers have demonstrated that in terms of cost benefit analysis, the programs are effective and cost the taxpayer less money than is the case for traditional incarceration.

Non-facility programs are alternative procedures for handling arrested persons. Persons charged with misdemeanors may be released by the police desk sergeant with an agreement that they appear in court at a specified time. Court procedures allow for release on recognizance, release with supervision to a third party, or release conditional on entering a community-based program. These cases are usually handled and monitored by a special pre-trial services agency or by a probation office. Another example is driving-while-intoxicated offenders who may be released conditional on attending a special training school dealing with alcoholism and driving.

Types of Services

Some of the most commonly found services in community-based programs such as halfway houses and non-facility programs are:

- Drug and Alcohol Abuse Therapy
- Employment Assistance

- Legal Aid
- Personal Affairs Counseling
- Training and Educational Programs

Many programs have been established for the specific purpose of drug and alcohol abuse therapy. Fox (1977:147) explains that the treatment strategies for drug and alcohol abuse generally follow the standard patterns of therapy:

> Exploration is a search for causes, generally involving a neurotic emotional situation. The cause of addiction could be rooted in such things as social deprivation in delinquent peer groups, isolation, economic deprivation, physical suffering and illness, loss of primary ties with family members, criminal linkage to support a habit, or searching for a feeling of well-being and adequacy. Confrontation involves breaking down old patterns of anti-social responses and negativism toward social mores, and creating a desire to want to learn to function independently. There must be a development of responsible behavior. Explanation involves gaining an understanding of behavior, translating old behavior into here-and-now patterns of adjustments, developing the capacity to sustain change, and achievement of personal autonomy. Termination comes about as a result of sufficient exploration of realistic goals in relationship with significant persons and a personal evaluation of the wide choices of problem solving as they relate to future behavior.

This four-step approach dealing with drug and alcohol abuse provides a framework for many individual techniques. One can imagine measures that could be applied to each step in order to gain an insight into how well individual portions of the program are doing, as well as the overall program. Frameworks such as these occur frequently in performance measurement systems.

Employment is a crucial element for the adjustment of offenders. Potential employers have varied opinions on hiring offenders and ex-offenders. Some view the hirings as favorable because of the extra supervision provided by probation, parole, or the community-based program. Others flatly refuse to hire offenders and ex-offenders. Rejection is motivated by fear of potential lawbreaking or conviction that the company is hiring a "deviant" or "criminal type" into the company. Many of the initial jobs which offenders and ex-offenders get are in the areas of labor and service occupations. One problem in obtaining jobs requiring licenses or bonds is that the person has not had the necessary training and many insurance companies will not bond a person who has a prison record.

Legal aid and personal affairs counseling are often needed by offenders. Legal problems face offenders quite frequently since they may be involved in divorce, property settlement, family disputes, or small claims court actions on bad debts. There may be legal aid agencies available in the community and persons in the community-based program can direct a client to these agencies. A related problem is with personal affairs which may not require a lawyer and include such things as obtaining birth certificates, Social Security numbers, personal budget preparation, and perhaps welfare application. Persons in community-based programs can be particularly helpful in these situations but it requires a considerable amount of time on their part to take care of all the needs.

SUMMARY

The general information on corrections and the descriptions of the five corrections programs above set the stage for the performance measurement approach outlined in Chapters III and IV. We have stressed the fact that corrections agencies vary substantially according to function, resources available, organization and management, and services provided. There is no typical prison, probation/parole agency, jail or community-based program. However, we have tried to illustrate the range of possibilities within each agency-type. This broad picture of corrections lays the foundation for the performance measurement framework presented and developed in the following chapters.

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CHAPTER III

PROBLEMS AND ISSUES OF PERFORMANCE MEASUREMENT IN THE CORRECTIONS AGENCY

Chapter II describes what corrections agencies do and introduces the major adult corrections program actors. One should consider how to measure the performance of these programs within an adequate conceptual framework. This chapter presents several important issues that one confronts when developing a framework appropriate for measuring corrections program performance. Two major tasks when developing a performance measurement framework are:

- setting the scope and focusing the performance measurement system;
- deciding what to measure and how to go about doing it.

Some of the questions that need answering are the following:

- What effect will the goals and theories that different actors hold have upon performance measurement system design?
- Should the system measure only those outcomes that corrections agencies can control?
- Should measures that both affect and describe performance be included?
- How does one decide what to measure?
- What dimensions of a program's performance should be measured?
- Whose measurement needs should be served?
- How can one decide which measures to include in a performance measurement system?

These questions are discussed below within the context of the two major tasks -- focusing the performance measurement system and developing performance measures.

SETTING THE SCOPE AND FOCUSING THE PERFORMANCE MEASUREMENT SYSTEM

Performance measurement is a broad, nebulous concept that needs to be defined and structured before performance can be measured. A person developing a performance measurement system for adult corrections programs should resolve several issues before thinking about specific measures to include. The issues discussed in this section first concern the role that goals, theories, and the ability to control program outcomes should play in shaping the performance measurement system. Second, they concern the role that the performance measurement system itself should play in influencing program performance.

Goals: What effect will goals have on performance measurement system design?

Goals may be defined as broad, general statements of desired conditions

external to programs that provide the basic purposes for which programs were authorized and funded. If performance measurement were to be based upon a rational model of decision-making, the first step in developing a performance measurement system would be identifying the goals against which performance is to be compared. Though this step seems easy, there are several questions that need to be considered before the performance measurement system is built around a set of goals.

First among these questions is, "Whose goals should be recognized?" In Chapter I, it was suggested that potential users of performance information included the public, legislators, chief executives, agency heads and administrators, program managers, planners, budgeters, employees, and clients. These groups, if asked to agree upon a single set of goals for a corrections program, would probably be unable to do so. The public, for example, might be primarily interested in the program's ability to incapacitate and punish offenders and make the community a safer place in which to live, while the offender might be primarily interested in the quality of the services that the program makes available to him.

One may think of corrections goals in terms of broad outcomes, such as revenge or retribution, restraint, reform, or rehabilitation, reintegration into society, and restitution.[1] Goals of individuals or groups interested in corrections programs, however, may be unrelated to any of these broad outcomes. A community might support a prison because it absorbs a large part of that community's work force. Community groups might feel that an important goal of the prison is to provide employment to community residents. Private businesses in the community might look to the prison as a source of revenue through sales of food, medical and dental supplies, maintenance supplies, materials for prison industries and through providing contract services. Business groups, then, might believe that an important goal of the prison is to provide business opportunities to the community.

Within the organization one may be confronted with three types of goals. First are the official, stated goals, which in their broadest form might be stated in terms such as these: to rehabilitate offenders, to prevent crime through incapacitation and deterrence, to punish the guilty, to provide restitution to the victim of crime. Next, there may be management goals that make possible attainment of the official, stated goals. At their broadest level, management goals might be stated in terms such as these: to secure the resources necessary to support the organization's programs adequately, to build and maintain employee morale, and to maintain internal stability within the organization. Third, individual employees and clients may have their own goals, such as to have a pleasant place to work, to advance one's career, to build up one's retirement fund, or to "do easy time." All these goals may affect the organization's performance.[2]

If all these types of external and internal goals affect the performance of corrections programs, should progress toward all these goals be monitored

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[1] See Carter, McGee, and Nelson (1975: 12-13) for one such discussion of corrections goals.

[2] Perrow (1978) contains an excellent discussion of different goals ascribed to organizations.

through the performance measurement system? If the task were to suggest how to improve performance, it might be necessary to take into consideration all the informal goals ascribed to corrections programs by various groups. Obtaining greater productivity from employees, for example, might not be possible without first learning about the goals of individual employees and understanding how those goals affect the individual's performance. The task here, however, is not to suggest how to improve the performance of corrections programs but only to suggest how one might go about measuring performance.

One approach to deciding the scope of the performance measurement system might be to limit those goals used as guides in identifying what is to be measured to corrections-oriented goals (e.g., retribution, rehabilitation, restitution) and to exclude non-corrections-oriented goals (e.g., employment, business opportunities, career advancement, doing "easy time"). This approach is broad enough to include information addressing the following sorts of questions asked about corrections programs: What did the program spend? What did the program produce? How was the product produced? How good was the product? What was the cost per unit of product? What was the cost per unit of benefit? What needs remain unmet? The advantage of such a broad approach to performance measurement is that it includes the information felt important by many of the potential users, such as funding agencies, program managers, chief executives, legislators, and the public. The program manager, if he so chooses, is free to concentrate upon performance measurements that tell him what the program does and costs, how it does it, and how well it does it. The legislator, on the other hand, is free to concentrate upon performance measurements comparing the results of a program relative to cost with the results and costs of other programs, if he so chooses.

Although such a broad approach to developing a performance measurement system is conceptually appealing, such a system is likely to be expensive to implement. It would be more economical to design a system that responds to the specific information needs of selected users. In practice, the performance dimensions included in the system may depend upon who pays for its implementation and how much the payor is willing to spend. Such a practical resolution of the scope problem has the disadvantage of leaving some groups of people interested in corrections performance with performance data that do not fit the decisions they must make. For example, performance measurements designed to answer the questions raised by the program manager may not be relevant to the decisions the legislator must make.

However the question of whose goals are to be recognized is resolved, there is likely to remain the problem of what to do when goals are inconsistent with each other. Assume, for example, that a probation program has two goals: (1) to enhance the capability of the client to function effectively in society and (2) to protect the community by minimizing criminal activity on the part of the probationer. Following the first goal might lead a probation officer to tolerate a greater level of deviant behavior in the short run to provide probationers opportunities to learn to make alternative choices (Banks, 1976: 9). Yet "deviant behavior" is an outcome inconsistent with the second goal.

Should a performance measurement system be based upon a set of goals that are mutually consistent with each other? Our approach would be to recognize that corrections is one of many policy areas that reflect inconsistent and sometimes conflicting values held by our society. It is not the task of performance measurement (or of designers of performance measurement systems) to resolve these

conflicts. Such conflict resolution is a function of the political process. Performance measurement can best serve that process by identifying multiple outcomes of correctional programs and leaving the assessment of their relative importance to those people who will use performance information.

Given that goals may be inconsistent and even conflicting, should a performance measurement system be developed around some basis other than comparing actual performance with goals? Not setting up a priori goals might be analogous to the goal-free evaluation proposed by Scriven (1972). This approach to evaluation compares outcomes to needs instead of to goals. As Patton (1978) has argued, however, determining what constitutes a need (or what constitutes desirable accomplishments) is the same thing as setting goals ex post facto. The main difference between a priori goals and ex post facto goals may be who decides what the goals for a corrections program are. It is our position that designers of performance measurement systems should not substitute their own concept of what corrections program goals are or ought to be for goals held by the users of the performance information.

Where, then, does one find a program's goals? Good places to look for goals include the legislation (if any) that established the program, records of legislative committee hearings at which the program was discussed, annual, comprehensive, or master plans of the organization responsible for implementing the program; executive orders establishing the program; applications for grants to help fund the program; annual reports; brochures whose purpose is to communicate to the public what the program does; and the narrative section of the budget request. For some programs, one may not be able to find goals explicitly stated in any of these documents. One can infer a program's implicit goals by looking at what activities are included in a program and linking these activities to the purposes (or goals) that seem logically to be served by those activities. This approach can be controversial when there is no generally accepted theory about the cause-effect relationships that hold between activities and outcomes.

If there are no explicit goals and no generally accepted theory pertinent to what the program does, it may be wiser not to use goals as a guide in deciding what aspects of performance to include in the measurement system. In such a situation, the scope of the performance measurement system could be determined simply by finding out what the potential users of the system want to know about the program. Indeed, Patton's (1978) utilization-focused approach to evaluation can be applied equally well to performance measurement. Under such a utilization-focused approach to performance measurement, the decision about which performance information to produce would be made on the basis of what information would be most useful to the identified users.

This utilization-focused approach could be used even when goals have been explicitly stated. Patton (1978: 137) suggests that goals be prioritized - not by their importance - but by the usefulness of information about the goal. If a user already has enough information about a program's progress toward achieving an important goal, the user may give higher priority to obtaining information on a less important goal about which he has less information.

Theories: What effect will theory have on performance measurement system design?

A theory is "an integrated body of propositions, the derivation of which leads to explanation of some social phenomenon" (Denzin, 1970: 5). Theories

are important when deciding what to measure for three reasons:

1. Theories shape the content of programs.

2. Theories influence our expectations of outcomes.

3. Theories influence our interpretation of the meaning of the performance measurements obtained.

Different theories about the causes of crime and the results of treatment shape the content of corrections programs. The Pennsylvania, Auburn, and Irish systems of treating prisoners illustrate the influence of theory upon corrections practice (Carter, McGee, Nelson, 1975: 9-10). The Pennsylvania system emphasized solitary confinement based upon the theory that reflecting upon past misbehavior would lead the prisoner to reform. Emphasizing congregate work programs by day and solitary confinement at night, the Auburn system is more consistent with the theory that instilling good work habits fosters good citizenship. The Irish system, in which the offender was confined on an indeterminate sentence, was based on the theory that prisoners could be reformed by requiring them to earn their release by being industrious and conforming to institutional discipline.

Theories can sensitize the researcher and the practitioner to look for certain outcomes and ignore other, perhaps unexpected, outcomes. For example, a theory that treatment in the community facilitates reintegration into the community sensitizes one to look for conditions that demonstrate the offender's reintegration into the community. An alternative theory of decarceration (Scull, 1977), on the other hand, suggests that the outcomes to look for are reduced quality of treatment, inadequate rehabilitation, return to crime, ghettoization of offenders, and increased harm to ghetto residents too poor to move away.

As another example of how theories can influence the outcomes that we think worth measuring, consider the effect of confining offenders and enforcing discipline. One theory holds that compliance with prison rules leads to increased readiness to comply with the normative demands of society when the offender is released. Another theory holds that confinement leads to isolation, moral rejection by society, a threat to the offender's self-image, loss of security, and anxiety (Sykes, 1958).

Not only do theories suggest the consequences of corrections programs that are important to measure, they can also affect how performance comparisons are interpreted. An increase in the number of parole revocations, for example, might be interpreted to mean either that the surveillance activity is becoming more effective or that treatment and rehabilitation are becoming less effective. A dramatic decrease in the percentage of arrestees who fail to appear in court could be interpreted to mean that pre-trial programs are doing a very good job in following up on persons released on bail or their own recognizance or to mean too many low-risk arrestees are being kept in jail awaiting trial instead of being released.

Because of the influence that theory has upon what is to be measured and how measurements are to be interpreted, one must be aware of the effect that holding a particular theory is likely to have upon the content of a corrections performance measurement system. Where there is no consensus about which theories are correct, as there is not for most corrections programs, performance measurements

can be considered from multiple theoretical perspectives. Again, as was the case in concluding that performance measurement systems could address the information needs of different potential users, incorporating multiple perspectives is necessarily constrained by the requirement of keeping the system's cost within reasonable bounds.

Which theories about corrections programs and their assumed effects should be taken into account when designing a performance measurement system? Many theories in the social science literature are relevant to corrections programs. The researcher is likely to want to focus upon that subset of theories upon which his own research is based. The practitioner may have developed and implemented his program based upon some explicit theory contained in the social science literature. Or the practitioner may have his own theory of action, theory of practice, or theory in use.[3]

One approach would be for the systems designer to see his role as ascertaining the espoused theories held by the expected users of the performance information and building into the system measures for outcomes predicted by those theories. This role should be appropriate to the designer who sees his role as responding to the information needs as articulated by one or more clients who will use and/or pay for the system. If the systems designer is also the potential user and can pay for operating the system himself, he can simply build the performance measurement system around his own theories. Perhaps the most difficult role would be for the systems designer to build the system around someone else's theories in use. This approach would require extensive observation of the practioner as he worked.

Control: Should the system measure only those outcomes that corrections agencies can control?

The public and their elected representatives want to know, "Do corrections programs really work?" They want to know if the public is better off as a result of corrections programs. For example, do graduates from halfway house programs evidence responsible citizenship, self-sufficiency, work stability, and law-abiding behavior? This pragmatic orientation suggests that performance measurement should address program impact upon offenders or other groups indirectly affected by the program.

Corrections actors, however, may be reluctant to have the success of corrections programs judged in terms of outcomes over which they have less than total control. Is it reasonable, for example, to judge halfway house effectiveness by the residents' criminal activities that occur after completing the halfway house program, even though factors other than the program also affect the residents' post-release behavior? When corrections agencies do not have total control over program-related outcomes, one might expect actors in corrections to resist including outcome measures in a measurement system designed to describe corrections performance.

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[3]These three terms are used as defined by Argyris and Schon (1974: 6, 11). "A theory of action is a theory of deliberate human behavior," which states what a corrections program ought to do to achieve certain results. A theory of practice "consists of a set of interrelated theories of action that specify for the situations of the practice the actions that will, under the relevant assumptions, yield intended consequences." A theory in use is a theory of deliberate human behavior inferred by the way the practitioner behaves. A practioner's theory in use can be different from his espoused theory of action.

Should performance measures, then, be developed only for those events over which actors in corrections agencies can exert total or near-total control? This question is explored in two steps. First, should performance measurement be restricted to program dimensions over which a single agency or actor has total control? Second, should performance measurement be restricted to program outcomes over which corrections programs have total control?

In the United States today, there are few corrections activities that a single actor or agency controls exclusively. Several governmental agencies share responsibility for funding and managing most programs. For example, a county jail once was the responsiblity of the sheriff. Today, if that jail receives federal funds -- say for a community-release work program or a job training program -- the sheriff must share with other actors control over how the jail is run. Actors will probably include, at a minimum, the U. S. Law Enforcement Assistance Administration, the state criminal justice agency that decides how to allocate LEAA block funds among various criminal justice programs in the state, and the county legislative body that appropriates funds for operating the jail. These actors share control over the amount of resources allocated to the program, the processes by which these resources are transformed into outputs, the nature and quantity of outputs produced, and the outcome objectives established for the program. Restricting performance measurement to program dimensions over which a single agency has control would so restrict the scope of performance measurement that the information produced would be trivial compared to the questions being asked about program performance.

An alternative approach would be to focus upon what a single program can control rather than what a single agency or actor can control. Jointly, the various actors that influence the resources, processes, outputs, and outcome objectives for a single program can control that program's direct outputs. These outputs for a halfway house, for example, might include providing residents individual and group counseling, food, clothing, shelter, and health care, and maintaining in-house security. The program's performance can be measured in terms of these outputs, even though the responsibility for this program belongs to no single actor.

Restricting performance measurement to those events over which a single program has total or near-total control, however, excludes almost all program outcomes or impacts. Program outcomes, such as an offender's post-release criminal activity, are affected by environmental factors beyond the control of the program. As one illustration, the state of the economy may make it hard for the ex-offender to find a job and therefore provide an incentive for him to revert to crime. Corrections programs obviously cannot control the economy. Yet failing to measure program outcomes means that a program's varied constituent groups will not know how the public is better off as a result of corrections programs.

A third approach should be considered. Requiring that the performance dimensions included be controlled only by the program whose performance is being measured assumes the essentialist position of causation. The essentialist position would hold that an activity can be said to cause an outcome only when the activity is both a necessary and sufficient condition to bring about the outcome. We adopt, on the other hand, Cook and Campbell's position that outcomes may have multiple causes and that the evidence supporting a causal assertion may be probabilistic and contingent upon the presence of multiple conditions (Cook and Campbell, 1979: 33). We hold that program activities should be treated as contingent conditions preceding outcomes. Further, because corrections programs are contingent conditions influencing outcomes, outcomes are an appropriate dimension for describing

corrections program performance.

One who adopts the third approach must confront the problem of how to sort out the impact of a corrections program upon an outcome -- say post-release criminal activity -- from all the other factors that affect that outcome. Otherwise, one might inappropriately interpret outcome measurements to infer program success or failure. We suggest multivariate statistical analysis as the most practical method of separating program impact from other influences upon outcomes. Chapter IV illustrates our approach to developing appropriate statistical models for two major correctional outcomes: (1) extent and timing of post-release criminal activity, and (2) post-release wages.

Measurement Affects Performance: Should measures that affect performance be included in the performance measurement system?

Performance measurement is not a neutral managerial tool. Management control systems, for example, include performance measures for the explicit purpose of detecting deviations from plans or standards so that, when program processes malfunction, managers can take action to bring operations back on course. Neither should it come as any surprise that measures designed to compare performance to goals focus an organization's effort upon those activities that foster attaining those goals.

Yet researchers tend to overlook systems politics when designing performance measurement systems. When legislators and managers use performance information for such decisions as setting priorities among programs, changing program processes, allocating funds among programs, and developing workload standards, some interests stand to gain and others stand to lose. Performance information, once generated, is likely to be used as ammunition in the political process by whichever constituent group's interest is best served by having that information made known. When corrections actors believe that performance comparisons can help them or hurt them, they may alter their performance to achieve "good" performance ratings. The act of measuring performance, then, can itself influence the performance being measured.

For example, assume that an agency measures performance for a parole program simply by the number of people kept under surveillance. Program staff might believe their performance would "look better" if they increased the quantity of people in their caseload at the expense of quality of surveillance.

As another example, assume that prison program A has both custodial and rehabilitative goals, but the agency measures performance only in terms of custodial activities. Suppose further that staff salary increases are tied to program performance. The measurement system in effect gives program staff A an incentive to spend as much time as possible on custodial activities, and as little time as possible on rehabilitative activities. Suppose prison program B has the same goals, but the agency measures its performance only in terms of rehabilitative activities. The measurement system gives program staff B the opposite incentive -- to spend as little time as possible on custodial activities and as much time as possible on rehabilitative activities. Other things being equal, one might expect program staff A to overemphasize custodial activities, leading to a low escape rate and a poor record of offenders' post-release work stability and criminal activity. Program staff B, on the other hand, would probably do a better job

of training and counseling prisoners but do a poorer job of custody, leading to a higher escape rate than program A.

Distorted effort is most likely when "it is impossible or impractical to quantify the more central, substantive output of an organization, and when at the same time some exterior aspects of the product, which are superficially related to its substance, are readily measurable" (Etzioni, 1964: 10). This conclusion suggests that performance measurement is likely to be most dysfunctional when measurement systems focus upon program activities rather than program results or impacts. Focusing upon desired program results instead of selected program activities might give staff an incentive to use their energy in a way that best achieves goal-oriented results.

The researcher cannot design a performance measurement system that can aid policymaking without also affecting performance. One should be sensitive to the effect that performance measurement has upon staff behavior. Including measures that foster activity at the expense of program results should be avoided. If a performance measure cannot be a neutral tool, one might at least try limiting measures to ones that affect behavior positively.

DEVELOPING PERFORMANCE MEASURES

We have already raised several questions that need answering before one decides what measures to include in a performance measurement system. How these questions are answered will determine which measures are appropriate. Two people, each designing a performance measurement system for the same corrections program, could come up with totally different lists of measures if they assumed different uses, users, goals, and theories for that program.

The rest of this chapter concentrates on how performance measures are selected, defined, and assessed. First, we discuss how performance measures are to address specific questions; second, we outline how performance measures relate to particular program concepts; and, finally, we suggest how one can decide which performance measures to include in a performance measurement system.

Deciding What to Measure

In deciding what to measure, the first step is identifying the questions that people want answered about a program's performance. The most basic question that the public and legislators are likely to ask is, "What good is this program doing?" This basic question may be broken down into several more specific questions:

- What are the results (or consequences) that flow from what the corrections program does?
- Who does the program serve (or upon whom are the laws or regulations enforced)?
- How much does the program cost and how does the relationship between program cost and results compare with that obtained by other programs?
- Is the program providing the services that people want?

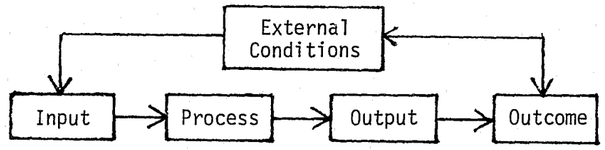
Corrections administrators may be concerned with additional questions, such as how actual spending compares with authorized spending, how actual operations compare with procedures established in agency regulations, and how the quality of service rendered compares with quality standards.

One can use the types of questions people ask about program performance to develop a typology for organizing performance measures.[4] Table III-1 lists the performance questions that the public, legislators, chief executives, agency heads and administrators, and program managers are likely to ask most frequently. To the right of each question listed is the type of performance measure that relates to that question. Next is the type of performance comparison(s) that relate(s) to each performance measure and the types of information used to translate performance measurements into performance comparisons.

Appendix C defines each of the performance-measures and performance-comparisons terms used in Table III-1 and provides a few examples for various adult corrections programs.

The measurement typology described in Table III-1 is compatible with the systems model for public programs diagrammed below.

Figure III-1



Cost measures describe the inputs to the program; process measures describe the transformation of the inputs into outputs; and product, service characteristic, and distribution measures describe the program output. Outcome measures describe the effects of program products upon the environment, and external condition measures describe those environmental factors that may influence both demands upon the program and the outcomes of the program.

The questions about performance raised in Table III-1 address efficiency, cost-effectiveness, equity, service quality, unmet need, and conformance with governmental policies. Which of these performance dimensions should be built into a corrections performance measurement system? If collecting the data required to measure performance were inexpensive, a designer might want to build in all these dimensions. Unfortunately, data collection is expensive. Cost may encourage one to restrict the scope of performance measurement to a subset of these performance dimensions. Before doing so, the designer should carefully consider who will use the performance information and who stands to gain or lose if the performance measurement system collects information on some performance dimensions but not on others.

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[4]For a survey of measurement categories used by other researchers, see Grizzle (1979b).

Table III-1

A TYPOLOGY FOR MEASURING AND COMPARING PROGRAM PERFORMANCE

	Performance Dimensions That Address the Question to Be Answered		
Question to be Answered	Performance Measure	Performance Comparison	Bases for Comparison
What is spent?	Cost	Fiscal Conformance	Budget appropriation or allotment
What is produced? (What service is provided?)	Product	Responsiveness Product Conformance	Citizen or client expectations. Program plans or performance agreements.
How is service provided?	Process	Process Conformance	Laws, regulations, guidelines, program plans.
How good is service?	Service Characteristics	Quality	Standards, other programs, historical quality.
Who gets served?	Distribution	Equity Policy Conformance	Values, law. Guidelines determining eligibility.
Service with what results?	Outcome (or impact)	Effectiveness Benefit	Objectives, other programs, historical effectiveness. Value to society of the outcome.
Service at what cost?	Cost/Product	Efficiency	Standards, other programs, historical efficiency.
Results at what cost?	Cost/Outcome	Cost-Effectiveness	Objectives, other programs, historical cost-effectiveness.
What environmental conditions exist?	External Conditions	Unmet Needs	Goals, desired conditions determined by values.

Corrections managers may be content, or even prefer, to include only measures for performance dimensions that they can control. They might be content with information about what the program does and costs, how it does it, and how well it does it. Efficiency might seem to them important to measure, but, because they lack total control over outcomes, cost-effectiveness measures might seem relatively unimportant.

Legislators and chief executives might also adopt the same point of view. Those dimensions that they can control through their power to enact and implement laws might receive the highest priority for performance measurement. The performance dimensions that they would include would probably differ from the managers' because they have more control over some decisions than the program manager. Allocating resources among programs is one such policy decision that might make cost-effectiveness information more important to the legislator and chief executive than the manager.

The researcher, on the other hand, would probably adopt a different point of view from the corrections policy and program actors. The researcher's basis for including some performance dimensions and excluding others would not be whether he could use the information to make or implement policies. His priorities would be those dimensions that he needed to test his theories. Because researchers' interests vary so widely, one would expect the performance dimensions considered important to vary more among a group of researchers than among a group of corrections administrators.

Various constituents can use performance information as ammunition in the political process to support or attack corrections programs. Therefore, while at any level of the corrections agency managers want unbiased information about the performance of programs for which they are responsible, they also want to control the information (and how that information is interpreted) once it moves to a higher level within the agency or outside the agency. Once performance information is collected, it is hard to limit the public's access to it or to control the way that information is used in the political process. Consequently, the designer should consider who is likely to want performance data and the purposes for which they are likely to use it.

Natural constituents for performance information about corrections programs include researchers, planners, budgeters, public interest groups, legislators, funding agencies, and chief executives, as well as correction agency heads and program managers. They will probably demand whatever data the performance measurement system produces. If the designer limits the performance dimensions measured to those of greatest interest to a couple of these groups -- say the corrections agency head and program managers -- the information provided will probably not adequately answer some of the questions other groups ask about program performance.

What would be the consequences of not answering these other performance questions? Actors in the political process will not withdraw from the process because they do not have performance information. They will either proceed to maneuver without performance information or will use or misuse whatever performance information exists. Neither will researchers stop doing research because they lack performance information. For example, the reader has probably seen many studies that make conclusions about a program's effectiveness without having information about program outcomes or impacts. When impact information is not

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available, researchers frequently substitute product measurements as proxies for impact measurements. The designer should keep in mind that limiting the performance dimensions included in the measurement system will probably result in some measurements being used (misused?) to answer other questions than those the measurements were designed to answer.

Another problem affecting what dimensions should be included in a performance measurement system is that constituent perceptions of what dimensions are most important change over time. A predominant concern for efficiency may later give way to concerns about effectiveness which may in turn give way to concerns about equity which may later give way to a renewed concern about efficiency. Conceptually, the easy solution would be including all these performance dimensions in the measurement system. Frequently, however, the conceptually easy solution may be prohibitively expensive to implement.

A third factor affecting the appropriate dimensions to include is the stage of the program's development. Stages included in a program's life cycle might be: developing, implementing, operating, and refining. While all the performance dimensions in Table III-1 may be appropriate to the operating and refining stages, using them during the developing stage would be premature. Several of the dimensions, such as cost, product, and process, might be appropriate during the implementing stage.

This discussion leads us to conclude that a performance measurement system should be designed with the idea that it will change from time to time. It should be flexible enough to respond to changes in a program's developmental stages and user perceptions about what the most important performance issues in corrections are. Advocating flexibility is easy, but adding and dropping performance dimensions has two disadvantages. First, it costs money. Second, it truncates the time series that result from regular data collection year after year. Before dropping measures from the system, the designer might well consider the likelihood that a time series not perceived as useful to today's users would be perceived as useful to future users. Finally, whoever is paying for the system may insist that his performance measurement interests be the sole basis for deciding what measures will be included.

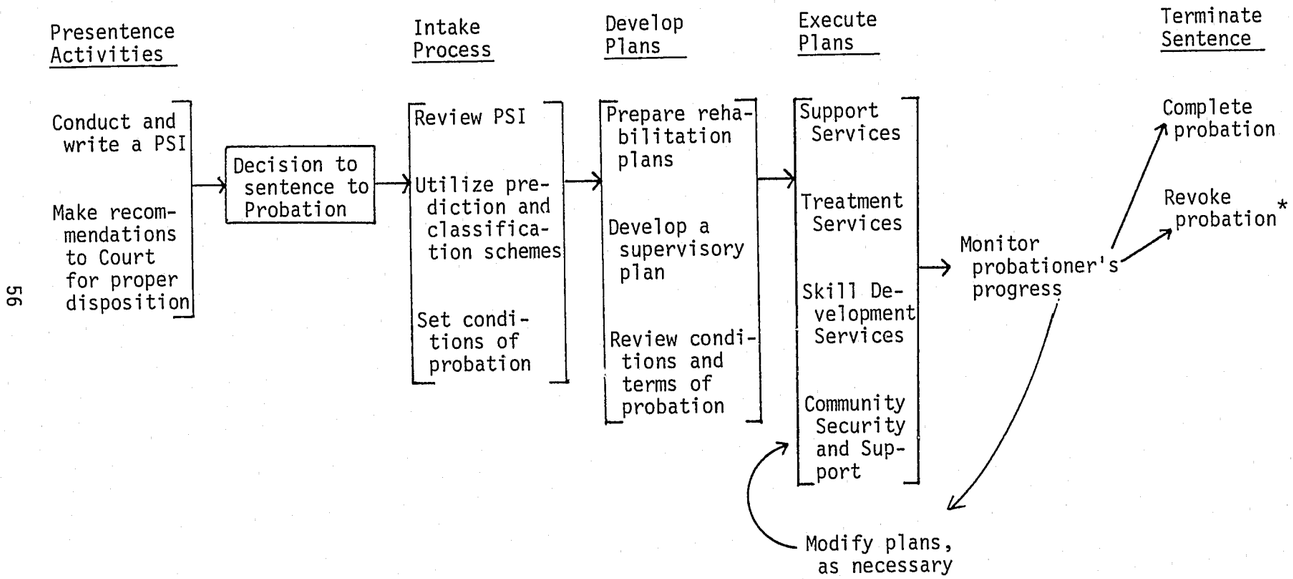
Identifying Performance Concepts

After the researcher has identified the corrections program whose performance will be measured, several tasks follow that lay the foundation for identifying appropriate measures. We have already discussed problems associated with one such task -- deciding what broad questions the performance measurement system will address. Before one identifies the specific information needed to answer these questions, he should summarize the program concepts that relate to the questions being addressed. Flowcharting or diagramming is a convenient method for displaying the concepts that need measuring.

Figure III-2 displays the concepts for which a person interested in answering questions about program processes -- how a service is delivered -- might want to develop measures. This diagram summarizes the activities that make up a hypothetical probation program and shows the sequence in which these activities take place. The researcher can use this diagram as a guide for developing process and service characteristic measures that describe how the service is provided and how good the service is. This diagram does not do as good a job of identifying

Figure III-2

PROBATION PROCESS DIAGRAM



* Revocation may be implemented at any time along the way--not just at the end, as it appears here.

the concepts needed for answering questions about the results or outcomes of probation activities.

Figure III-3 is much more appropriate than Figure III-2 for identifying concepts needed to measure program outcomes. It relates the activities that make up a hypothetical prisons custodial services program to the short-term and long-term impacts expected to result from these activities. This diagram incorporates assumptions about cause-effect relationships that guide the researcher's choice of which concepts are important to measure. The most important assumptions underlying the cause-effect relationships reflected in Figure III-3 are these:

1. By meeting the prisoner's basic needs(1) prisoners can build or maintain self-esteem(26) and good morale(13) in spite of incarceration. Further, legal and financial counsel will help prisoners assume responsiblity for their own problems(4), which is interpreted here as an important step toward improved self-esteem (26) and morale(13).

2. Positive attitudes (such as self-esteem(26) and good morale(13)) will lead to improved prison adjustment(28). Prison adjustment is measured primarily by assessing prisoner behavior. Therefore, the causal assumption linking (26) and (13) to (28) is that good attitudes positively affect behavior. (The interaction between attitude and behavior, if there is one, is not well understood. It is equally likely that a positive change in behavior affects attitudes, as well as vice versa. The linkage between impacts (26 and 13) and (28), however, is based on the assumption that attitudinal changes precede behavioral changes.)

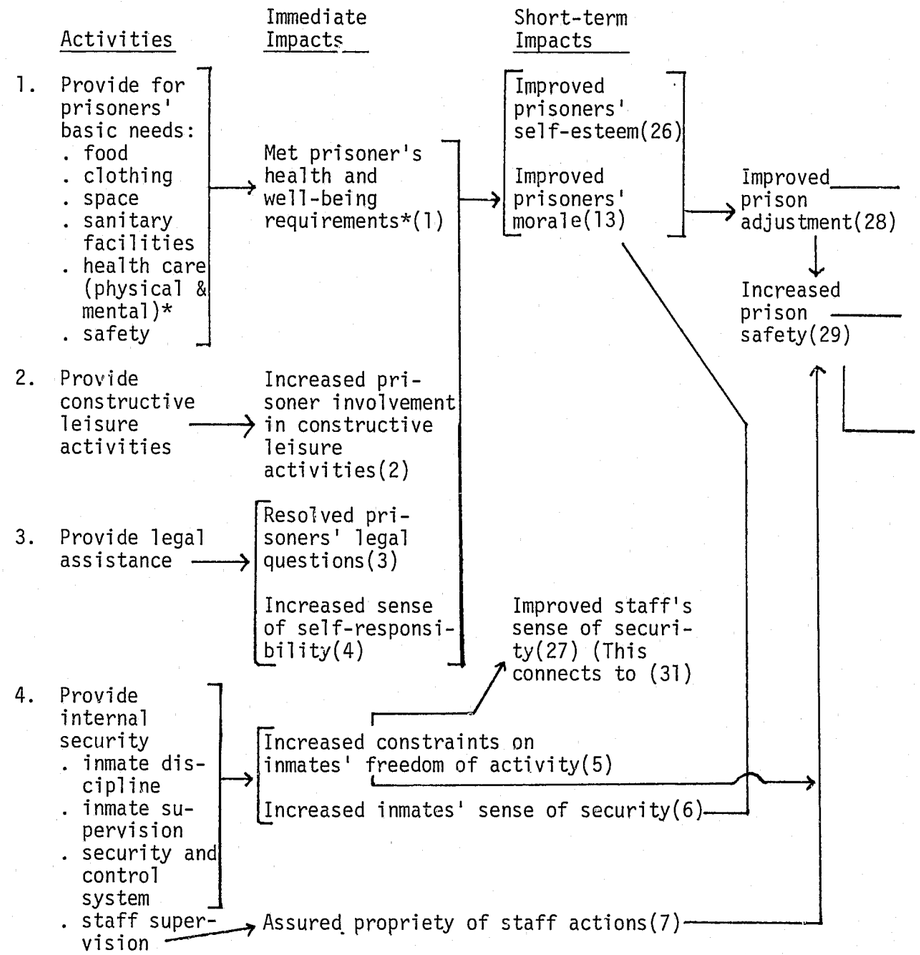
3. Improved prison adjustment(28) contributes both to increased prison safety(29) and to improved attitude toward society(30). Moreover, "improved attitudes toward society"(30) is linked to "reduced criminal activity of released prisoners."(39) (In this series of linkages, improved behavior(28) leads to improved attitudes(30) which then leads to another category of improved behavior(39). At this point, therefore, the diagram endorses both points of view--attitudes affect behavior and vice versa.)

4. Reduced criminal activity(39) increases the level of safety in the community(42) (e.g., lowers the crime rate); reduces the costs society pays for destruction and suffering caused by crime(41); and, increases overall societal satisfaction with the prison system(44).

5. The activity, "provide internal security" has two separate impacts on inmates. As the diagram shows, security measures result in "increased constraints"(5) and "increased sense of security"(6). The latter, (6), is linked to positive prison adjustment(28) through "improved morale." (13) The former(5) contributes to greater staff security(27) (which is linked to improved staff morale(31) and to increased prison safety(29)). (The potential negative impacts of "increased constraints" on inmates(5), such as increased rebelliousness, heightened aggression, negative

Figure III-3

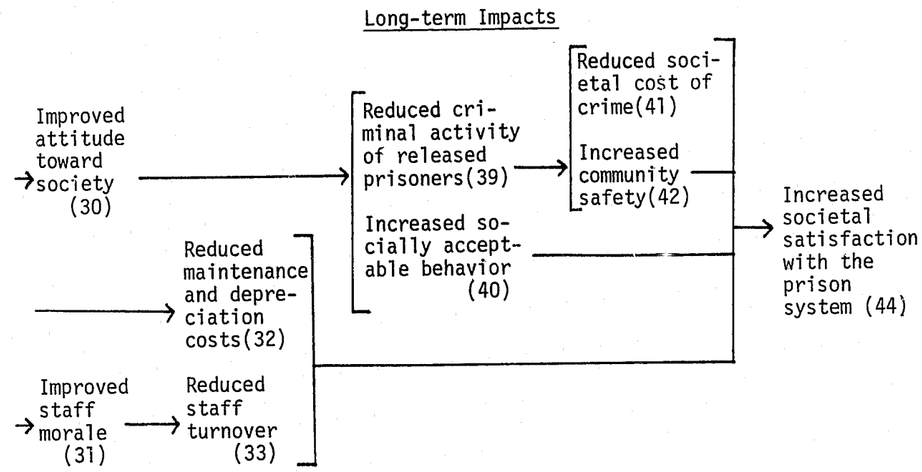
PRISON CUSTODIAL SERVICES ACTIVITIES AND IMPACTS



* In cases in which inmates have psychological, psychiatric, drug and/or alcohol addiction, or other special health needs, treatment services, rather than basic custodial services, are required to meet those needs.

Figure III-3 (cont'd.)

PRISON CUSTODIAL SERVICES ACTIVITIES AND IMPACTS



This diagram is based on the assumption that the given sets of activities will ultimately lead to positive changes in the prisoners' behavior and attitudes, and ultimately to positive societal changes as well. Other assumptions, such as the one which concludes that the prison environment and activities will "prisonize" inmates (e.g., limit their ability to make independent decisions, introduce them to more sophisticated or more violent criminal behavior than they were already capable of, and destroy their self-esteem) and cause increased crime in the community, are not offered as alternatives in this causal diagram. Negative impacts are omitted because it is assumed that a system of positive performance measurement will be more useful overall, than a negative system would be.

self-concept, and so on, are not specifically outlined in this diagram.) Another element of "internal security" is staff supervision. It is hypothesized that staff supervision assures appropriate staff actions(7), which increases prison safety(29). (Prison safety is affected because there is assumed to be less friction and unrest in a well-supervised prison environment.)

6. The "increased prison safety"(29) reduces costs by improving staff morale(31) (thereby cutting down on costly turnover) and by reducing the maintenance and depreciation costs generated by prison riots and other destructiveness.(32)

7. Increased safety of the prison(29), by reducing costs, (32 and 33) leads to increased overall satisfaction with the prison system.(44)

This illustration underscores the key role that corrections theory plays in guiding the choice of what concepts should be measured. Many of these assumed relationships may not have been tested empirically. A different corrections theory could well lead to a different set of concepts and a different set of measures for the same program. For example, theory taken from The Society of Captives (Sykes, 1958) links confinement to many negative impacts. Figure III-4 displays the cause-effect relationships assumed by this alternative theory. The reader may find it instructive to compare the concepts that would be measured in Figure III-4 with concepts flowing from impact (6) in Figure III-3.

As another example of how theories guide the choice of which concepts need measuring, consider two theories related to community-based treatment programs. Figure III-5 diagrams the impacts expected from a communtity-based program, using assumptions contained in treatment models. Figure III-6 is based upon the theory contained in Decarceration - Community Treatment and the Deviant: A Radical View (Scull, 1977). These two figures highlight different concepts and would lead to different sets of performance measures.

As previously suggested, the researcher may want to consider performance measurement from multiple theoretical perspectives. Research budgets, however, may be insufficient to permit measuring program performance from multiple perspectives. The researcher should at least make clear the concepts he feels are important to be measured and the cause-effect assumptions that relate these concepts to the corrections program whose performance is being measured.

Assessing the Adequacy of Potential Performance Measures

Suppose that one wants to measure the performance of the hypothetical prisons custodial services program whose assumed cause-effect relationships are displayed in Figure III-3. Further suppose that he is specifically interested in the outcome, increased prison safety (concept number 29 in Figure III-3). He thinks about ways of measuring this concept, does some reading in the corrections evaluation and measurement literature, and pulls together the following list of potential measures for describing prison safety:

> Number of failures of internal security, by type of incident (total and total divided by average daily population) (Blair, 1977: 2)

Figure III-4

AN ALTERNATIVE DIAGRAM DISPLAYING NEGATIVE EFFECTS THAT MIGHT RESULT FROM CONFINEMENT

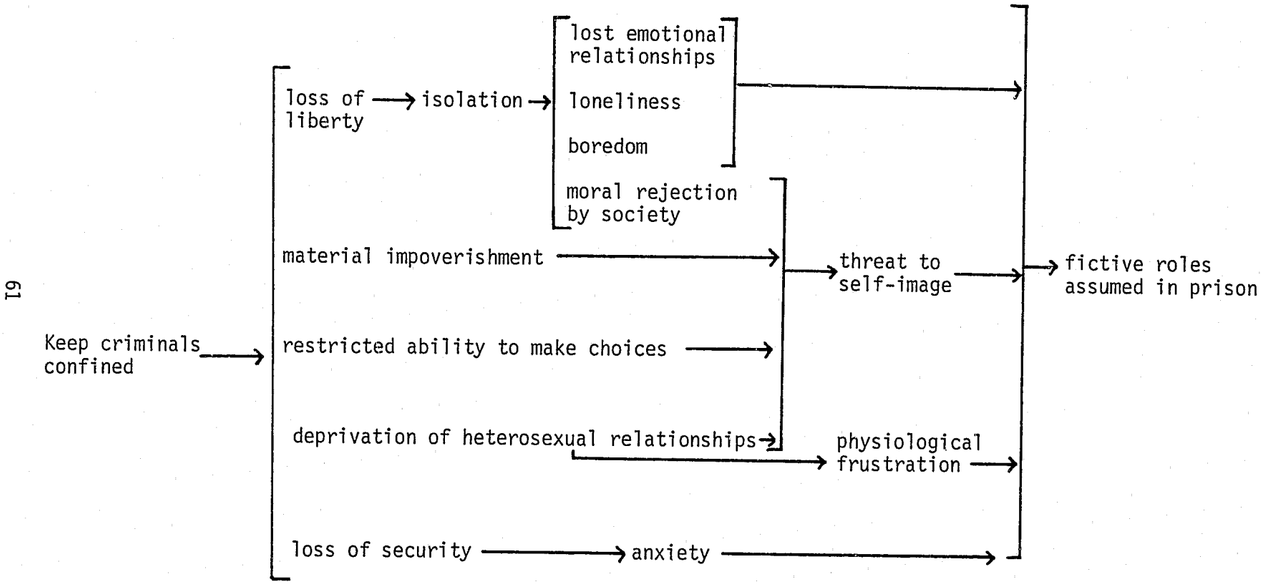


Figure III-5

HALFWAY HOUSE TREATMENT AND SKILL DEVELOPMENT SERVICES
ACTIVITIES AND EXPECTED IMPACTS BASED ON TREATMENT MODEL

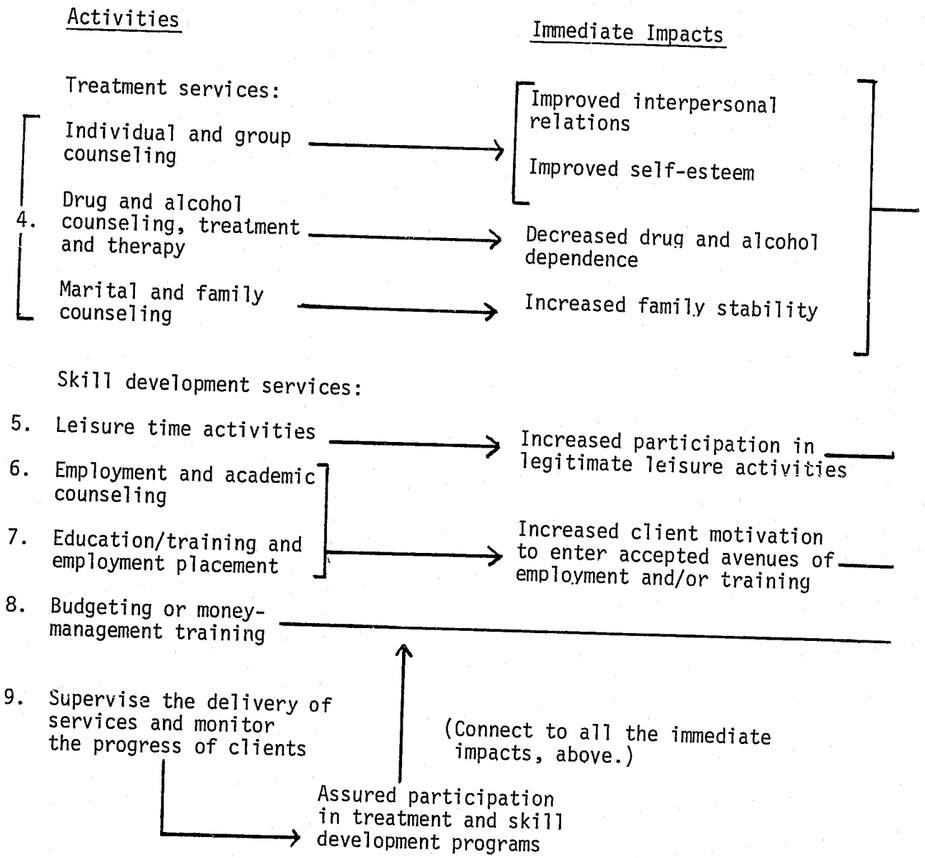


Figure III-5

HALFWAY HOUSE TREATMENT AND SKILL DEVELOPMENT SERVICES
ACTIVITIES AND EXPECTED IMPACTS BASED ON TREATMENT MODEL

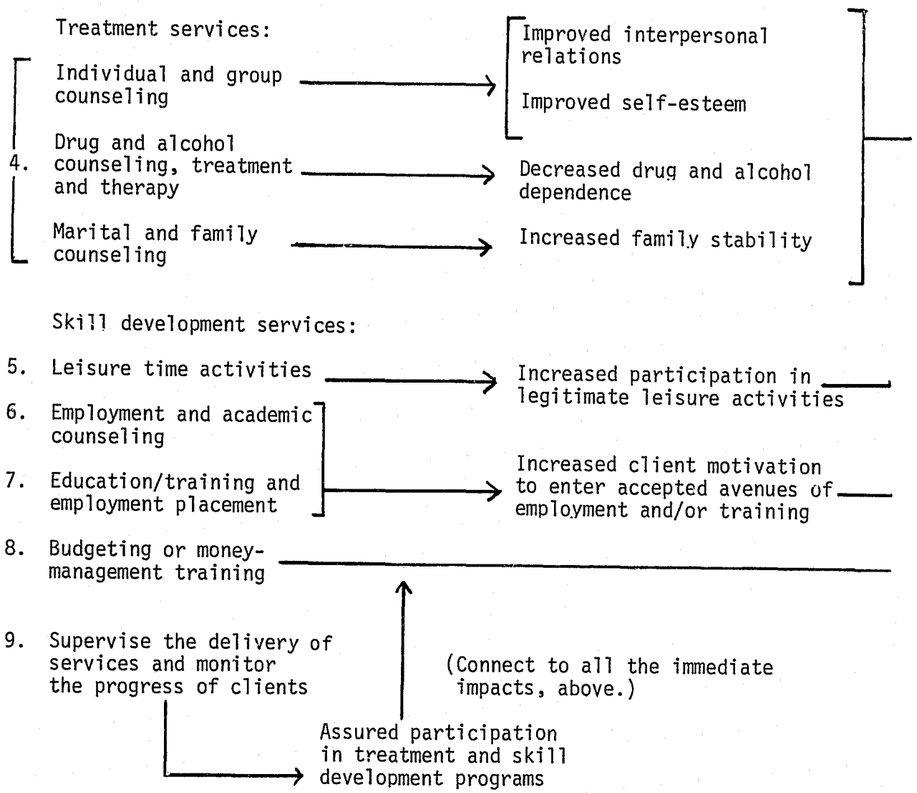
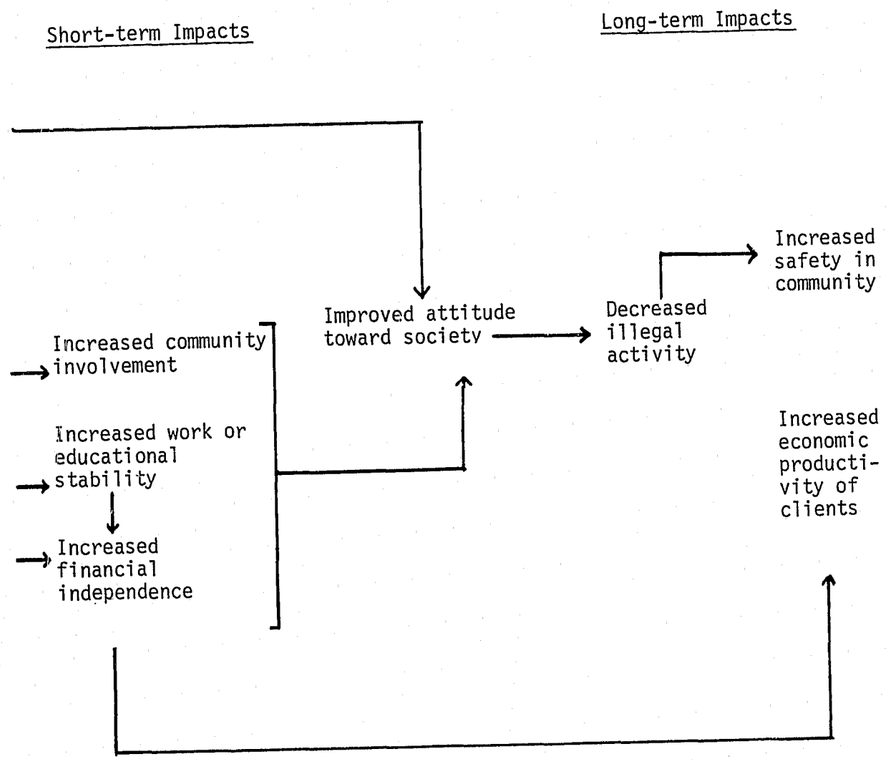
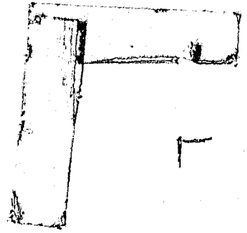


Figure III-5 (cont'd.)

HALFWAY HOUSE TREATMENT AND SKILL DEVELOPMENT SERVICES
ACTIVITIES AND EXPECTED IMPACTS BASED ON TREATMENT MODEL



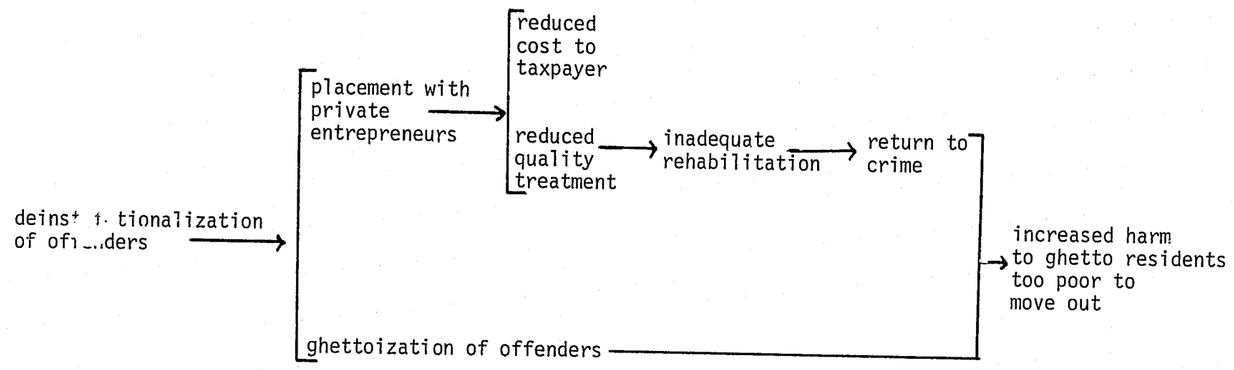


CONTINUED

1 OF 3

Figure III-6

EXPECTED NEGATIVE EFFECTS OF HALFWAY HOUSE BASED ON RADICAL THEORY



Number of self-inflicted injuries and suicides (Blair, 1977: 60)

Number of riots and other incidents of unrest to protest prison conditions and/or inhumane treatment (Blair, 1977: 60)

Number and percentage of prison days per year, during which there are no reported incidents of unrest or violence

Amount of contraband detected (Colorado, 1979)

Amount of contraband stopped; number of contraband incidents; percentage of inmates with drugs in urine (Blair, 1977: 60)

Number of acts of vandalism and destructiveness (Blair, 1977: 62)

Percentage of prisoner complaints resolved without resort to violence

How can he decide which of these potential measures he should use? One way is by using a uniform set of criteria to evaluate each measure. These criteria would define the premises upon which measures are compared in order to establish their relative desirability. Various governmental jurisdictions have used such criteria as an aid to selecting performance measures. Which criteria are used varies from one jurisdiction to another. The City of Tallahassee, Florida, and the State of Wisconsin provide two examples. Tallahassee rated potential measures for its productivity budget in terms of the following criteria:

validity

utility

timeliness

acceptability

simplicity

availability

use.

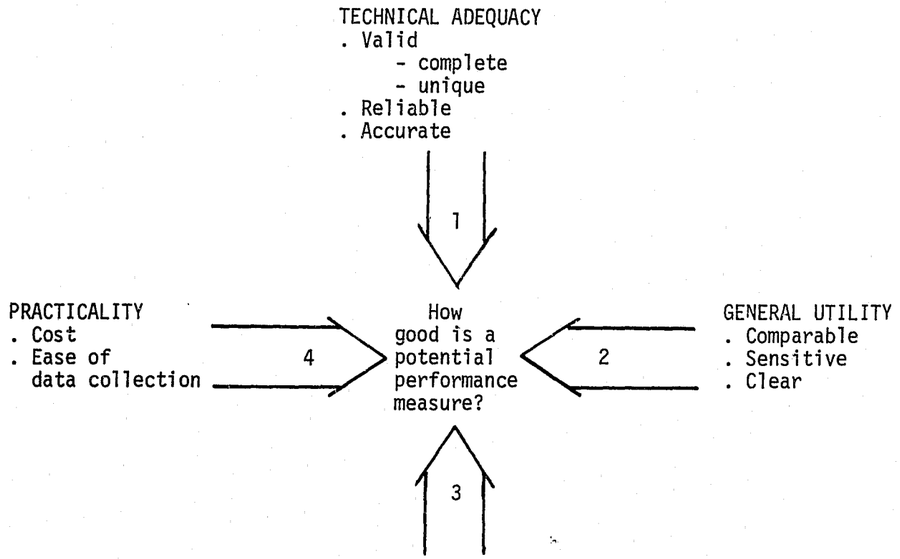
Wisconsin's criteria stipulated that performance measures should be output-oriented, relevant to program objectives, capable of meaningful quantification, thoroughly defined, simple but informative, available on a continuing basis, and should test the validity of objectives and recognize different levels of performance (Wisconsin, 1973: 255-6).

The most appropriate criteria will vary, depending upon how one intends to use measures. Criteria appropriate for evaluating a measure used to test a cause-effect linkage in Figure III-3, for example, might not be appropriate for evaluating a measure used to decide how budgeted funds should be distributed among program processes.

Figure III-7 summarizes criteria frequently suggested for rating potential

Figure III-7

CRITERIA FOR RATING POTENTIAL PERFORMANCE MEASURES



performance measures.[5] Criteria for technical adequacy relate the potential measure to the concept it measures and permit assessing the measure in terms of how valid, reliable, and accurate the measurements are likely to be. Practicality criteria address concerns about the cost and ease of obtaining data. Two other categories consider utility from a general perspective and from the perspective of the specific use intended for the measure. Knowing how comparable, sensitive, and clear the measure is can give one an idea of the range of programs and constituents for which a measure might be useful. Timeliness and relevance of performance measurements to decisions, on the other hand, can be judged only within the context of specific uses.

Table III-2 provides working definitions for the criteria listed in Figure III-7. A possible rating scheme for these criteria are included in Appendix D. The reader may want to use this list as a starting point in identifying a set of criteria suitable to his measurement assessment problem. One can develop many strategies for systematically applying criteria to rate the relative desirability of individual measures. Two examples of strategies follow.

Table III-3 illustrates one simple rating strategy, using as an example the potential measures previously listed for the concept, increased prison safety. In this simple strategy, the rater selected seven criteria from Table III-2 and used the rating scheme in Appendix D to score each measure. The scores were then summed across the criteria to obtain a single numerical rating for each measure considered. The higher the rating, the better the measure compares with the other measures related to the concept of prison safety. It should be emphasized that a measure's rating can be made only relative to ratings for other measures being considered for the same measurement purpose. "The appraisal of any new (measurement) procedure must always be in terms of other procedures with which it is in competition." (Thorndike and Hagen, 1977: 93)

If high scores on some criteria are considered essential before a measure can be used, a two-step assessment strategy could be used. If performance measures are intended to aid decision-making, for example, the rater might first screen the measures for relevance to the decisions targeted and discard all measures deemed not relevant. He would not spend any time assessing those measures in terms of other criteria. Table III-4 illustrates a two-step strategy. In this example, the potential measures relate to the concept, improved self-esteem, also taken from Figure III-3. This rater believed that no measure should be considered if it scored "low" on either validity criterion -- completeness or uniqueness. The last three measures in this list were therefore dropped from consideration before assessing them in terms of the other five criteria.

Potential measures need to be rated by people who understand the situation in which performance measurements will be used. The criteria that are most important in one situation might be cost and relevance to decisions. In another situation, other criteria, e.g. technical adequacy, might be most important. The rater can design a rating strategy for identifying measures that meet the constraints of his particular situation. If the situation warrants, more complicated strategies that assign different weights to the scores for each criterion used can be devised.

One should keep in mind that this rating process is basically subjective. The

[5] For a survey of literature on criteria, see Grizzle (1979a).

Table III-2

CRITERIA FOR ASSESSING PROPOSED MEASURES

I. Criteria for Rating Technical Adequacy

1. Valid - Does the measure logically represent the concept to be measured? Two components of validity that merit separate ratings are completeness and uniqueness.

   a. Complete - Does the measure cover the entire concept or construct?

   b. Unique - Does the measure represent some concept or construct not covered by any other measure in this set?

2. Reliable - If a measurement is repeated, will the results be identical? Are there fluctuations in the characteristic to be measured, changes in transient personal or situational factors, or inconsistencies in the measurement procedure that result in variation in the measurements attained?

3. Accurate - Is the measurment free of systematic error or bias?

II. Practicality

1. Cost - How much will data collection or analysis cost?

2. Ease of data collection - What is the anticipated ease or difficulty of obtaining the data needed to make the measurement?

III. Utility - User Independent

1. Comparable - Can this measure be used to compare different programs with each other?

2. Sensitive - Is the discriminating power of the measurement procedure sufficient to capture the variation that occurs in the object, events or situations being measured?

3. Clear - Can the meaning of the measure be understood?

IV. Utility - User Dependent

1. Relevant to decision - Does the measure provide information needed to make a decision about the performance of a correctional program or activity?

2. Timely - Are changes in the objects, events, or situations being measured reflected quickly enough in the measurements to be available before the decision must be made?

Table III-3

AN ILLUSTRATION OF A SIMPLE RATING STRATEGY

	Valid Complete	Valid Unique	Reliable	Accurate	Comparable	Sensitive	Clear	Numerical Rating
Increased prison safety (29)								
No. of failures of internal security, by type of incident (total and total divided by average daily population) a. incidents involving contraband b. incidents of unrest by groups of inmates c. physical assaults on prison officials d. physical assaults on inmates requiring medical treatment (Blair, 2)	H	M	H	M	H	M	H	11
No. of self-inflicted injuries and suicides (Blair, 60)	M	M	H	H	L	M	H	9
No. of riots and other incidents of unrest to protest prison conditions and/or inhumane treatment	M	M	H	H	L	M	H	9
No. and % of prison days per year, during which there are no reported incidents of unrest or violence	H	M	H	H	H	H	H	13
Amount of contraband detected (maintain or decrease) (Effectiveness measure used by Colorado Department of Corrections to assess "security" program)	M	M	H	H	L	M	H	9
Amount of contraband stopped; no. of contraband incidents; % of inmates with drugs in urine (Blair, 60)	M	M	H	H	1 - L 2 - L 3 - H	M	H	9 9 11
No. of acts of vandalism and destructiveness	M	M	H	H	L	M	H	9
% of prisoner complaints resolved without resort to violence	M	M	H	H	H	M	H	11

Table III-4

AN ILLUSTRATION OF A TWO-STEP RATING STRATEGY

	Valid		Reliable	Accurate	Comparable	Sensitive	Clear	Numerical Rating
	Complete	Unique						
Improved self-esteem (26)								
% of prisoners whose self-esteem is judged to have improved since intake . Use of MMPI . Use of Jesness and CPI . Use of Army psycho-neurotic screening adjunct	H	H	H	M	H	M	H	12
% of prisoners who accept the possibility of eliminating their crime problem	M	M	H	L (self-report)	H	M	H	9
% of prisoners with negative attitude toward self	H	M	H	M (standard test)	H	M	H	11
% of inmates who anticipate returning to gainful activity after release	M	L'						
% of inmates who participate actively in group activities	L							
% of inmates who believe they have something to contribute to society	M	L'						

' Rated L, assuming this information would be generated by use of a standard self-esteem questionnaire.

ratings strategy gives a rater a systematic way of thinking about factors that render a potential measure satisfactory or unsatisfactory. One can use a scoring scheme to produce a single numerical rating for comparing measures that relate to the same concept and selecting measures that rate higher than some predesignated cutoff. If this procedure seems too mechanical, one can simply apply the criteria to obtain insights about the measures' strengths and weaknesses without producing total scores.

If none of these strategies seems desirable, a more unstructured approach could be used. One could, for example, first sort measures into "suitable" and "unsuitable" categories and then summarize the factors that led to the judgment that some measures were suitable and others not.

Whatever procedure is used needs to be applied consistently. The larger the set of measures, the more time it takes rechecking ratings to make sure that all criteria have been uniformly interpreted and applied. For small sets of measures ranging from 50 to 80 measures per set, our average time for rating measures using 12 criteria averaged three minutes per measure. If one has the task of proposing measures for the hundreds of concepts required to measure all the performance dimensions in Table III-1 for several corrections programs, it might take several weeks for a single rater to rate all the measures. If rating the measures is divided up among different raters, special care should be taken to ensure that all raters share common anchor points and make ratings that are consistent across raters.[6]

SUMMARY AND CONCLUSIONS

In this chapter, we discuss several conceptual issues that one should resolve before searching for specific performance measures. By answering the following list of questions, one can develop a conceptual framework that tailors performance measurement to a chosen program:

- For what corrections program is performance to be measured?
- In what stage of development is this program, and what types of performance information can appropriately be developed for this stage?
- Who is asking what questions about the program's performance, and to what extent are these questions compatible with the type of performance information appropriate to the program's developmental stage?
- What will the people wanting performance information about this program do with this information?
- Who will pay for the performance measurement system, and what restrictions do the funding level and the information interests of the payor place on the type of performance information that the system will address?

[6]For a more extended discussion of our experience using the rating criteria, see Jones (1980).

- Which (and whose) information needs--e.g. for efficiency, cost-effectiveness, equity, service quality, unmet need, and policy conformance information--will the performance measurement system be designed to serve?

- If some of these information needs are ignored by the performance measurement system, what will be the likely consequences of not answering some of the performance questions being asked?

- Will performance be compared with goals, or targets, or standards? If so, which (or whose) goals, targets, or standards?

- If product or process measures are to be developed, what services does the program deliver and how does it go about providing these services?

- What corrections theories will guide one's choice of what to measure and what the measurements mean?

- Do the corrections theories adopted suggest that specific concepts need to be measured? What are the key assumptions relating these concepts to program performance?

- What strategy will be followed when assessing the relative adequacy of potential performance measures?

These questions lead one explicitly to relate measures to concepts derived from corrections theories and to organize the measurement effort within a typology that lays out the performance questions that the performance measurement system will answer. The questions also force one to recognize the environment within which performance information is likely to be used, the multiple uses to which performance information can be put, and who stands to gain or lose when such performance information is used in policymaking. Further, they encourage one to relate the cost resulting from decisions made about the scope of the measurement system to the funds likely to be available. Finally, answering these questions before thinking about particular measures focuses and economizes one's search for measures and simplifies measurement interpretation once data are collected.

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CHAPTER IV

PERFORMANCE MEASURES FOR THE CORRECTIONS AGENCY

The previous chapter developed a conceptual framework that people interested in measuring corrections performance can use to define their performance information needs. Within that framework, this chapter focuses upon how measures can be constructed, interpreted, and used to judge performance. When constructing measures, one needs to be sensitive to the context within which and the purposes for which performance measurements will be used. Thus, we first discuss how theory and other matters affect how measurements should be interpreted and performance comparisons can be used to judge program performance. Next, we illustrate different ways of constructing measures for performance concepts identified as important. Finally, we describe an approach--multivariate statistical modeling--that permits attributing changes in individual offenders' behavior to specific adult corrections programs.

INTERPRETING MEASUREMENTS

Lists of performance measurements are not by themselves of much value. Before using these measurements, one must decide what they mean. This decision requires that one interpret the measurement within the context of additional information. We have already emphasized the important role that theory plays in shaping the meaning of performance measurements. When a program's assumed cause-effect relationships are explicit and when performance measures relate to specific concepts within the cause-effect framework, the direction in which a measurement should change to be interpreted as an improvement in performance should be clear. When the theory underlying correctional programs is made explicit, theory and programmatic development can proceed simultaneously, not separately as is so often the case today. Both theory and correctional programs could benefit substantially by this marriage.

In addition to theory, several other matters need to be considered when interpreting measurements. These factors include timing, self-correcting cases, learning curves, and participant dropouts. Timing is especially important when measuring outcomes that lag behind program operations. Premature measurement might not capture a program's impact, for example, on such delayed outcomes as increased job stability and income due to training obtained while in prison or on probation or parole. Postponing outcome measurement also poses interpretation problems, however, when program effects die out or program ex-participants cannot be located (Rezmovic, 1979: 26). Measurements need to be timed to occur after outcomes are expected to materialize but before agencies lose track of ex-offenders and information about their post-release behavior.

The learning curve phenomenon may also affect program performance. If program operations are such that one can expect improved performance to result from experience, one should consider the program's developmental stage when interpreting measurements. In self-correcting cases, outcomes may make a program appear more effective than it is. For example, a part of an observed reduction in drug usage may be due to the phenomenon of "maturing out" but be improperly interpreted as being due to some treatment program in which the ex-offenders

were previously enrolled unless maturation is explicitly controlled for.

Program dropouts also need to be considered when interpreting program outcomes. A high dropout rate, if ignored, can lead to judging program effects only in terms of that portion of participants who were most successful. In addition to the special care in interpretation posed by the timing of measurements, self-correcting cases, learning curves, and program dropouts, attributing outcomes to a specific corrections program rather than to other factors generally poses a problem of interpretation. A later section of this paper illustrates the multivariate statistical models that we believe present the most generally feasible approach to dealing with this attribution problem.

USING MEASUREMENTS TO JUDGE PERFORMANCE

Measurements describe performance but do not by themselves evaluate it. To judge how well a program is doing, performance measurements must be compared with other information. This information may take the form of standards, goals or objectives, optimal or technically efficient performance levels, or the performance of other programs.

One source of standards would be American Correctional Association standards published as manuals for adult parole authorities, adult community residential services, adult probation and parole field services, adult correctional institutions, and adult local detention facilities. A few examples of process and service characteristic measures for which measurements could be compared with ACA standards are listed below:

- Process measure for a jail activity: Number of inspections per week of security facilities (ACA standard 5211 sets the number at once a week.) (American Correctional Association, 1977b: 43)

- Process measure for a prison activity: Number and percentage of inmates with special work assignments who received appropriate clothing (ACA standard 4246 sets the percentage at 100.) (American Correctional Association, 1977a: 48)

- Service characteristic measure for a prison activity: Percentage of educational programs recognized and accepted by professional educators, licensing boards and/or trade associations (ACA standard 4399 sets the percentage at 100.) (American Correctional Association, 1977a: 77)

When comparing performance to standards, one would conclude that performance at or exceeding the level prescribed in the standard is satisfactory. Performance measurements at levels below the standard would indicate need for improvement. Similar conclusions could be reached, using quantified goals or objectives instead of standards. Assume, for example, that a goal of a prison skill development program was that released offenders would be employed 90% of the time during the first year after release. If the performance measurement showed average employment of 95% of the time, one might conclude that performance was good. If, on the other hand, the measurement showed an average employment of 70% of the time, performance could be judged inadequate compared

to the goal set for the program.

The other bases for comparison, technical efficiency and interprogram comparisons, require more detailed discussion than do standards or goals. Discussions of these comparisons follow in separate sections below, with a final section dealing with interprogram comparisons when multiple outcomes exist.

Technical Efficiency

Technical efficiency means producing the maximum output from a given input bundle. This concept can be applied to corrections programs to estimate the reduction in cost possible if technical efficiency prevailed. Assume, for example, that the cost at optimum efficiency (i.e., the cost of operating under the condition of technical efficiency) of a corrections program is equated to 100%. Cost comparisons based on this concept could be made as illustrated below for hypothetical jails:

Optimal cost	100%
Jail A cost compared to optimum	114%
Jail B cost compared to optimum	108%

Applied to some processes, this concept is relatively straightforward. For example, in examining the efficiency of steam-electric generating plants, Schmidt and Lovell (1977) have a single output -- electricity generated. Their production function includes three inputs -- capital, fuel, and labor. Inputs and the output are measured as follows:

Capital - actual cost of plant

Fuel - actual consumption measures in BTU

Labor - design labor force measured in total employee man-hours (total employees x 2000)

Finally, they assume a Cobb-Douglas functional form for the production function: $y = a \prod_{i=1}^{n} x_i^{\alpha_i} e^{\varepsilon}$, where y is the amount of electricity generated by a plant, the x_i are the capital, fuel, and labor used in the production process, ε is a random disturbance, and $\underline{a}$ and the α_i's are parameters to be estimated.

Before such a procedure is applied to correctional programs, several questions need to be answered. These questions are raised below within the context of probation programs.

Suppose that we agree that the output for probation programs is supervision and that the quantity of supervision can be measured by the number of offenders on probation times the number of days that each is on probation. If we assume three inputs, labor (measured in employee man-hours), capital (measured as actual cost of facilities used), and material (actual cost of equipment, supplies, and travel), we can assume a theoretical model of probation production as follows:

Quantity of supervision = f(labor, capital, material)

We might then wish to assume Cobb-Douglas to be the form of this production function, as was the case for the electric generating plants. By measuring the labor, capital, and material consumed by different probation programs and the quantity of supervision produced by each, we can use this production function to determine which program is most technically efficient.

The first question that needs to be raised is, "is this finding of the most technically efficient program useful to anyone?" To assume either that it is "good" per se to be technically efficient or that the technically inefficient programs ought to emulate the technically efficient programs requires that we agree on two points. The first point of agreement is that the three inputs, as measured, adequately capture the important aspects of the probation process. A second point upon which we must agree is that quantity of supervision adequately captures probation output. Given this formulation of the probation production function, it seems obvious, even before going to the expense of collecting data, that the efficient probation programs will be those with the greatest number of probationers per probation employee. Would not a finding that "the larger the caseload per probation employee, the more efficient is the organization," be trivial?

It may be argued that "quantity of supervision" does not capture important qualitative variation in the outputs of different probation programs. This argument is especially relevant when the audience for the research is concerned both with technical efficiency and with allocative efficiency (whether the marginal benefit is equal to the marginal cost and output is produced at the lowest cost). The results of benefits that may accrue from X days of supervision -- e.g., employment stability and abstention from criminal activity by the offender -- may differ markedly, depending upon the nature of the supervision and supporting services rendered. Most advocates of correctional reform advocate changes in program processes, not because they are interested in technical efficiency, but because the nature of the process is believed to affect the quality of the output and the impact of the program upon the offender directly and society indirectly. If this concern is to be addressed, then it will probably be necessary to enrich the production function by including a vector of output quality attributes.

It may also be argued that the measures for labor, capital, and material do not capture important process differences between programs. These variables define the quantitative combinations of the three inputs but they do not describe how the inputs are combined. Once technical efficiency has been determined for a group of programs, using an output variable standardized for quality, the question, "Why is program X technically inefficient?" needs a more informed answer than "it uses too much labor" or "it uses too little labor." The quality of the output can be affected by the way resources are used, not simply the quantity and proportions of the three inputs used. As an example of process variations that might materially affect output quality, we list these questions about probation process derived from recommendations made by the Corrections Task Force of the President's Commission on Law Enforcement and Administration of Justice (1967):

(1) Should offender classification be based upon risk or both risk and service needs identified?

(2) Should probationers be involved in developing their inventory of needs?

(3) Should a team approach be used for needs assessment?

(4) Should the priority function of the probation officer be that of community resource manager for probationers or of sole provider?

(5) Should there be a distinction between misdemeanant and felony probation as to organization, manpower or services?

(6) Should probation resources be organized on the basis of workload or caseload?

(7) Should probation operations be centralized or decentralized?

The nature of the probation process is important for understanding why certain inputs lead to certain outputs. It is a topic logically explored after technical efficiency has been determined.

Interprogram Comparisons

Performance measurements most usefully indicate how well a program is performing when measurements can be compared with each other. While comparisons can be made against a program's previous track record or against standards or goals, many observers of corrections programs have a keen interest in comparing programs to each other. The great diversity of adult corrections programs, both in terms of what these programs do and what they intend to accomplish, requires that one exercise special care when comparing programs to each other. Interprogram performance comparisons are most appropriate when these conditions are present:

(1) When process measurements are used to compare performance, programs should share common processes.

(2) When efficiency or product measurements are used, programs should share common products.

(3) When quality measurements are used, programs should share common service characteristics.

(4) When equity measurements are used, potential client groups should be similar.

(5) When effectiveness or cost-effectiveness measurements are used, the types of outcomes expected should be similar among programs compared to each other.

(6) Programs should use the same definitions, data collection and reduction procedures, and measurement display formats.

(7) Data collection and reduction techniques should be practical and relatively cheap.

(8) Programs must have an opportunity to explain unusual situations.

(9) Timely data collection and reporting occurs.[1]

Obviously, interprogram comparisons will be hindered when programs use different performance measures. While different measures may be required to capture faithfully the diversity of program processes, products, and service characteristics, it may be possible to compare some programs' outcomes even though these programs differ in what they do. All programs do not aim for the same outcomes, but those that do could be compared in terms of a common array of outcome measures. Researchers would welcome more uniform measurement across programs in order to facilitate testing cause-effect assumptions. Corrections actors, however, are more likely to consider common outcome measures from the standpoint of how interprogram comparisons might affect their ability to mobilize support for their programs.

Aggregating Multiple Outcomes

When programs have more than one outcome in terms of which performance can be compared, assessments can be made in two general ways. In the first way, the outcomes are simply arrayed and the user must decide how much importance to attach to each outcome when judging program performance. In the second way, weights are attached to each outcome and these weighted outcomes are summed to provide a single performance measurement. Several researchers have presented methods of determining and applying these weights to various performance dimensions (Keeney and Raiffa, 1976; Edwards, Guttentag, and Snapper, 1975; Rohrbaugh and Wehr, 1978; Rohrbaugh and Quinn, 1979). The technique presented here is that developed by Edwards (Edwards and Guttentag, 1975; Edwards, Guttentag, and Snapper, 1975).

Taken in the method's simplest form, the steps are to identify program outcomes, determine the relative importance of outcomes, estimate the extent to which each program attains each outcome, and calculate the utility for each program.

A. Identify program outcomes.

In this hypothetical example, we assume four broad outcomes - punishment, retribution, deterrence, and rehabilitation. For real programs, the outcomes would probably be more specific. For example, one might expect outcomes such as the following to be of interest for a probation program:

. reduced criminal activity

. increased socially acceptable behavior

. improved self-esteem

[1]Points 6 through 9 were adapted from Dressel (1976: 92).

. improved family stability

. improved attitude toward society

. increased economic productivity

. increased safety in the community

B. Determine the relative importance of outcomes.

An arbitrary importance weight of 10 is assigned to the outcome deemed least important and the three remaining outcomes are weighted relative to the least important outcome. In this example, we will say that retribution is the least important outcome and that punishment will be weighted 20; deterrence, 30; and rehabilitation, 40. As each weight is established, it is checked against the other weights for consistency. If the weights do not sum to 100, each weight is divided by the sum of the weights and multiplied by 100 to convert them to a 0-to-100 scale.

C. Estimate the extent to which each program attains each outcome.

This step takes performance measurements and converts them to a 0-to-100 scale for which 0 is the minimum plausible value for any of the programs and 100 is the maximum plausible. For this example, assume that the measurements shown in the matrix below have been estimated. On a 0-to-100 scale, the prison program's performance is estimated at 80 for the punishment outcome, 50 for the retribution outcome, and 90 and 10 for deterrence and rehabilitation, respectively.

Programs	Outcomes			
	Punishment	Retribution	Deterrence	Rehabilitation
Prison	80	50	90	10
Halfway House	70	30	60	30
Probation	30	10	20	50
	20	10	30	40

Weights for outcome

D. Calculate the utility for each program.

Utility for a program is calculated by (1) multiplying the weight for each outcome by the program utility that is related to that outcome and

(2) summing the product obtained for each of the outcomes. For the prison program in this example, the aggregate utility would equal (20 X 80) + (10 X 50) + (30 X 90) + (40 X 10) or 5200. Utilities for halfway houses and probation would be 4800 and 3300, respectively. Using this approach, the prison program would be judged to have best overall performance because its utility is larger than the halfway house and probation utilities.

CONSTRUCTING MEASURES

Chapter III presents a method for defining requirements in terms of information needed to answer questions being asked about performance. What should be measured depends upon one's theory about correctional programs and their consequences. Measures are constructed for those concepts that one's theory suggests are important in answering performance questions. These performance measures can be broadly categorized into types, corresponding to different performance questions that one might ask. The measurement types suggested in Chapter III relate to the questions listed below:

Type of Performance Measure	Performance Question to Be Answered
Cost	What is spent?
Product	What is produced?
Process	How is service provided?
Service characteristic	How good is service?
Distribution	Who gets served?
Outcome	Service with what results?
Cost/product	Service at what cost?
Cost/outcome	Results at what cost?
External conditions	What environmental conditions exist?

In this section, we speak to the more technical problem of how to construct measures, given that one knows the performance questions and the concepts that need measuring. Measures may be constructed as simple counts; ratios, percentages, or unit costs; indices; or models that estimate a measure as a function of several other variables. For illustrative purposes, we take a hypothetical probation treatment program and assume that the concepts important for measuring this program's performance are diagrammed in Figure IV-1. The examples that follow relate to this treatment program.

Simple Counts

Simple counts are frequently used to measure cost, amounts of work done, quantity of product, and outcome. A cost measure expressed as a simple count

is, "total dollars spent on probation treatment programs." A product measure constructed as a simple count is, "number of treatment services rendered." Examples of process measures that require only simple counts are these:

. Number of staff hours spent providing treatment services

. Number of probationers receiving treatment services

The first measure addresses the time it takes to implement an activity, while the second addresses the extent to which the activity is implemented. Possible outcome measures constructed as simple counts are related in Table IV-1 to some of the concepts displayed in Figure IV-1.

Ratios, Rates, and Percentages

By taking two simple counts and dividing one by the other, one can construct ratios, percentages, and unit costs. Percentages, for example, can be developed for each probationer count in Table IV-1 by dividing each measurement by the total number of probationers. By dividing the total number of violations of probation terms by the total number of probationer man years, one can construct a ratio of violations to man years, or, as the measure would be more frequently stated, the number of violations per probationer man year. Ratios are also frequently reported as rates -- e.g., number of assaults per 100,000 population. Table IV-2 presents other examples of ratios and percentages.

Process, service characteristic, and distribution measures can also be easily constructed as percentages. Process measures as percentages can describe the time it takes to implement an activity, the extent to which the activity is implemented, and the manner in which the activity is carried out. Examples of measures for these three aspects of processes are, respectively:

. Percentage of staff hours spent providing counseling

. Percentage of eligible clients participating

. Percentage of counselors who are sympathetic toward clients

Service characteristic measures that summarize the level of client satisfaction, level of staff satisfaction, degree to which an activity meets professional standards, and ratings by inspectors can also readily be constructed as percentages. Table IV-2 provides a few examples. Finally, examples of distribution measures constructed as percentages would be percentage of offenders receiving treatment services, broken down by such characteristics as severity of offense, severity of need for service, race, age, sex, and income level.

Unit Cost

Unit cost measures can be used to make both efficiency and cost-effectiveness comparisons. For example, total cost of treatment services divided by number of services provided permits an efficiency comparison -- cost

FIGURE IV-1

PROBATION TREATMENT SERVICES
ACTIVITIES AND EXPECTED IMPACTS

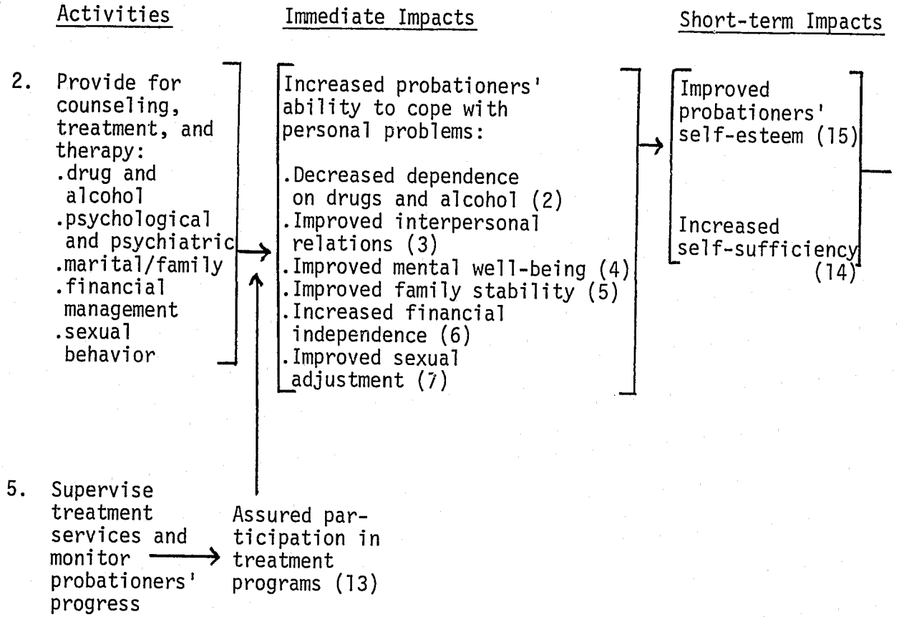


FIGURE IV-1 (cont'd.)

PROBATION TREATMENT SERVICES
ACTIVITIES AND EXPECTED IMPACTS

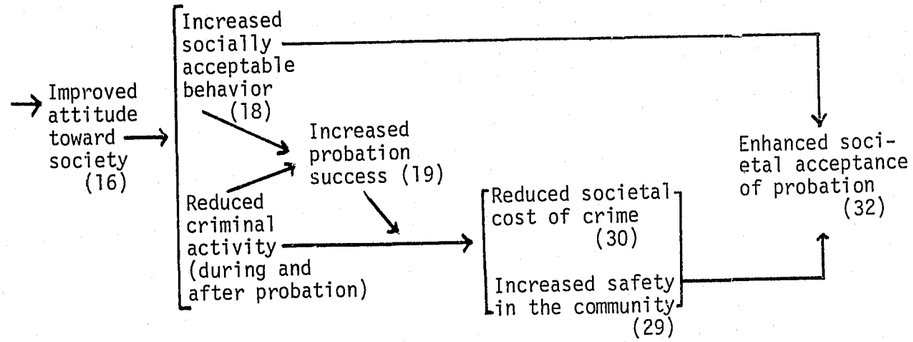


TABLE IV-1

ILLUSTRATIVE OUTCOME MEASURES CONSTRUCTED AS SIMPLE COUNTS FOR A HYPOTHETICAL PROBATION TREATMENT PROGRAM

Concept Measured	Measures Related to Concept
Decreased dependence on drugs and alcohol	Number of probationers no longer dependent upon drugs, as reported by counselors, employers, peers, family
Improved interpersonal relations	Number of probationers whose interpersonal relations have improved, as determined by probation staff, self-reports, and standard psychological tests
Increased family stability	Number of probationers who show improved family stability, as measured by the St. Paul Scale of Family Functions Number of probationers who perceived a positive change in their family relationships
Improved attitude toward society	Number of probationers whose attitudes became more acceptable, as measured by Jesness, California Psychological Inventory, and MMPI
Increased socially acceptable behavior	Number of probationers showing increased socially acceptable behavior, as measured on the ABC behavior scale
Increased probation success	Number of probationers who complete their terms without revocation Number of violations of probation terms
Increased financial independence	Number of probationers whose credit rating improved Number of probationers who, after financial counseling, are able to pay rent, buy clothes, and make large purchases

TABLE IV-2

ILLUSTRATIVE MEASURES CONSTRUCTED AS RATIOS OR PERCENTAGES FOR A HYPOTHETICAL PROBATION TREATMENT PROGRAM

Outcome Concept Measured	Ratio Measures Related to Concept
Increased safety in the community	Reported crime rate Victimization rate
Decreased dependence on drugs and alcohol	% of probationers depending on drugs for normal functioning
Reduced criminal activity	Arrest rate of probationers % of probationers with no further criminal associations for 1 year after discharge from probation
Increased socially acceptable behavior	% of time probationer was employed during follow-up period
Service Characteristic Concept Measured for Counseling, Treatment, and Therapy Activities	
Client satisfaction	% of time counselor is rated effective/competent/helpful by probationers
Service availability	% of probationers for whom treatment needs are met
Timeliness	% of probationers who receive treatment within 2 weeks after referral

per service provided. Total program cost divided by the number of probationers who completed their term without revocation permits a cost-effectiveness comparison -- cost per successful probation completed.

Many potential users can readily see the utility of efficiency and cost-effectiveness comparisons. These performance measures would no doubt be used to a greater extent but for the difficulty of matching costs to products and outcomes. Cost determination methods therefore merit further discussion.

The most promising techniques for matching costs to products and outcomes are cost accounting systems, time logs, retrospective estimates, and direct observation studies.

Most corrections agencies do not have cost accounting systems. Those that do can code expenditures so that they can be classified by organizational unit, responsibility cost center, or program as well as by object of expenditure. When corrections agencies code expenditures by program, they can readily obtain total program costs from existing accounting records. Although several states now have automated accounting systems with space set aside for coding expenditures by program, this space is not always used. When corrections agencies have several programs, it is easier to allocate the space than to associate expenditures with particular programs so that the space can be used. A common problem is maintaining valid historical comparisons when frequent reorganizations move program components from one organizational unit, responsibility cost center, or program to another.

Because personnel costs are usually the biggest expenditure for corrections agencies, time logs are another way of estimating program costs. Each employee keeps a record showing minutes spent each day on each program. Monthly personnel costs can be distributed among programs according to the percentage of total time spent on each program. When nonpersonnel costs are minor in comparison with personnel costs, they are frequently distributed across programs in the same proportions as are personnel costs. Independent estimates can be made of nonpersonnel costs when these costs do not apply to programs in the same proportion as personnel costs. An example would be machinery used by only one program in the agency.

Many employees do not like to use time sheets and will resist doing so. This resistance may take the form of forgetting to fill out the sheet part of the time or recording inaccurate information. When time sheets are not practical, retrospective reporting can be used to estimate costs. A simple, though not necessarily accurate, approach to retrospective reporting would be to list the programs upon which an employee spends time and ask him to estimate the percentage of time spent on each program.

Cost accounting, time logs, and retrospective estimates are probably the most practical ways of allocating agency costs among programs. If the program has multiple products or outcomes, more detailed methods of cost determination may be required to match costs within a program to specific products or outcomes. Using our hypothetical probation treatment program as an example, we might want to break down the cost per unit of service by type of treatment provided. When the cost determination methods already discussed cannot provide this level of detail, special studies can develop estimates of the average

time required to complete individual activities or tasks. These average times can then be used to develop standard costs. The following example lists six activities performed by probation officers, the average minutes hypothetically required to complete each activity, and standard unit costs derived from the average time required for each activity.

Activity	Average Minutes Required	Standard Unit Cost
Needs assessment	180 minutes	$60.00
Counseling session	50	18.10
Referral	20	13.30
Follow-up on referral	15	4.00
Revocation	390	130.00
Regular completion	30	10.00

The average minutes required could have been calculated by special time logs, direct observation and recording of elapsed time, or reporting on a sample of time periods.

Indices

This discussion of unit costs for efficiency or cost-effectiveness comparisons leads to suggesting another way of constructing performance measures -- indices that aggregate simple counts, percentages, or ratios. Rather than developing unit costs for each activity one can use an index to construct a single product measure that includes several activities. A product measure for the activities shown above could be constructed from the following index:

Total units of service = number of needs assessments + number of counseling sessions + number of referrals + number of referral follow-ups + number of revocations + number of regular completions

Deciding the relative importance of the different activities is the challenge in constructing such an index. As the index is formulated above, each activity is weighted equally. Such an index would encourage probation officers to maximize the number of units of service provided by making many referrals and doing few needs assessments and revocations. This distortion of effort could be avoided by weighting each activity by the average time required to complete that activity. Continuing with the same example, we would then weight this index as follows:

Total units of service = (number of needs assessments x 180) + (number of counseling sessions x 50) + (number of referrals x 20) + (number of referral follow-ups x 15) + (number of revocations x 390) + (number of regular completions x 30)

Incentives for providing quality service can be introduced by adding measures of service characteristics to the index. Measures of client satisfaction, service availability, and timeliness are included in this index:

Total units of service = (number of needs assessments x 180) + (number of counseling sessions x 50 x % of time probationer rates counselor as helpful) + (number of referrals x 20 x % of probationers for whom treatment needs are met) + (number of referral follow-ups x 15 x % of probationers who receive treatment within 2 weeks of referral) + (number of revocations x 290) + (number of regular completions x 30)

Multiple outcome measures can also be aggregated to provide a single index. For a probation treatment program, one possible index that weights each outcome equally would be:

Probation treatment outcome = (% of probationers no longer dependent on drugs + % of probationers whose interpersonal relations have improved + % of probationers who show improved family stability + % of probationers whose attitudes became more acceptable + % of probationers showing increased socially acceptable behavior + % of probationers who completed probation without revocation + % of probationers whose credit rating improved + % of probationers not rearrested within one year of completing probation) ÷ 8

This index yields a percentage ranging between 0 and 100. Divided into total program cost, this performance measure calculates the cost for each percentage of outcome. Cost per outcome percentage can be compared for different programs to assess their relative cost-effectiveness.

As with the service index, the most difficult problem in constructing an outcome index is deciding the relative importance of the individual performance measures. The decision theoretic techniques mentioned in the section on aggregating multiple outcomes are one way of deriving the weights. Assume, for example, that we used Edwards' technique and determined the following weights for the outcomes included in the index shown above:

Outcome	Weight
Independence from drugs	10%
Interpersonal relations	10
Family stability	10
Acceptable attitudes	5

Socially acceptable behavior	10
Probation completed	30
Credit rating improved	5
Not rearrested	20

The index would be reformulated as follows to incorporate these weights:

Probation treatment outcome = (% of probationers no longer dependent on drugs X .10) ÷ (% of probationers whose interpersonal relations have improved X .10) + (% of probationers who show improved family stability X .10) + (% of probationers whose attitudes become more acceptable X .05) + (% of probationers showing increased socially acceptable behavior X .10) + (% of probationers who complete probation without revocation X .30) + (% of probationers whose credit rating improves X .05) + (% of probationers not rearrested within one year of completing probation X .20)

Models

We have illustrated how performance measures can be constructed as simple counts, ratios, percentages, unit costs, and indices. None of these methods has dealt with the problem noted several times in this book: How can one attribute a change in one of the performance measurements to a particular program when other factors also affect the phenomena being measured? We have suggested that the most practical method of approaching this problem is through multivariate statistical modeling. The next section explains how one can use models to isolate program effects.

USING MODELS TO ISOLATE PROGRAM EFFECTS

As we have noted previously, it is performance comparisons upon which judgments about performance are ultimately based. In order to judge the current performance of a correctional agency, one may compare current performance measurements with either measurements for other programs; measurements for the same program made at previous points in time; or some standard, goal, objective, or target set for the program. However, simple comparisons of measurements may lead to erroneous conclusions regarding program performance if factors other than correctional programs affect the performance measurements. As an illustration, consider a situation where the general public and legislators wish to judge a program designed to improve the employment prospects of individuals under correctional supervision. Suppose they want to determine the program's effect by measuring the level of future labor market performance of its participants. Simply comparing the wages or rates of employment of those who complete the program through time or comparing these rates with rates for programs in different locations may lead legislators and the public to draw incorrect conclusions concerning relative program performance. For

example, if general economic conditions had deteriorated, employment rates might be lower due to this deterioration and not due to a decline in program performance. In order to accurately compare programs, it is necessary to control for the effect of "other factors" affecting the performance measurement. In our example, one would have to control for the general economic situation before one could determine the "true" effect of the correctional program on labor market performance.

There are three basic methods which will allow one to determine "true" program effects. The first and strongest method is true experimental design. This design, by randomly assigning individuals to participate in programs, generally allows one to unambiguously attribute observed differences in future performance between participants and controls to program participation. See Campbell and Stanley, (1966) or Campbell and Boruch, (1975) for extended discussions of the advantages of this technique. Rezmovic (1979) provides a review of the use of this technique in criminal justice.

For both legal and administrative reasons, it is rarely possible to implement true experimental designs in criminal justice. For example, correctional administrators are either legally prevented or understandably leary of placing certain types of offenders on certain types of programs (e.g. the serious persons offender on a work release program). When it is not possible to determine true program effects by using a classical experimental design, two other techniques are available: (1) quasi-experimental design and (2) statistical control. The first technique has been much used in criminal justice but is usually a post hoc design used to evaluate only rehabilitative programs. Statistical control has been much less used in criminal justice and generally appears applicable to a wider range of criminal justice performance measures. We advocate the use of this technique to determine true program effects when stronger designs are not possible, and the use of this technique in conjunction with stronger designs when it is possible to implement such designs. The addition of statistical control to stronger techniques generally allows one to obtain more accurate and efficient (in a statistical sense) estimates of organizational effects. See Cain,(1975) for a discussion.

Because statistical control has been used infrequently in correctional performance measurement, we illustrate the use of this technique here. The proper use of statistical control requires two things: (1) models of the performance measure of interest, which indicate for what it is necessary to control; and (2) appropriate statistical techniques which allow control for the factors identified. In the first section below, we discuss a method for developing models for performance measurement. We illustrate the use of this method by developing models for two commonly used correctional performance measures -- individuals' wages, and timing and extent of criminal activity after program participation.[2] In the next section, we discuss a method of selecting statistical techniques that allow one to control for those factors

[2]This section is based on more extended previous research models of a number of other measures of post-release labor market performance and criminal activity. The interested reader is referred to working papers (Witte, 1979 and Witte, 1980a) which report the results of our more extended effort.

other than correctional programs that affect correctional performance measures. We illustrate the use of this method by selecting statistical techniques to control for factors affecting the wages, and the timing and extent of criminal activity after correctional program participation.[3] The final section contains our summary and conclusions.

A Method of Developing Models of Performance Measures

If at all possible, models of performance measures should be based on theories developed by researchers and practitioners in relevant areas. For example, models of the degree to which correctional programs increased the safety of the community should incorporate insights for the economic literature regarding the nature of production for incapacitation and the criminological literature seeking to measure the level of incapacitation. As research relating to correctional performance measures tends to occur in a number of relatively distinct areas or disciplines, we feel that adequate models of correctional performance measures will tend to be eclectic in nature, drawing insights from the work of researchers and practitioners in a large number of areas.

In order to develop eclectic models of correctional performance measures, the researcher or practitioner must have a set of criteria with which to judge the adequacy of different models. Table IV-3 contains one set of criteria which we have found valuable in evaluating models of some performance measures. This table suggests that different models for performance measures be evaluated on the bases of: (1) completeness, (2) universality, (3) transferability, (4) explanatory powers, (5) data availability, and (6) understandability. Note that we combine traditional criteria for assessing theoretical adequacy with practical concerns about data availability and understandability. We believe that this combination is essential when developing models for performance measures. Only models which are theoretically reasonable and can be both estimated and communicated will allow those who wish to compare and contrast the performance of correctional organizations to do so.

To illustrate the way in which models for correctional performance might be developed, we will now develop models for the extent and timing of post-release criminal activity and the wages of individuals who have participated in a correctional program.

Development of a Model for the Extent and Timing of Post-Release Criminal Activity

Theoretical models of criminal behavior are characterized by two features which we believe tend to limit their individual usefulness for developing models of correctional performance measures. First, they are subject to waves of acceptance and rejection--faddism, if you like. As Conrad expresses it: "We used to be Freudians; now Bentham reigns again" (Rennie, 1978: x). Less kindly, a historian who has surveyed the field notes: "In penology no idea is so old

[3]This section is based on more extended previous research which selects statistical techniques to control for "other factors" affecting a number of other measures of post-release labor market performance and criminal activity. The interested reader is referred to working papers (Bass, 1979; and Witte, 1980b) which report the results of our more extended effort.

but what it can be dusted off and sold as brand new merchandise" (Rennie, 1978: xviii).

Monahan has aptly summarized the recent history of criminological theorizing: "The scientific study of criminal behavior was born in economics, had its infancy in biology and psychology, is currently experiencing its adolescence in sociology and will shortly go home again to the discipline of its birth" (Monahan, 1980b: 1). Monahan's description aptly introduces a second important feature of criminological theorizing--most has had the perspective of a single discipline rather than bringing the insights of a number of disciplines to the problem of understanding this complex behavior. In preparing to write this particular section, we were struck by the fact that, while it was possible to find a number of surveys of the theories of a particular discipline, attempts to survey the theories of a number of disciplines were rare and either done by multi-disciplinary groups (e.g., Panel on Research on Rehabilitation Techniques, 1980) or by individuals outside the disciplines usually associated with criminological modeling (e.g., Rennie, 1978). Further, theories which attempt to integrate the insights of a number of disciplines are even rarer, although such theorizing has recently been explicitly called for by a National Academy of Sciences' Panel studying the prospects for offender rehabilitation (Panel on Research on Rehabilitation Techniques, 1980).

Our survey of the literature indicates that four major disciplines have provided major bodies of theory which attempt to explain criminal behavior: (1) sociology, (2) psychology, (3) economics, and (4) biology. Researchers with training in sociology and psychology have produced the largest number of theories pertaining to the causes of criminal behavior. Perhaps they have done so because subjects related to criminality have been more central to these disciplines than to the disciplines of economics or biology. Table IV-4 lists various theories of criminal behavior by discipline and evaluates alternative theories, using the criteria contained in Table IV-3. As can be seen in this table, no single model attains consistently high ratings. We feel that this situation is mainly due to the fact that the theories surveyed tended to be developed within a given discipline. Further, different models are designed to explain different types of crime. For example, psychological and physiological/genetic models seem best adapted to explain crimes of violence while economic models are best adapted to property offenses.

Many of the variables suggested as being important by the theories surveyed in Table IV-4 may be measured empirically in several ways. In addition, the total number of variables suggested by all theories is quite large. Therefore, we now survey the empirical work on the determinants of criminal behavior to determine which variables are empirically found to be associated most strongly and consistently with criminal behavior. Table IV-5 lists the variables which the empirical literature indicates to be most important in determining criminal activity.[4]

Combining insights from the theories of crime surveyed in Table IV-4 and the empirical work surveyed in Table IV-5, we arrive at the following model for the extent and timing of post-release criminal behavior.

[4]The list in Table IV-5 was greatly influenced by the survey work of Service (1972), Gillespie (1975), Blumstein, Cohen and Nagin, (1978) and Monahan (1980a).

TABLE IV-3

A SUGGESTED SET OF CRITERIA FOR ASSESSING
ALTERNATIVE MODELS FOR PERFORMANCE MEASURES

COMPLETENESS:	Does the model provide a thorough theoretical explanation of the particular performance measures?
Thorough	- The model provides a theoretically complete explanation of the performance measure.
Moderately Thorough	- The model provides a moderately complete explanation of the performance measure.
Unacceptable	- The model provides little insight about the performance measure.
UNIVERSALITY:	Is the model appropriate for national as well as local level performance assessment?
High	- The model can be used for both local level and national performance measurement.
Moderate	- The model is appropriate for the national or local level but not both.
Low	- The model is appropriate only for local level assessment.
TRANSFERABILITY:	Can the model be used for more than one major performance measure or in more than one correctional setting?
High	- The model provides insight for a number of major performance measures and/or correctional settings.
Moderate	- The model provides insight for few major performance measures and/or correctional settings.
Low	- The model provides little insight for major performance measures and/or correctional settings.
EXPLANATORY POWER:	How well does the model explain individual or program differences in performance measure?
High	- Empirical tests indicate that the model explains performance measures relatively well.
Moderate	- Empirical tests indicate that the model explains performance measure only partially.
Low	- Empirical tests indicate that the model explains performance measure poorly.
DATA AVAILABILITY:	Are the data currently available to estimate the model? Are or could the data for the model be collected at the national level? If data are not available, how difficult

TABLE IV-3 (cont'd.)

A SUGGESTED SET OF CRITERIA FOR ASSESSING
ALTERNATIVE MODELS FOR PERFORMANCE MEASURES

would it be to institutionalize the data collection procedures to regularly generate the data needed?

High	- Data are now generally available and are or could be generated at the national level.
Moderate	- Data are not now available, but data collection could be relatively easily institutionalized.
Low	- Data would only be available with specialized collection efforts.

UNDERSTANDABILITY: Does the model make intuitive sense? Can it be understood by practitioners and the concerned public?

High	- The model can be relatively easily explained to the non-specialist.
Moderate	- The non-specialist can at least intuitively understand the model.
Low	- The model would be difficult if not impossible to explain to the non-specialist.

TABLE IV-4

ASSESSMENT OF ALTERNATIVE MODELS OF CRIMINAL BEHAVIOR

Discipline	Sociology					
Model / Criteria	Cultural Deviance Theory	Strain Theory	Symbolic Interactionist Theory	Control Theory	Labeling Theory	Radical Theory
Completeness	Moderate	Moderate to Unacceptable	Moderate to Unacceptable	Moderate to Unacceptable	Moderate to Unacceptable	Moderate to Unacceptable
Explanatory Power	Moderate	Moderate to Low	Moderate to Low	Moderate to Low	Moderate to Low	Moderate to Low
Universality	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Transfer-ability	Moderate	Moderate	Moderate	Moderate	Moderate to Low	Moderate
Data Availability	Moderate to Low	Moderate to Low	Low	Moderate to Low	Moderate to Low	Low
Understand-ability	High	High	High	High	High	High

TABLE IV-4 (cont'd.)

ASSESSMENT OF ALTERNATIVE MODELS OF CRIMINAL BEHAVIOR

Discipline	Psychology				Economics		Biology
Model / Criteria	Psychoanalytical/Clinical	Criminal Types	Social Learning Theory	Stress Theory	Wealth Maximization	Time Allocation	Genetic/ Physiological
Completeness	Moderate to Unacceptable	Moderate to Unacceptable	Moderate	Moderate to Unacceptable	Moderate	High to Moderate	Unacceptable
Explanatory Power	Moderate to Low	Moderate	Moderate	Moderate to Low	Moderate	Moderate	Moderate to Low
Universality	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Transferability	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Data Availability	Low	Moderate	Moderate to Low	Low	Moderate to Low	Moderate to Low	Low
Understandability	High	Moderate	High to Moderate	Moderate	Moderate	Moderate to Low	Moderate

TABLE IV-5

FACTORS PREDICTIVE OF FUTURE CRIMINAL CONDUCT

I. Prior Criminal Convictions

1. Recent convictions
2. Remote convictions
3. Type of crime
4. Age of first arrest

II. Supplemental Indices of Prior Criminal Behavior

5. Arrest not leading to convictions
6. Prison misconduct

III. Indices of Juvenile Crime

7. Juvenile arrests
8. Juvenile adjudications

IV. Indices of Criminal-Type Behavior Processed Through the Mental Health System

9. Civil commitments for "dangerous" behavior
10. Quasi-criminal commitments such as mentally disordered sex offender

V. Social Attributes

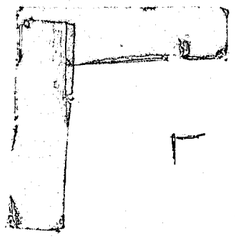
11. Socioeconomic status
12. Employment stability
13. Educational attainment
14. Opiate or alcohol use
15. Residential stability
16. Marital status
17. Family stability, values, and activities

VI. Biological Attributes

18. Current age
19. Gender
20. Race/ethnicity
21. IQ

VII. Correctional Programs and Other Criminal Justice Effects

22. Type and quality of correctional programs participated in
23. Type of release
24. Length of time served before release
25. Probabilities of arrests and conviction
26. Length of sentence



(1) Extent and Timing of Criminal Activity

= f (family, perhaps measured by marital status or changes therein; job and residential stability; family values and activities; criminal record; mental health commitments; socioeconomic status, perhaps measured by occupation, wages, and educational attainment; employment stability, as a measure of work satisfaction; opiate or alcohol abuse; age; sex; race; IQ; age at first arrest; type of release; type and quality of correctional programs; length of time served before release; effectiveness of the criminal justice system; genetic and physiological factors; and the environment in which the individual currently finds her or himself)

Development of a Model for Wages

Currently, there are three major schools of thought on wage determination: (1) neoclassical economic, (2) human capital, and (3) institutional or structural. Table IV-6 contains our evaluation of these three theoretical perspectives, using the criteria described in Table IV-3. As can be seen in this table, no single model contains consistently high ratings. As was the case for our model of criminal behavior, we will develop an eclectic model of wages.

As many of the variables suggested by the three theories of wage determination surveyed in Table IV-6 may be empirically measured several ways, we now survey the empirical work on the determinants of wages for correctional releasees. Table IV-7 summarizes this work. As can be seen in this table, sex, race, family characteristics and physical characteristics have been found most consistently and significantly to affect (in a statistical sense) the wages (and/or income) of correctional releasees. These results indicate that, other things being equal, a white, able-bodied, married man with many dependents will receive higher wages (or income) than other types of releasees. Because three of the variables (sex, race and able-bodiedness) are beyond social control and the fourth (family characteristics) is largely so, these results do not seem to have major policy implications. They do, however, point up the need to control for these factors when studying wages for prison releasees.

In contrast, the significantly positive effect that release through a correctional center or halfway house has upon releasees' income (and to a lesser extent wage rate) is potentially of considerable policy importance. These results might be interpreted as indicating that gradual, supported transition from prison to the community improves the labor market performance of prison releasees. The results also suggest two useful research projects. First, it would be useful to try to replicate the result obtained in a different geographic area and/or time period. Second, it would be useful to conduct a careful study (a process analysis) of Michigan Correctional Center and halfway houses in order to determine the precise nature of the program which caused the observed beneficial effects.

The findings summarized in Table IV-7 also indicate that job characteristics significantly affect wages. Other things being equal, permanent employment in

TABLE IV-6

ASSESSMENT OF ALTERNATIVE MODELS FOR WAGES

Criteria \ Model	Neoclassical Economic	Human Capital Theory	Institutional and Sociological Theories
Completeness	Moderate	Moderate to Unacceptable	Moderate
Universality	High	Moderate	Moderate
Transferability	High to Moderate	Moderate	High to Moderate
Explanatory Power	Moderate	Low	Moderate
Data Availability	Moderate	Moderate	Moderate to Low
Understandability	Moderate	High	High

TABLE IV-7

EMPIRICAL RESULTS OF PREVIOUS STUDIES OF WAGE OR INCOME

Dependent Variable and Study	Regression Coefficients (t-ratios in parentheses)									
	Independent Variables									
	Education		Age		Previous Work Experience	Sex	Race			
Hardin (1975, p. 333): natural logarithm of starting hourly rate of pay after release	(1) Insig[a]						.0876[b] (1.57)			
	(2)				.245* (1.92)	.245* (1.92)	.0833 (1.50)			
Borus, Hardin and Terry (1976, p. 396-397): (1) total gross earnings per week (2) weekly take home pay	3.37[b] (0.45)	7.20 (0.86)	1.69 (0.41)	-.013 (-0.35)	-.25 (-0.23)	53.44** (2.28)	-36.63*** (-3.99)			
	6.13 (1.04)	5.83 (0.87)	2.72 (0.84)	-0.19 (-0.63)	.12 (0.14)	42.82** (2.29)	-29.44** (-4.02)			
Witte and Reid (1979): starting hourly wage rate after release	(0.012) (0.63)	-0.011 (-0.09)	-0.002 (-0.06)	0.000 (0.05)	-0.151 (-2.21)		-0.254*** (-3.10)			

TABLE IV-7 (cont'd.)

EMPIRICAL RESULTS OF PREVIOUS STUDIES OF WAGE OR INCOME

Dependent Variable and Study	Regression Coefficients (t-ratios in parentheses)			
	Independent Variables			
	Previous Criminal Record		Type of Current Offense	
Hardin (1975, p. 333): natural logarithm of starting hourly rate of pay after release	-.0508 (-1.63) -.0223** (1.99)	.00326 (.92)	-.00114 (.01) .0916 (1.40)	-.0869 (-.70) .0618 (.61)	.0989 (1.07)
Borus, Hardin and Terry (1976, p. 396-397):				
(1) total gross earnings per week	-.92 (-0.54)		-8.72 (-0.45)	
(2) weekly take home pay	-.22 (-0.16)		-8.89 (-1.21)	
Witte and Reid (1979): starting hourly wage rate after release	-0.001 (0.07)	-0.003 (-0.41)	0.125 (1.18)	0.016 (0.17)

TABLE IV-7 (cont'd.)

EMPIRICAL RESULTS OF PREVIOUS STUDIES OF WAGE OR INCOME

Dependent Variable and Study	Regression Coefficients (t-ratios in parentheses)					
	Independent Variables					
	Correctional Experience			Family Characteristics	Native Ability	Physical Characteristics
Hardin (1975, p. 333): natural logarithm of starting hourly rate of pay after release	.117* (1.75)				Insig	
	.0964 (1.45)				Insig	
Borus, Hardin and Terry (1976, p. 396-397): (1) total gross earnings per week	-2.36 (-1.15)	30.80*** (2.99)	-.92 (-0.10)	7.78*** (2.78)		-28.42* (-1.90)
(2) weekly take home pay	-1.46 (-0.90)	26.76*** (3.26)	1.63 (0.21)	6.23*** (2.79)		-20.85* (-1.75)
Witte and Reid (1979): starting hourly wage rate after release	-0.002 (-0.81)		0.013 (1.30)	-0.119 (-1.41)	0.188*** (2.39)	

TABLE IV-7 (cont'd.)

EMPIRICAL RESULTS OF PREVIOUS STUDIES OF WAGE OR INCOME

Dependent Variable and Study	Regression Coefficients (t-ratios in parentheses)			
	Independent Variables			
	Addictions	Geographic Area	Job Characteristics	General Economic Conditions
Hardin (1975, p. 333): natural logarithm of starting hourly rate of pay after release				
Borus, Hardin and Terry (1976, p. 396-397): (1) total gross earnings per week (2) weekly take home pay	-13.25 (-1.55) -13.18 (-1.94)	sig[d]		
Witte and Reid (1979): starting hourly wage rate after release	-0.129 -0.014 (-0.63) (.0.13)	-0.014 (-0.13)	0.407***sig[d] -0.151 (2.97) (-1.34)	sig[d]

TABLE IV-7 (cont'd.)

EMPIRICAL RESULTS OF PREVIOUS STUDIES OF WAGE OR INCOME

Dependent Variable and Study	R^{-2}	N	Description of sample; follow-up
Hardin (1975, p. 333): natural logarithm of starting hourly rate of pay after release	.036 .049	172 172	Selected parolees from Michigan Department of Corrections, 1st quarter, 1974, 73-181 days.
Borus, Hardin and Terry (1976, p. 396-397): (1) total gross earnings per week (2) weekly take home pay	.16 .18	266 266	As above but with females and a few other individuals
Witte and Reid (1979): starting hourly rate after release	.22	343	Selected releasees from N. C. Dept. of Corrections, 1969-1973; 3 to 71 months

* Indicates that a variable was significant at the .10 level, two tailed test.
** Indicates that a variable was significant at the .05 level, two tailed test.
*** Indicates that a variable was significant at the .01 level, two tailed test.

[a]Insig indicates that the discussion indicated that a variable was insignificant although no t-statistic was reported.

[b]Hardin's independent variables are defined as follows: Race is a binary variable equal to 1 if parolee was white, and zero otherwise; previous criminal record equals total number of jail and prison terms prior to last incarceration (in regression (1) the squared value of this variable is included as well); type of current offense: three binary variables, the first indicating that an offense was violent, the second indicating that an offense was against morals, and the third indicating that the offense was against property; correction experience is a binary variable equal to one if the individual was paroled from a corrections center or other halfway house, and zero otherwise.

[c]The independent variables in the Borus, Hardin and Terry study were as footnote b unless noted here: years of formal schooling; a binary variable equal to 1 if an individual reported having vocational training, and zero otherwise; age (in years) and its squared value; total number of years of work experience; a binary variable equal to 1 if an individual was male, and zero otherwise; a binary variable equal to 1 if an individual was black and zero otherwise; number of years since sentencing on present conviction; a binary variable equal to 1 if an individual participated in a job placement program, and zero otherwise; the number of dependents at time of interview; a binary variable equal to one if an individual was disabled, and zero otherwise; a binary variable equal to 1 if an individual was known to have used drugs, and zero otherwise.

[d]Indicates that a series of binaries were used to represent this factor

TABLE IV-7 (cont'd.)

EMPIRICAL RESULTS OF PREVIOUS STUDIES OF WAGE OR INCOME

and that at least some of these binaries were significant.

[e]If an independent variable is directly below one in the Borus, Hardin and Terry study, the definition is similar to that study. Definitions of other variables are in order: a binary equal to 1 if an individual completed high school and zero otherwise; the number of jobs per year prior to sample incarceration; age in years at time of first offense; work release funds (in 100's of $) available after release; a binary variable equal to 1 if an individual was supervised on release and zero otherwise; a binary variable equal to 1 if an individual was married and zero otherwise; a binary variable equal to 1 if an individual had a serious alcohol problem, and zero otherwise; a binary variable equal to 1 if an individual lived in an SMSA and zero otherwise; a binary variable equal to 1 if job was permanent and zero otherwise; a binary variable equal to 1 if first job was work release job, and zero otherwise.

construction and automotive services as a crafts or sales person was found to lead to higher wages. These results point up the potential usefulness of programs which seek to obtain such desirable jobs for correctional releasees. In another context, Phillip Cook (1975) has made a similar point.

Perhaps, the most surprising result of the work reported in Table IV-7 is the failure to find significant coefficients on any variables related to either education or age. Previous work on other population groups (see Fleisher, 1970, Chapter 5 for a review) has generally found increased education to increase wage and/or income significantly and that wage (and/or income) significantly increases with age until approximately the middle 50's and decreases thereafter. The empirical results available so far seem to indicate that neither education nor age significantly affects the income of prison releasees. The first finding is particularly depressing, as it bodes ill for the effectiveness of educational programs aimed at individuals in correctional programs.

Combining the insights from the theories of wage determination surveyed in Table IV-6 and the empirical work survey in Table IV-7, we arrive at the following model for the wage rate of individuals released from correctional programs.

(2) Wage = f (industry of employment, occupation of employment, geographic area where employed, rate of unionization for job, performance of job, opportunity for movement on job; skill development possibilities of job, minimum wage, race, sex, criminal records, age, education, previous work experience, marital status, number of dependents, availability of other income, physical condition, mental condition, motivation, level of addictive problems, correctional experience)

A Method of Selecting Statistical Techniques to Estimate Model for Correctional Performance Measures

When selecting an appropriate technique for statistically estimating models of correctional performance measures, one should carefully consider three factors: (1) the nature of the model (causal vs. exploratory), (2) the distribution of the dependent variable, and (3) the nature of the explanatory variables. Given these factors, one often finds a number of statistical techniques which are good candidates for use in estimation. Table IV-8 contains one set of criteria which we have found valuable in evaluating potential estimation techniques for models of some correctional performance measures. This table suggests that different potential estimation techniques be evaluated on the bases of : (1) technical appropriateness, (2) methodological strength, (3) flexibility, (4) sensitivity, (5) the ability to provide significance tests, (6) transferability, (7) costs, and (8) understandability. Note that we combine technical (statistical) criteria (criteria 1-5) with practical concerns about transferability, costs and understandability. We believe that this combination is essential because we feel that only techniques which are acceptable on technical grounds, have reasonable costs and can be at least intuitively understood by those who wish to compare and contrast the performance of correctional organizations will make a meaningful contribution to performance measurement in corrections.

To illustrate the way in which estimation techniques for performance models might be selected, we will select statistical techniques to estimate the models

TABLE IV-8

A SUGGESTED SET OF CRITERIA FOR ASSESSING DIFFERENT STATISTICAL TECHNIQUES

TECHNICAL APPROPRIATENESS: How appropriate is the technique for estimating the performance model?

- High - The technique is well suited to estimating models of criminal justice performance measures.
- Moderate - The technique is suitable for modeling simple measures of criminal justice performance (e.g., conviction/nonconviction), but not more complex measures (measures of the seriousness or frequency of offense).
- Low - The technique does not seem appropriate.

METHODOLOGICAL STRENGTH: How likely are the assumptions underlying the technique to be met in typical measurement situations?

- Strong - Assumptions will usually be met.
- Moderate - Assumptions will sometimes be met.
- Weak - Assumptions will rarely be met.

FLEXIBILITY: How well can the technique adjust for varying follow-up periods and data?

- High - Variations in both follow-up period and data can be adjusted for.
- Moderate - Some variations in either follow-up period or data can be adjusted for.
- Low - Few variations in either follow-up period or data can be adjusted for.

SENSITIVITY: How sensitive are estimates obtained using the technique to misspecification or data errors?

- High - The technique is highly sensitive to data errors or misspecification.
- Moderate - The technique is only moderately sensitive to data errors or misspecification.
- Low - The technique is quite robust in the presence of data error or misspecification.

SIGNIFICANCE TESTS: Does the technique provide adequate measures of statistical significance particularly for parameters relating to correctional programs?

- High - The technique provides adequate measures of statistical significance.
- Moderate - The technique provides some measures of statistical significance.
- Weak - The technique provides few if any measures of statistical significance.

TABLE IV-8 (cont'd.)

A SUGGESTED SET OF CRITERIA FOR ASSESSING DIFFERENT STATISTICAL TECHNIQUES

TRANSFERABILITY: How well can a model estimated using this technique be transferred to alternative geographic and program situations without reestimation?

High - Estimated models can be easily transferred.
Moderate - Estimated models can only be transferred under certain conditions.
Low - Models must be reestimated.

COSTS: What are the professional and computer time requirements for model estimation and use? How likely are such requirements to be met?

High - Professional skills and computer time requirements for both estimations and use would only be available for specialized consultants.
Moderate - Professional skills and computer time requirements are high for estimation but generally available for use.
Low - Professional skills and computer time for both estimation and use should be generally available.

UNDERSTANDABILITY: How well canthe technique and the empirical results emanating from it be understood by the practitioner and concerned public?

High - The technique and empirical results can be relatively easily explained to the non-specialist.
Moderate - The non-specialist can at least intuitively understand the technique and results.
Low - The technique would be difficult if not impossible to explain to the non-specialist.

of the extent and timing of criminal activity and wages which we developed in the previous section.

Selection of a Statistical Technique to Estimate Our Model for the Extent and Timing of Post-Release Criminal Activity

The most commonly used measure of timing is the length of time until an offense occurs. This measure, when combined in an appropriate manner for a group of correctional releasees, also provides a measure of extent (proportion returning to criminal activity) of criminal activity. This variable requires considerable care in statistical analysis as it is nonnegative, skewed and truncated from above. The nonnegativity arises from the fact that it is not possible to observe negative times until recidivism. The distribution of this variable is generally quite skewed as those who return to crime generally do so quite quickly, although lower rates of failure occur throughout a follow-up period. The truncation of the variable arises because we cannot observe a value of the dependent variable greater than the length of time for which an individual's activities are followed.

A number of authors have suggested alternative techniques for analyzing this variable. Stollmack and Harris (1974) suggest that the failure rate (recidivism rate) follows a negative exponential distribution. This technique assumes that the failure rate is a constant independent of either the length of time since program participation or the characteristics of the individuals involved. In addition, the Stollmack-Harris technique assumes that all individuals eventually recidivate. Recently a number of authors have developed techniques which relax the various assumptions of the Stollmack-Harris method. Maltz and McCleary (1977) develop a negative exponential failure method that allows the ultimate failure rate to approach some upper bound other than 100% (i.e., they allow for the fact that some individuals will never recidivate). Bloom (1978) allows the failure rate to vary with length of time since program participation. Witte and Schmidt (1977) allow failure rates to vary and allow the rate of failure to depend on the personal characteristics and previous experience of the individuals being analyzed. Witte and Schmidt consider a number of alternative distributions (ordinary least squares, truncated normal, truncated exponential and truncated lognormal) in modeling the length of time until recidivism and find that both in terms of the maximized value of the likelihood function and within sample prediction that the truncated lognormal distribution is superior to any alternative distribution considered. However, they note that "the signs of all coefficients are the same by all techniques, and their levels of significance are roughly comparable" (Witte and Schmidt, 1977: 308).

Table IV-9 contains our evaluation of the different statistical techniques which have been proposed for estimating models of extent and timing of post-release criminal activity, using the criteria described in Table IV-8. As can be seen in Table IV-9, the truncated lognormal technique scores most highly on appropriateness, methodological strength, flexibility and the availability of tests of statistical significance. However, the simpler Stollmack-Harris, Maltz-McCleary and Witte-Schmidt OLS techniques score more highly on understandability. The ultimate choice of a method thus must rest on the relative importance of understandability and more technical statistical concerns. As the technically most desirable technique is quite new (Amemiya and Boskin, 1974) and, as far as we are aware, has only been used once previously in criminal

TABLE IV-9

ASSESSMENT OF ALTERNATIVE STATISTICAL TECHNIQUES
ESTIMATING MODELS OF THE TIMING OF RECIDIVISM

Techniques / Criterion	Stollmack -Harris	Maltz McCleary	Bloom	Witte-Schmidt OLS	Witte-Schmidt Truncated Normal	Witte-Schmidt Truncated Exponential	Witte-Schmidt Truncated Lognormal
Technical Appropriate-ness	Low	Moderate	Moderate to High	Low	Moderate to High	Moderate	High to Moderate
Methodologi-cal Strength	Low	Moderate	Moderate	Low	Moderate	Moderate	High to Moderate
Flexibility	Moderate	Moderate	Moderate	High	High	High	High
Sensitivity	Unknown	Unknown	Unknown	Moderate	Unknown	Unknown	Unknown
Significance Tests	Moderate	Moderate	Moderate	High	High	High	High
Transfer-ability	Moderate	Moderate to Low	Moderate to Low	Moderate to Low	Moderate to Low	Moderate to Low	Moderate to Low
Costs	Moderate to Low	Moderate	Moderate	Low	Moderate	Moderate	Moderate
Understand-ability	Moderate to High	Moderate to High	Moderate	High	Moderate	Moderate	Moderate

justice research, we present a more detailed description of the technique and model estimated in Appendix E.

Selection of a Statistical Technique to Estimate Our Model of Wages

Like the timing of criminal activity, the wages of an individual require considerable care in statistical analysis. This dependent variable is non-negative and truncated at zero. Further, it is quite likely that there will be a substantial "pile-up" of observations at zero (the wage an individual receives if (s)he is unemployed). In a working paper, (Bass, 1979) we evaluated methods assuming a truncated normal distribution developed by Tobin (1958) and Amemiya (1973) (a Tobit model), ordinary least squares, and a two-stage procedure developed by Heckman (1976 and 1979). Table IV-10 contains our assessment of these different statistical techniques for estimating wage models using the criteria described in Table IV-8. As can be seen in this table, the Tobit technique developed by Tobin and Amemiya scored highest on technical grounds, while ordinary least squares analysis scored highest in terms of cost and understandability. If sufficiently trained personnel and computer facilities are available, we recommend that Tobit analysis be used to estimate wage models.

When sufficiently trained personnel and adequate computer facilities are not available, we recommend that correctional releasees' wages be recorded until most if not all releasees are employed (our experience (Witte, 1975) indicates that more than 98 percent of prison releasees find jobs within two months of release). Equation (2) augmented by the addition of a variable indicating length of time until first job could then be estimated using ordinary least squares analysis (OLS). Tobin's work (1958) indicates that the biases introduced by using OLS will be greater the nearer the values of the dependent variable approach the truncation point, zero in the case of wages. Heckman's work (1976, 1979) indicates that the greater the probability that a zero wage rate is observed the greater will be the bias involved in using OLS. This insight led us to suggest that releasees be followed until most if not all had been employed. Heckman also shows that using OLS will lead to estimates of standard errors which are too small. Hence, when equation (2) is estimated using OLS, one should utilize stringent tests of statistical significance (e.g., $\alpha = .01$, or $\alpha = .001$).

As the technically most desirable technique, Tobit analysis, has not been used frequently in criminal justice research in the past, we present a more detailed description of the technique and model estimated in Appendix F.

SUMMARY AND CONCLUSIONS

Performance measures for a corrections program should be developed within a conceptual framework. This framework should identify: the corrections program whose performance will be measured, that program's stage of development and the types of performance information appropriate to that stage, who is asking what questions about the program's performance and how they expect to use answers to these questions, who will pay for performance measurement and what restrictions will the payor place on the scope and content of the performance measurement effort, which (and whose) information needs will the performance measurement system serve, what will be the likely consequences of not serving some information needs, to what benchmarks performance will be compared to judge

TABLE IV-10

SUMMARY OF ASSESSMENT OF ALTERNATIVE STATISTICAL TECHNIQUES
FOR ESTIMATING WAGE MODELS

CRITERION \ TECHNIQUE	TOBIN AND AMEMIYA	OLS	HECKMAN
Technical Appropriateness	High	Low	High
Methodological Strength	High	Low	Moderate to High
Flexibility	Low to Moderate	Moderate	Low
Sensitivity	Unknown	Moderate	Unknown
Significance Tests	High	High	High
Transferability	Moderate	High	Moderate
Costs	Moderate	Low	Low to Moderate
Understandability	Moderate	High	Low to Moderate

performance, what the program does and how it goes about doing whatever it does, what theory guides one's choice of what to measure and how to interpret measurements, and what specific concepts need measuring. Developing measures without such a framework is likely to produce data that potential users perceive as useless or that are subject to misinterpretation. We conclude that no single list of performance measures is appropriate to all adult corrections programs and that performance measures can best be developed within frameworks tailored to specific programs.

Potential performance measures need to be assessed against some set of criteria to select the strongest measures for data collection. The most important criteria will vary, depending upon such factors as how the measures will be used and the amount of money available for collecting data. We suggest that criteria likely to be important are validity, reliability, accuracy, cost and ease of data collection, comparability, sensitivity, clarity, relevance to decision, and timeliness.

When interpreting performance measurements, the user should keep in mind the theoretical concepts that the performance measures represent. One should also take into account factors that distort measurements, such as program dropout rates, learning curves, self-correcting cases, and when measurements are made. Measurements simply describe performance, but comparisons permit evaluations of performance. Comparisons can be made to standards, goals, objectives, targets, other programs, or to measurement of the same program made at earlier times.

Performance measures can be constructed as simple counts, ratios, percentages, or unit costs. Indices are ways of aggregating several measures into a single overall measure. When dealing with process, product, service characteristic, and distribution measures, one should take special care when constructing the index to avoid unintentionally producing an index that distorts program effort. Managers, by the measures they include in these indices and the relative weights they give to them, can provide employees incentives to emphasize particular activities and/or service characteristics and to serve offenders with certain characteristics (e.g., those having greatest need).

One can also combine several outcome measures into an index. Again, one should take special care when developing weights for the outcome measures to ensure that they represent the relative importance that performance measurement users ascribe to them. When different users do not agree upon the relative importance of the outcomes being combined into an index, two or more indices may be required. In this event, each index would include the same measures but have a separate set of weights attached to those outcomes.

While corrections actors may have substantial control over program operations, programs are usually only one of many factors that influence the changes in offenders toward which corrections programs aim. One must attribute some portion of changes in outcomes, such as future criminal activity or economic productivity of ex-offenders, to specific corrections programs in order to estimate the impact that corrections programs have upon these outcomes. We suggest statistical control through multivariate modeling as the most practical way of estimating these impacts.

We suggest one way in which models of correctional performance measures

may be developed. Specifically, we suggest that different models for correctional performance measures be evaluated on the following criteria: (1) completeness, (2) universality, (3) transferability, (4) explanatory power, (5) data availability, and (6) understandability. If no single model clearly dominates on the basis of these criteria, we suggest that eclectic models of the performance measure be developed. We illustrate a method of developing such eclectic models by developing models for the timing and extent of post-release criminal activity, and post-release wages.

We next suggest a method for selecting a technique to estimate models for correctional performance measures. Specifically, we suggest that different statistical techniques for estimating models of correctional performance measures be evaluated on the basis of the following criteria: (1) technical appropriateness, (2) methodological strength, (3) flexibility, (4) sensitivity, (5) the ability to provide significance tests, (6) transferability, (7) costs, and (8) understandability. If no one statistical technique clearly dominates others on all criteria, we suggest that the individual researcher or practitioner decide upon the relative importance of the various criteria and select the technique which (s)he feels ranks highest on the most important criteria. We illustrate the use of our criteria for selecting statistical techniques by selecting statistical techniques for estimating the models we developed for the extent and timing of criminal activity, and wages. Specifically, for our model of the extent and timing of criminal activity, we suggest that the truncated lognormal technique be used for estimating if technical criteria (criteria 1-5) are most important and that ordinary least squares analysis be used if transferability, costs, and understandability are most important. For our model of post-release wages, we suggest Tobit analysis if technical concerns dominate and ordinary least squares analysis if transferability, costs, and understandability dominate.

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CHAPTER V

FUTURE RESEARCH NEEDS IN PERFORMANCE MEASUREMENT WITHIN THE CORRECTIONS AGENCY

Chapters I through IV developed a conceptual framework and provided theoretical perspectives for measuring corrections performance. These chapters set forth a measurement approach appropriate to the diversity of the corrections field. This approach applies to the wide range of adult corrections programs and the environments in which these programs operate. It addresses the information needs of many different users of performance measurements and recognizes the many different uses people can make of performance information. This final chapter lays out an agenda of further research required to develop, within this framework, operative performance measurement systems for adult corrections programs.

While this approach encompasses jail, prison, probation, parole, and community-based programs, the research proposed below can focus on some subset of these programs if one's interests or resource constraints so dictate. The first set of research questions pursue some of the thorny theoretical issues that surfaced during the research effort summarized in this book. The second set of research issues deals with statistical models for generating information about the efficiency and impact of corrections programs. The last set of research topics deals with issues that one must face when implementing a performance measurement system.

DECIDING WHAT TO MEASURE AND HOW TO INTERPRET MEASUREMENTS

In Chapter II, we surveyed corrections activities in prisons and jails, probation and parole, and community-based programs. In Chapter III, we developed a typology for measuring and comparing program performance along nine dimensions that span the concerns of various constituent groups. These groups include the public, legislators, chief executives, heads of corrections agencies, corrections program managers, planners, budgeters, and researchers. We then related what corrections agencies do to those outcomes that interest these constituent groups. It was at this point in our research that several problems surfaced. First, in spite of the extensive field work and review of the literature undertaken, we did not have enough detailed information about the internal processes of corrections programs to know which operations were most important to measure. What was most important seemed to vary, depending upon one's ideas about the purpose of the program and how one assumed the program transformed inputs into outputs.

In diagramming the relationships between program activities and outcomes, such as improved social adjustment and reduced criminal activities, we were continually reminded that the linkages expected depend upon the corrections theory or point of view one adopts. Researchers adopting a medical or treatment model, for example, would not agree with researchers adopting Marxist or radical theory about the important consequences of a probation treatment program.

Another problem emerged when we attached measures to the concepts in the

diagrams. Some measures could be interpreted as either good or bad program results, again depending upon one's theory or point of view. An increase in the number of parole revocations, for example, might be interpreted to mean that the agency is doing a better job of supervising ex-offenders. That same measurement, however, could also be interpreted to mean that the agency is doing a worse job of preparing the ex-offender to assume a socially acceptable role in the community.

This disagreement over what is most important to measure and how one interprets measurements will continue to frustrate performance measurement research unless the problem is confronted directly. We suggested that three researchable questions be pursued:

1) What are the critical operations in corrections programs upon which performance measures ought to focus?

2) What measures can different constituent groups agree upon as being adequate measures of performance?

3) How does the relative importance of different performance dimensions vary among constituent groups and over time?

What Are the Critical Operations in Corrections Programs upon Which Performance Measures Ought to Focus?

Corrections operations should be examined within the framework of an explicit theory about what corrections agencies ought to do and how they ought to go about doing it. Because of the influence that theory has upon what is to be measured and how measurements are to be interpreted, one must be aware of the effect that holding a particular theory is likely to have upon the content of a corrections performance measurement system. Where there is no consensus about which theories are correct, as there is not for most corrections programs, performance measurement can be considered from multiple perspectives if resources available for research are sufficient. Below, we illustrate our approach to researching this question, focusing on those offender-based parole and probation activities that follow presentence investigations.

Which theories about probation/parole programs and their outcomes should be taken into account when developing performance measures? Many theories in the social science literature are relevant to these programs. We have considered a number of theories, including radical theory, control theory, strain theory, cultural deviance theory, and labeling theory. We have also inquired about the prevailing philosophies of the programs that we visited.

From this work we have abstracted a number of variables that affect both what probation/parole agencies do and how measurements of these probation/parole operations would be interpreted to judge performance. The most important of these variables seem to be the following:

1) Requirements imposed by external organizations, including funding sources, the umbrella department within which the probation/parole agency is housed, and the courts.

2) Goals and objectives

3) Agency staff's role orientations -- treatment, control, passive

4) Number and types of probationers/parolees

5) Degree of public and community agency interest and interaction

6) Size of budget appropriated for probation/parole operations

7) Theory of action practiced in implementing the probation/parole program -- treatment, control, passive

8) Service model practiced in implementing the probation/parole program -- direct casework, brokerage or referral

Two of these variables seem most important as summary descriptors of program differences important to performance measurement research. These variables are the theory of action practiced and the service model practiced. These two variables should affect both (a) how agencies allocate their effort among their activities and (b) how they interpret program success. Figure V-1 illustrates the direct and indirect relationships believed to exist between these two variables and the other factors listed above. While these other factors affect the theory and service model practiced, they are (with the possible exception of goals and objectives) less useful guides for judging how agency effort ought to be allocated and program success interpreted. We could have used goals and objectives instead of theory of action practiced, but doing so would require raising the issue of whose goals and objectives are in fact guiding the allocation of effort and interpretation of program success.

Figure V-2 summarizes the different emphases upon activities expected, given different combinations of theories of action and service models practiced. How measurements of probation/parole operations would be interpreted to judge agency performance might depend upon which theory-service combination applies to a given agency. Using the revocation rate again as the example, a higher rate might be interpreted as improvement for a control-direct casework agency but raise concern for a treatment-brokerage agency. This theoretical framework should guide identification of critical operations upon which probation/parole performance measures ought to focus.

Flowcharts can be used to relate activities to each other by showing the patterns through which work flows from one task or activity to another. Next, the researcher can estimate the amount or level of work for each operation and the rate of flow from one operation to another. Having this information permits identifying those critical operations where changes in capacity or rate of flow might have substantial impacts on agency performance. It is for these critical operations that measures could be devised that would allow an agency manager to diagnose operational problems that would hinder agency performance. For example, a decrease in the ratio of offenders needing counseling compared to offenders receiving counseling might signal a service problem that, if left uncorrected, would lead to a future increase in the revocation rate.

<u>What Measures Can Different Constituent Groups Agree upon as Being Adequate Measures of Performance?</u>

Answering this question requires that the researcher (a) generate a set of

FIGURE V-1

FACTORS INFLUENCING THE THEORY OF ACTION AND SERVICE MODEL PRACTICED BY PROBATION/PAROLE AGENCIES

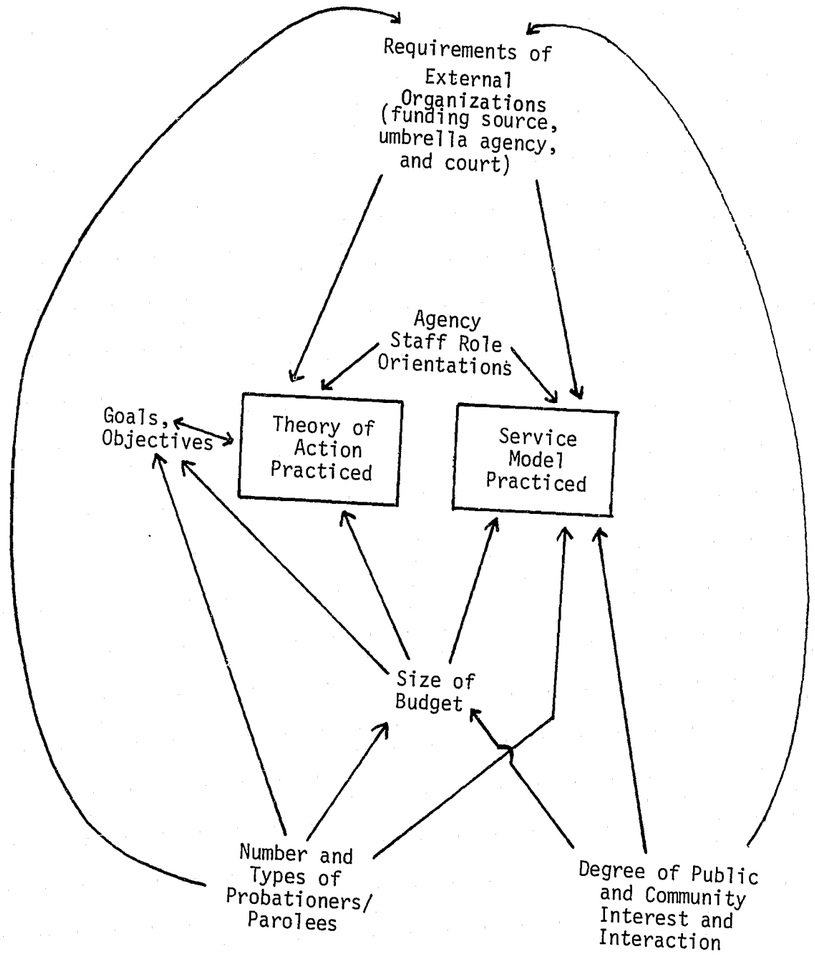

FIGURE V-2

HOW AGENCY ALLOCATION OF EFFORT IS EXPECTED TO VARY DUE TO THEORY OF ACTION AND SERVICE MODEL FOLLOWED

Theory of Practice	Service Model: Direct Casework	Service Model: Brokerage
Control	maximum supervision minimum support services	maximum supervision minimum needs assessment, referral, and linkages to community support services
Treatment	minimum supervision maximum needs assessment and support services	minimum supervision maximum needs assessment, referrals, and linkages to support services
Minimum	minimum supervision minimum support services	minimum supervision minimum referrals and community linkages
Mixed (Control and Treatment)	moderate supervision moderate support services	moderate supervision moderate referrals and community linkages

potential measures that members of constituent groups can consider and (b) use some method for assessing the adequacy of these potential performance measures. The cost, product, process, service characteristic, and distribution dimensions discussed in Chapter III are a starting point for generating those measures.

In Chapter III we also discussed several criteria for rating the adequacy of measures: completeness, uniqueness, reliability, accuracy, cost, ease of data collection, comparability, sensitivity, clarity, relevance to decision, and timeliness. This research should be pursued by considering the following questions:

1) Can these criteria, applied subjectively by individuals who want to decide which measures to include in a performance measurement system, discriminate sufficiently between measures to aid their decisions?

2) Are some criteria considered more important than others; and does importance vary, depending upon the individual, or the use to which the data are to be put?

3) Are there other important criteria that people take into account in deciding which measures are adequate?

4) Is there a subset of measures suitable to all three of the major theories of action and both service models, or can the performance of only programs having like theory and service models be compared with each other?

5) Is there a subset of measures acceptable to multiple constituent groups, or must different measures be used to satisfy the performance information needs of each major constituent group?

It is problematic whether a single set of measures can be developed that will be acceptable to all constituent groups. We suggest looking at patterns of agreement and disagreement among three groups -- researchers, criminal justice practitioners, and funding agency staff.

Two methods of eliciting opinions on adequacy of potential performance measures might be tested. In the first method, the researcher could ask a small group of people to give individual measures an overall adequacy rating and then explain why they judged these measures to be adequate or inadequate. In the second method, the researcher could ask a small group of people to rate measures according to the criteria defined in Chapter III and then give these measures an overall adequacy rating based upon these criteria. These two methods could be compared in terms of user's satisfaction with the method, time required to use the method, and which criteria the raters believed were most important to consider when judging whether measures are acceptable. Based upon the experience gained from these two tests, the researcher could develop an improved procedure for eliciting judgments about the adequacy of potential measures.

This third procedure could then be used to elicit judgments from a sample of individuals belonging to each of the three groups -- researchers, criminal justice practitioners, and funding agency staff. Each individual would judge

the acceptability of proposed performance measures for different hypothetical probation/parole agencies. These agencies will vary in terms of action theory and service model practiced. The ratings can be analyzed to see to what extent a subset of performance measures acceptable to members of all three groups exists. Disagreements within groups can be compared to disagreements across groups to determine the extent to which acceptability varies as a function of group membership. Finally, measures judged adequate for different action-theory/service-model programs can be compared. That subset of measures judged adequate by different constituent groups for different action-theory/service-model programs should be given highest priority for testing data collection procedures.

How Does the Relative Importance of Different Performance Dimensions Vary among Constituent Groups and over Time?

Performance dimensions that relate directly to corrections operations include cost, quantity of product, quality of service, efficiency, and equity of distribution. In the long run, however, researchers should not ignore effectiveness dimensions. As an aid to prioritizing future research efforts, the relative importance of these performance dimensions to different constituent groups should be researched.

Two methods of assessing the relative importance of multiple attributes are currently being reported in the literature. Decision theoretic methods have been detailed both in the economic and psychological literature, (Keeney and Raiffa, 1976; Edwards, Guttentag, and Snapper, 1975; Edwards, 1979). A second method, social judgment analysis, can also be used to derive relative weights of different performance dimensions (Rohrbaugh and Wehr, 1978; Rohrbaugh and Quinn, 1979).

We used the first method to elicit from a small group of people their judgments about the relative importance of six performance dimensions in determining the overall performance for a hypothetical probation and parole agency. The average relative weights obtained from this sample of convenience are listed below:

Performance Dimension	Relative Weight (Based upon a Convenience Sample, N=54)
Quality of product	12
Quality of service	21
Efficiency	12
Equity of distribution	16
Benefit to society	23
Total cost	16

These weights raise several research questions that need to be pursued:

1) Are the weights elicited valid representations of relative importance,

or are they artifacts of the procedure used to elicit the weights?

2) To what extent do weights assigned to a performance dimension differ among constituent groups?

3) Are the weights stable over time?

4) If the weights fluctuate over time, what problems does this create for developing and implementing a corrections performance measurement system?

Two techniques, multiattribute utility theory and social judgment analysis, have been used to develop relative values, or weights, for multiple objectives. With the multiattribute utility theory approach, judgments about the relative importance of different performance dimensions would be elicited separately from the scoring function. This method is quicker to administer than the other method and would be preferable on cost grounds. However, the only possible scoring function believed to be theoretically consistent with this procedure is a linear, additive composite rule. Louviere and Baker (1979) have demonstrated that at least when tested on a problem in flood plain management, the composition function is not linear and additive.

Using social judgment analysis, one derives the relative weights of performance dimensions and the scoring function simultaneously. Individuals representing different constituent groups would be asked to judge the overall performance of a number of hypothetical corrections programs on the basis of profiles graphically displaying their level of performance on several dimensions. For each rater, the overall performance rating for each profile can be regressed against the levels of the individual performance dimensions. The relative weights for that rater can then be derived from the regression coefficients of the individual performance dimensions.

The researcher could elicit weights from a group of people using both methods. By entering for each rater the weights obtained from the multiattribute procedure as coefficients in the regression equations for the hypothetical profiles, a second set of overall performance rating can be obtained. If the correlations are high between these two sets of ratings, using the cheaper procedure would be justified. If the correlations are low, the researcher should try to determine the source of error and select the procedure believed to be most valid.

To discover whether there is agreement about the relative importance of different performance dimensions, the researcher could use the procedure selected above to elicit weights from members of the three constituent groups. If different constituent groups agree about the relative importance of performance dimensions and their preferences are stable over time, the implications for future performance measurement research are clear: Future research ought to focus first upon the performance dimensions agreed to be most important. For example, the relative weights obtained in our convenience sample were benefit to society, 23%; quality of service, 21%; equity of distribution and total cost, each 16%; quantity of product and efficiency, each 12%. If these weights were found to be consistently the same across time and constituent groups, it follows that measures of program outcomes and service quality are generally considered more important than measures of quantity of product and efficiency. This finding

would suggest that, given limited resources for future measurement research, one ought to give priority to measuring a correction program's service quality and benefit to society.

If, on the other hand, people within constituent groups agree with each other but disagreement prevails among these groups, the questions of which group's preferences measurement research ought to address first should be considered. Without explicit consideration, this problem is likely to be resolved de facto by having whoever pays for a corrections performance measurement system determine its content.

This same decision theoretic approach can be used to research two other questions relating to specific performance dimensions. The first question is, what equity standard should be used when comparing the distribution on services? The standards discussed in Chapter III were input equality, output equality, categorical equality, and demand. The second question relates to multiple outcomes. What is the relative importance of different outcomes, such as increased employment, reduced criminal activity, and increased family stability? Chapter IV presented one illustration using multiattribute utility theory for determining relative importance among outcomes.

ESTIMATING EFFICIENCY AND IMPACTS

In addition to researching critical operations in corrections programs, identifying measures that different constituent groups can agree upon, and learning how the relative importance of different performance dimensions varies, we recommend that further research be conducted on two performance dimensions -- efficiency and impact. The two sections that follow propose further research applying statistical models to efficiency and impact measurements.

Average Cost and Frontier Cost Models

In Chapter IV we suggested technical efficiency as a benchmark against which to compare program performance. Estimating technical efficiency requires developing cost functions for correctional programs. Cost functions have been estimated for California and Federal prison systems (Witte, et al., 1979). The general empirical model for long-run prison costs developed is:

long-run average cost = f(number of individuals incarcerated, number of programs provided, price of capital, price of labor, index of offense seriousness, personal characteristics of inmates, previous criminal record of inmates, prison conditions, level of security, type of capital and personnel available.)

To our knowledge no other research on corrections average cost and frontier cost functions has been conducted.

We feel that further research applying traditional average cost and frontier cost functions can be used to (a) identify which local units within a state system are operating most efficiently, (b) diagnose the factors associated with low cost per offender, (c) estimate the reduction in cost that would be possible

if technical efficiency prevailed, and (d) predict future costs, given estimated changes in offender population, offender characteristics, quality of corrections program processes, and so on.

Research on corrections cost functions requires developing a statistical model for corrections programs relating the average cost of production to the level of direct output or product, the quality of direct output, the service conditions under which production takes place, and the cost of inputs (e.g., facilities and manpower) to the production process.

The average cost function would have the following general form:

average cost = f(prices of labor, material, capital; output; a vector of quality attributes; a vector of service conditions)

For probation programs, a possible output might be number of probation days, qualified by such program attributes as caseload size, types of supportive services provided, and level of surveillance. Another approach to operationalizing the output variable would be to develop an index of overall output as described in Chapter IV. The index could weight the various quality attributes and generate a single weighted output for use in the average cost function. The index method could also be used for service conditions, such as level of need of offenders served. If no unique index of multiple output can be developed, one could estimate a multi-product cost function. (See Darrough and Heineke (1978) for an example of the use of such a cost function in the police area.)

Multivariate Statistical Outcome Models

In Chapter IV, we illustrated multivariate statistical modeling as a method of isolating corrections program effects from other factors that influence program outcomes. The general theoretical model for estimating this effect takes the following form:

outcome = f(correctional program output, offender characteristics, environment in which the correctional program operates)

The size of the coefficient for the independent variable, correctional program output, will indicate the portion of program outcome that is attributable to program output rather than other factors.

We agree with Banks et al. (1976: 60) in the priority that they give to outcome measurement research over process measurement research:

> Expenditure of resources on careful process measurement without adequate outcome measures is not supportable. Without a sense of the degree of outcome success of a project it is meaningless to attempt to unravel the complexity of factors contributing to the outcomes.

While researchers have recently given considerable attention to measuring outcomes when evaluating corrections programs, outcome measurements are still not generally available. Even when outcome measurements are available, one

usually does not know to what extent the corrections program (rather than other factors) contributed to the outcomes. We recommend proceeding with three types of outcome-measurement research.

1) Develop theoretical and empirical models for outcomes in addition to the labor market and post-release criminal activity outcomes discussed in Chapter IV.

2) Build upon the labor market and criminal activity models by developing simultaneous equation models.

3) Collect the data required to estimate these models.

USING PERFORMANCE MEASUREMENTS

Before corrections agencies implement performance measurement systems, they need to know how to collect the data on a regular basis, what the measurement system would cost, and what incentives are necessary for corrections actors to collect the data and use the performance measurements.

Understanding Incentives for Measuring Performance

Before performance measurement systems are implemented, researchers should carefully consider how different corrections actors perceive the costs and benefits of the system. In Chapter I we listed a number of managerial tasks that might be aided by performance measurement. In Chapter III we noted the political uses to which performance information might be put. Individual corrections actors' perceptions of utility may differ from our observations. Willingness to collect data and use performance measurements is likely to be strongly affected by each actor's perception of how performance measurement can help or hurt him personally. Efforts to institutionalize regular performance measurement are likely to be frustrated when corrections actors believe that performance measurement will harm them more than help them.

Both rewards and penalties can act as incentives. Believing that doing a good job of measuring performance will favorably impress the boss and increase one's chance of promotion is an example of a perceived reward. Believing that dragging one's feet on the performance measurement task might result in losing one's job is an example of a perceived penalty. Examples of perceived disincentives are believing that nobody will really use the performance information when it is generated and believing that the extra work required to collect the data and prepare the reports is an unfair burden.

Generally, researchers need to identify and classify the different factors that serve as incentives or disincentives for corrections actors to develop and use performance information. Any jurisdiction seriously contemplating performance measurement would be well advised to inventory the likely incentives existing in its corrections agency. Building incentives into the performance measurement effort is as important to the success of the effort as is the technical work.

Developing and Testing Procedures for Regular Data Collection

In a one-time data collection effort, such as an impact evaluation, ad hoc

data collection procedures can be developed by trading off data needs against the funds available to do the evaluation. The data collection problem is somewhat different when institutionalizing data collection so that performance measurements can be routinely made on a regular, repetitive basis. In this situation, one must carefully consider annual cost, the burden that data collection places upon different corrections actors, and the procedures required to ensure the integrity of the data.

Two research efforts already under way are directly related to this data collection problem. The Urban Institute (1978) has for the past two years been actively testing data collection procedures that would permit monitoring prison and parole outcomes. These measures relate to the concepts of escape frequency, escape seriousness, inmate victimization, safety of prison physical plant, fire consequences, overcrowding, sanitation, inmate physical and mental health status, attitude change, post-release employment success, and recidivism. The factors considered in evaluating the advantages and disadvantages for the measures include rationale for the measure, how the measure can be broken out, data source sources for comparisons, data cost and quality.

In another research effort, Spectrum Analysis (1979) has developed an instrument to measure community adjustment of ex-offenders. The twenty items included in their scale for adult male felons are the following:

- relationship toward spouse
- relationship toward other family members
- fulfillment of parental and household obligations
- social relationships with known criminals
- non-criminal relationships outside of immediate family
- residential stability
- use of spare time
- school attendance
- church attendance
- employment stability
- job skills and attitudes
- job performance
- major source of income
- financial management
- psychiatric diagnosis
- emotional stability
- attitude toward supervision
- alcohol use
- other drug use

Little research has been completed that tests data collection procedures for process, equity, efficiency, and cost-effectiveness measures. We would recommend that researchers devote more effort to this area as soon as we learn which measures different constituent groups agree are adequate for these performance dimensions.

Developing Model Performance Measurement Systems

This last phase of research links the researcher to the practitioner. Researchers would work with a few corrections agencies to develop performance mea-

surement systems that provide the performance information that agency management believes it needs. Drawing upon the experience obtained when developing these several performance measurement systems, researchers could prepare several model systems that would suit a range of corrections agencies, both in terms of the performance information provided and system development and operating costs.

One would expect that the specific measures and statistical techniques actually included in a corrections performance measurement system would vary from one agency to another because:

a) agency managers differ in the relative importance they attach to different performance dimensions;

b) data processing capabilities vary;

c) methodological sophistication of support staffs varies;

d) the specific program processes to be measured vary;

e) data collection capabilities vary; and

f) constraints and information demands placed upon agencies by levels of government above the agency vary;

The researcher would work with a few corrections agencies in order to see how interests, measurement, and utilization capabilities are likely to vary among agencies; assess the level of interest in implementing measurement systems and identify obstacles to developing them; develop model or sample performance measurement systems tailored to the needs of those agencies worked with; and prepare descriptions of these model performance measurement systems that the National Institute of Justice could distribute to interested corrections agencies.

SUMMARY

We have concluded this book about measuring corrections performance by proposing an agenda of research that one could undertake within the theoretical framework developed here. This proposed research is premised upon the belief that one should answer these questions before deciding to implement a performance measurement system:

- What are the critical operations in corrections programs upon which performance measurements ought to focus?
- What measures can different constituent groups agree upon as being adequate measures of performance?
- How does the relative importance of different performance dimensions vary among constituent groups over time?
- What incentives and disincentives exist for people to collect data for measuring performance and to use performance information? How can one build additional incentives into an organization and reduce existing disincentives?

Other researchers are currently testing data collection procedures for various performance measures. Once the issues listed above have been researched, it will be possible to integrate the results of their research on data collection procedures with that outlined in this chapter. Additional research will then be needed for testing data collection procedures for some performance dimensions not now receiving much attention. These dimensions are equity of service distribution, process, efficiency, and cost-effectiveness.

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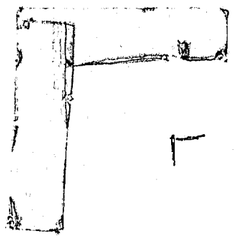
APPENDIX A

ORGANIZATIONAL PATTERNS FOR CORRECTIONS
BY STATE 1979

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Alabama										
State Board of Corrections								*		
State Board of Pardons and Parole					*	*			*	
Dept. of Youth Services	*	*	*	*			*			
Local										
Alaska										
Human Resources Agency	*	*	*	*	*	*	*	*	*	*
Arizona										
State Dept. of Corrections			*	*				*	*	
Local	*	*				*	*			*
Arkansas										
Dept. of Corrections						*		*	*	
Human Resources Agency		*	*	*						
Local	*						*			
California										
Human Resources Agency			*	*				*	*	
Local	*	*			*	*	*			

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Colorado										
Dept. of Corrections	*	*	*	*				*	*	*
State Court						*				
Local					*		*			
Connecticut										
Dept. of Adult Probation					*	*				
Dept. of Corrections							*	*	*	*
Dept. of Youth Services			*	*						
State Court	*	*								
Delaware										
Dept. of Corrections	*		*	*	*	*	*	*	*	*
State Court		*								
District of Columbia										
Dept. of Corrections	*		*			*	*	*	*	*
Social Rehabilitation Administration (Human Resources)	*		*	*						
D.C. Superior Court		*								
Florida										
Dept. of Corrections					*	*		*	*	*
Dept. of Health and Rehabilitation (Human Resources)	*	*	*	*						
Local							*			



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APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Georgia										
Dept. of Human Resources	*	*	*	*						
Dept. of Offender Rehabilitation (Corrections)					*	*		*	*	*
Local		*					*			
Hawaii										
State Board of Parole and Pardon									*	
Dept. of Social Services and Housing (Human Resources)		*	*				*	*		*
Adult Probation Division						*				
Family Court	*	*								
Local					*					
Idaho										
Dept. of Corrections						*		*	*	
Dept. of Health and Welfare (Human Resources Agency)	*	*	*	*						
Regional Youth Services Programs				*						
Local		*					*			
Illinois										
Dept. of Corrections			*	*				*	*	*
State Courts						*				
Local	*	*	*	*	*	*	*			

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Maine										
Dept. of Mental Health and Corrections		*	*	*		*		*	*	
Local	*						*			
Maryland										
Dept. of Health and Mental Hygiene (Human Resources)	*	*	*	*						
Dept of Public Safety and Corrections					*	*		*	*	
Local							*			
Massachusetts										
Human Services Dept.	*		*	*				*	*	*
Local		*			*	*	*			
Michigan										
Dept. of Corrections						*		*	*	
Human Resources (Social Services)	*	*	*	*						
Local	*	*			*	*	*			
Minnesota										
Dept. of Corrections		*	*	*	*	*		*	*	
Local	*	*			*	*	*			*

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Mississippi										
Dept. of Corrections								*		
Dept. of Youth Services		*	*	*						
Local	*	*					*			
State Probation and Parole Board					*	*				
Missouri										
Dept. of Social Services (Human Resources)			*	*	*	*		*	*	
Local	*	*					*			
Montana										
Human Resources/Dept. of Institutions			*	*	*	*		*	*	
Local	*	*					*			
Nebraska										
Dept. of Correctional Services			*	*					*	
Local	*	*			*	*	*			
State Parole Board								*		
Nevada										
Dept. of Human Resources			*	*						
Dept. of Parole and Probation					*	*			*	
Dept. of Prisons/Administrative Board								*		
Local	*	*					*			

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
New Hampshire										
Dept. of Probation		*			*	*				
Administrative Board (Adult)								*		
Administrative Board (Juvenile Institution and Services)	*		*	*						
Parole Board									*	
New Jersey										
Dept. of Corrections			*	*				*	*	*
Local	*	*				*	*			
New Mexico										
Criminal Justice Department			*		*	*		*	*	
Local	*	*		*			*			
New York										
Dept. of Corrections								*	*	*
Division of Probation					*	*				
Division of Youth			*	*						
Local	*	*			*	*	*			
North Carolina										
Dept. of Corrections					*	*	*	*	*	
Human Resources			*							
Local	*	*		*						

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
North Dakota										
Dept. of Institutions			*					*		
Dept. of Probation and Parole					*	*			*	
Dept. of Welfare		*		*						
Local	*	*		*			*			
Ohio										
Dept. of Corrections and Rehabilitation						*		*	*	
Local	*	*			*		*			
Youth Commission			*	*						
Oklahoma										
Dept. of Corrections					*	*		*		*
Human Resources Agency		*	*	*						
Local	*	*					*			
Oregon										
Human Resources Agency			*	*	*	*		*	*	*
Local	*	*			*	*	*			
Pennsylvania										
State Board of Probation and Parole					*	*			*	
Dept. of Justice							*	*		
Dept. of Public Welfare			*							
Local	*	*		*	*	*	*			

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Rhode Island										
Dept. of Corrections	*	*	*	*	*	*	*	*	*	*
South Carolina										
Dept. of Corrections								*		
Dept. of Juvenile Services	*	*	*	*			*			
Local					*	*			*	
Probation and Parole Board										
South Dakota			*					*		
Administrative Board										
Human Resources Agency	*	*		*	*	*			*	
Local							*			
Tennessee										
Dept. of Corrections		*	*	*	*	*		*	*	*
Local	*	*					*			
Texas										
Dept. of Corrections								*		
Local	*	*			*	*	*			
Parole Board									*	
Youth Council			*	*						

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Utah										
Dept. of Social Services (Human Resources)			*	*	*	*		*	*	
Local	*						*			
State Courts		*								
Vermont										
Human Services	*	*	*	*	*	*	*	*	*	
Virginia										
Dept. of Corrections		*	*	*	*	*		*	*	*
Local	*						*			
Washington										
Human Resources			*	*		*		*	*	*
Local	*	*			*		*			
West Virginia										
Dept. of Corrections		*	*	*	*	*		*	*	
Local	*						*			
Wisconsin										
Dept. of Health and Social Services (Human Resources)		*	*	*	*	*		*	*	*
Local	*						*			

APPENDIX A (cont'd.)

Agency	Juvenile				Adult					
	Detention	Probation	Institution	Aftercare	Misdemeanant Probation	Probation	Jails	Institutions	Parole	Community-Based
Wyoming										
Dept. of Probation and Parole		*	*	*	*	*		*	*	
Administrative Board	*						*			
Local										

This table was formatted according to the Council of State Governments, 1975, "Human Resources Agencies: Adult Corrections in State Organizational Structures" and 1979 data was obtained from the ACA Directory, 1979.

APPENDIX B

DESCRIPTION OF MAJOR POSITIONS IN CORRECTIONS

CHIEF ADMINISTRATOR

The chief administrator has the overall responsibility for the operation of his agency. The position carries a variety of titles including: chief administrator, director, superintendent, warden, and sheriff. The exact extent of the chief administrator's authority is dependent upon the type of organizational structure and the sources of funding for the agency. Responsibilities may include determining the agency's overall goals, objectives, and activities; setting standards for the administration of services provided; coordinating with other corrections agencies; and supervising lower-level management, program staff members, and ultimately all personnel and clients within the agency.

The selection of chief administrator may be political, through the merit system, or self-appointed (found only in community-based corrections agencies). Positions may be awarded to political supporters with particular correctional philosophies, to a professional correctional careerist, or to an ex-offender or ex-client with personal experience in corrections.

Requirements for this position usually include a combination of the following criteria: (1) practical experience in corrections, (2) a college degree or equivalent and, (3) some specialization in a corrections related field such as administration, sociology, criminology, social work, psychology, or law. It is possible for a chief administrator to be appointed without any of these qualifications.

COURT AND HEARINGS COORDINATOR

In probation and parole, this position is responsible for coordinating hearings between the court, the probation or parole officer and other personnel, and the client. Within the prison or jail, the hearings coordinator is responsible for the scheduling of parole hearings, court hearings such as trial appearances, litigation, and appeals, and other types of hearings. This position may be part of another position depending upon the organizational structure of the agency and is rarely found in a community-based correctional agency as a separate position. Appointments to the position can be political, appointment by administrator or deputy administrator, or through the merit system. Educational requirements for the position may vary from legal or paralegal experience to business or public administration dependent upon the individual agency and/or state requirements.

EXECUTIVE MANAGER/DIVISION DIRECTOR

This position is usually located only within larger agencies where diversification is necessary because of the large numbers of clients handled. There may be one division director who is responsible for the other specialized division directors or a variety of executive managers with the responsibility for one specific area: business, personnel, research and evaluation, or

overall organizational management. Appointments to the position may be political, appointment by chief or deputy administrator, or through a merit system. Educational backgrounds and requirements generally correspond to the type of position. Many must meet state or local requirements for employment.

MIDDLE MANAGEMENT DIRECTOR

The middle management director is located within large and diversified departments where his presence is necessary for the overall functioning of the agency. He may report to a Management or Organization Director or to a Deputy or Chief Administrator. Duties include management of subordinates, detailed handling of personnel problems and agency functioning, and management in specialized areas (courts or field work). He may establish lesser level objectives, and advise superiors on necessary changes and organizational requirements. Educational requirements usually include extensive experience in a specific correctional area and a degree in a corrections-related subject (social work, sociology, psychology, law). In community-based corrections facilities, this position is not common because of the small agency size.

SUPERVISORY MANAGEMENT DIRECTOR

The supervisory management director is responsible for those subordinates working directly with clients or inmates. The director oversees agency staff who work with assigned clients/inmates, client difficulties with assigned staff members, staff problems and needs, client/staff and client/program assignments. Some directors have client-related responsibilities themselves. Educational requirements vary by agency-type, although most directors are required to have extensive experience in the specific agency's operations and many have worked their way up through a merit system.

CUSTODIAL/CORRECTIONAL PERSONNEL

Custodial/correctional personnel work directly with clients and inmates and include support members responsible for the overall operation of the agency. Their educational requirements vary with exact staff position and agency.

CLIENTS

Clients can be categorized by type of program, type of housing, type of security, type of crime, or by personal characteristics. In all programs, except some community-based corrections agencies, clients have been required to serve a sentence by the courts. This sentence can be determinant or indeterminant. Clients within a community-based correctional program may have been placed there by pre-sentencing by the courts or police, or have entered on their own accord. In some community-based correctional programs, clients work as staff members in the substance abuse program or in some other position including maintenance, food services, or auxiliary staff. The age of "adult" clients vary as state definitions for "adult offenders" vary by state, although most are 18 years old and older.

APPENDIX C

DEFINITIONS OF PERFORMANCE MEASURES AND COMPARISONS

What Is Spent?

Cost is a measure of the resources consumed by a program as measured in dollars. It is not the opportunity cost, or the benefits foregone by allocating resources to this program rather than to some other. Cost would include both direct costs (costs that can be easily identified with specific programs) and indirect costs (overhead). As is the case for most of the performance measurements, cost comparisons will often be much more useful to decision makers than measurements without comparisons. Fiscal conformance for a program may be measured by comparing program cost for some determined fiscal period with the funds appropriated to it for that period by a legislative body. Budget certification and allotments frequently place additional restrictions upon the objects or purposes upon which appropriations may be spent and the time period during which such spending may take place. A measure of fiscal conformance might be the percentage of funds allotted that were spent. The greater the percentage exceeds 100, the lower the programs' rating would be in terms of fiscal conformance.

What Is Produced?

Product measures focus on what the program's direct output is and how much output there is. What the program produces can be measured by identifying the services delivered or the number of times regulations are enforced. For a probation program, a product measure might be the number and type of counseling services provided to offenders. For a prison custodial services program, the product might be the number of units of custodial services delivered, measured in prisoner man-year equivalents. Responsiveness measures compare products to citizen or client expectations about what those products should be. Product conformance measures compare products with program plans or performance agreements.

How Is Service Provided?

Process measures focus upon program content, upon the way a program transforms resources into products. An analysis and flow charting of a program's activities should help identify the processes that need to be measured. A process measure of the intake activity in a probation program might be the percentage of probationers for whom presentence investigations were reviewed prior to setting the conditions of probation. Process conformance can be measured by comparing the way a program actually transforms resources into products with whatever processes are mandated by laws, regulations, guidelines, or program plans applicable to the program. Examples of process conformance measures for the intake activity in a probation program might be (1) the percentage of probationers for whom presentence investigations were reviewed prior to setting the conditions of probation, divided by the percentage set in the guidelines, (2) the percentage of probationers for whom rehabilitation and supervision plans were developed divided by the percentage set forth in the program plans, and (3) the percentage of offenders informed of the conditions of probation at the beginning of the probation period divided by the percentage mandated by State regulations.

How Good Is the Service?

Service characteristic measures focus upon dimensions of program operations that can be translated into comparative measures of a program's quality. Examples of such dimensions include the waiting time between presentation of a client for service and service delivery, the error rate inherent in diagnostic procedures, the accessibility of service to the client, the client's and public's satisfaction with the service received or the regulations enforced, and the cost to the client (both economic and psychological) of obtaining the service. Quality measurements are made when service characteristic measurements are compared with (1) standards, (2) the service characteristics of other programs, or (3) service characteristics of the program in earlier time periods that indicate how well a program is operating. Examples of quality measures might be (1) the percentage of clients satisfied with the services provided by program A compared with program B, (2) the predictive validity and reliability of the classification scheme used compared with that of the most valid and reliable scheme available, and (3) number and percentage of services required that were not received, by reason, compared with prior years for the same program.

Who Gets Served?

Distribution measures describe the target group upon whom laws or regulations are enforced or to whom services are delivered. Common dimensions of distribution measures include geographic area, sex, race, age, education, economic status, severity of offense, and extent of need. Equity measures compare the actual distribution of services or enforcement with some preferred distribution derived from values or laws. A number of equity standards have been discussed (Lineberry and Welch, 1974: Ostrom, Parks, Whitaker, and Percy, 1977). Among these standards are input equality (Example: Each prisoner should receive the same amount of rehabilitation services), output equality (Example: Each prisoner should be educated to the same level), categorical equality (Example: Each minimum security prisoner should be able to exercise the same degree of freedom within an institution), and demand (Example: All prisoners who ask for vocational education should receive it.). Policy conformance measures compare the actual distribution with the criteria contained in guidelines or regulations that define who is eligible for a given service.

Service with What Results?

Outcome measures describe the effect or impact of the program upon clients who were directly served or other groups who were indirectly affected as a result of the program's products. A program may trigger a chain of events that occur over a period of many years. Common outcome measures for correctional programs include (1) number and percentage of offenders employed after program completion, (2) average change in school grade achievement by graduates of an academic school program, (3) reconvictions, by type of offense and type and length of disposition, and average change in scores on (4) The Minnesota Multiphasic Personality Inventory or other tests measuring social and psychological adjustment after treatment. Effectiveness measures compare actual outcomes with outcome levels set in objectives, with outcomes of other programs, or with prior year outcomes of the same program. An example of an effectiveness measure would be the employment rate for completers of Program A

divided by the employment rate stipulated in that program's objective. A benefit measure attaches weights to an outcome measure that reflect the value of the outcome to society. The benefit of a program might be expressed in dollars (the total dollar amount of property theft averted by Program A) or in subjective utility ratings (the benefit of this outcome is judged to be say, 80 on a scale ranging from 0 to 100).

Service at What Cost?

Cost/product measures simply divide the total cost to produce a product by the number of units produced. Such measures might include (1) cost per offender counselled, (2) cost per unit of custodial services rendered, and (3) cost per offender given job training. Efficiency measures compare actual cost per unit produced to a standard, to unit cost of other programs, or to prior-year unit costs for the same program.

Results at What Cost?

Cost/outcome measures divide the cost to achieve an outcome by the amount of that outcome. For example, cost per percentage increase in employment rate attained, cost per alcoholic rehabilitated, and cost per ex-offender employed would be cost/outcome measures. Cost-effectiveness measures compare actual cost/outcome with that set in objectives or obtained by other programs or that obtained in prior years by the same program.

What Environmental Conditions Exist?

External condition measures are not program specific; they describe those characteristics in the program's environment that influence both demands that will be made upon the program for service and the program's ability to achieve the outcomes set for it. As an example of influence upon demand, the age composition of the population in a state might influence the demands that will be made upon correctional programs for rehabilitative services. As an example of influence on outcome, the unemployment rate in a state might influence a program's effectiveness in placing its graduates in suitable jobs. Unmet need measures compare external conditions with goals established or desired conditions determined by beliefs or values. Examples of unmet need measures might include the percentage of people afraid to leave their homes at night for fear of being mugged compared with the belief that nobody's movements should be restricted due to fear of becoming a victim of crime.

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APPENDIX D

CRITERIA FOR ASSESSING PROPOSED MEASURES:
DEFINITIONS AND RATING SCHEME

I. Criteria for Rating Technical Adequacy[1]

1. Valid - Does the measure logically represent the concept to the measured? Two components of validity that merit separate ratings are completeness and uniqueness.

   a. Complete - Does the measure cover the entire concept or construct?

      Rating categories:

      2 = High - Measure covers the entire concept or construct.

      1 = Medium - Measure covers an important facet of the concept or construct.

      0 = Low - Measure covers no major facet of the concept or construct.

   b. Unique - Does the measure represent some concept or construct not covered by any other measure in this set?

      Rating categories:

      2 = High - No other measure in this set represents this concept or construct.

      1 = Medium - Other measures in this set represent different facets of this concept or construct.

      0 = Low - Other measures in this set represent the same facet.

2. Reliable - If a measurement is repeated, will the results be identical? Are there fluctuations in the characteristic to be measured, changes in transient personal or situational factors, or inconsistencies in the measurement procedure that result in variation in the measurements attained?

   Rating categories:

   2 = High - Can be confident that measurements will be substantially identical.

   1 = Medium - Variations due to fluctuations in the characteris-

[1] Blair, Monitoring the Impacts of Prison and Parole Services, was especially helpful in suggesting rating categories for many of these criteria.

tic to be measured and changes in transient personal or situational factors are minimal. Effects of instrumentation can be minimal if proper procedure is followed.

0 = Low - Not much confidence can be placed in the measurement due to fluctuations in the characteristic to be measured, changes in transient personal or situational factors, or the effects of the measurement procedure used

3. Accurate - Is the measurement free of systematic error or bias?

Rating categories:

2 = High - Little or no systematic error.

1 = Medium - Size of systematic error is known and is constant across time periods.

0 = Low - Systematic error is known to be present. Its size is either large or unknown and constancy across time periods is undetermined.

II. Practicality

1. Cost - How much will data collection or analysis cost?

Rating categories:

0 = High - Probably in excess of 1 man-year of professional or analytic staff time or $20,000 additional expenditures for professional services.

1 = Medium - Perhaps 3-12 man-months of professional or analytic staff time or corresponding expenditure for professional services.

2 = Low - Less than 3 man-months

2. Ease of data collection - What is the anticipated ease or difficulty of obtaining the data needed to make the measurement?

Rating Categories:

2 = Easy - Data are already computerized and generally accessible.

1 = Moderate - Data are generally available but in hard copy files and require a substantial amount of effort.

0 = Difficult - Data are available only with field work.

III. Utility - User Independent

1. Comparable - Can this measure be used to compare different programs with each other?

Rating categories:

2 = High - Can obtain measurements for different types of programs and at different points in time.

1 = Medium - Can obtain measurements for programs of the same type at different points in time.

0 = Low - Measurement is unique to a specific program or time period.

2. Sensitive - Is the discriminating power of the measurement procedure sufficient to capture the variation that occurs in the object, events or situations being measured?

Rating categories:

2 = High - Can make distinctions fine enough to capture any significant variation.

1 = Medium - Can make distinctions fine enough to capture substantial variation.

0 = Low - Cannot make distinctions fine enough to capture substantial variation.

3. Clear- Can the meaning of the measure be understood?

Rating categories:

2 = High - Easily understood.

1 = Medium - Can be at least intuitively understood given a definition of the measure.

0 = Low - Is complicated and only specialists understand it without being given extensive explanation.

IV. Utility - User Dependent

1. Relevant to decision - Does the measure provide information needed to make a decision about the performance of a correctional program or activity?

Rating categories:

2 = High - Measurement is considered an important piece of information needed before decision can be made.

1 = Medium - Measurement is considered useful but not essential.

0 = Low - Measurement is considered of little or no use in making the decision.

2. Timely - Are changes in the objects, events, or situations being measured reflected quickly enough in the measurements to be available before the decision must be made?

Rating categories:

2 = High - Measurements are regularly available early enough to be considered in the normal decision-making process.

1 = Medium - Measurements can be used only by deferring the time at which the decision is made.

0 = Low - Measurements are not available until after the decision must be made.

APPENDIX E

A DETAILED DESCRIPTION OF THE MODEL AND TRUNCATED LOGNORMAL TECHNIQUE FOR THE TIMING OF CRIMINAL ACTIVITY

Based on our analyses described earlier, we propose the following fully specified statistical model for the length of time until return to criminal activity. This model also provides an estimate of the number of members of a group expected to return to criminal activity at varying times after release.

$$\begin{aligned}(\text{LENGTH OF TIME UNTIL RETURN TO CRIMINAL ACTIVITY})_i = {} & \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \beta_3 \text{ number of mental health commitments} + \beta_4 x_{i4} + \beta_5 \text{ employment stability} + \beta_6 \text{ level of addictive problems} + \beta_7 \text{ age} + \beta_8 \text{ sex} + \beta_9 \text{ race} + \beta_{10} IQ + \beta_{11} \text{ age at first arrest} + \beta_{12} \text{ type of release} + \beta_{13} x_{i13} + \beta_{14} \text{ time served} + \beta_{15} x_{i15} + \beta_{16} x_{i16} + \beta_{17} x_{i17} + \psi_i\end{aligned}$$

for individuals for whom we observe a return to criminal activity during the follow-up period. $(\text{Length of time until return to criminal activity})_i$ is the observed value of time until return to criminal activity for the i^{th} individual whom we observe to return to criminal activity during the follow-up period; $\beta_0,\ldots,\beta_{17}$ are parameters or vectors of parameters to be estimated; x_{i1} is a vector of variables measuring stability; x_{i2} is a vector of variables measuring family values and activities; x_{i13} is a vector of variables reflecting the correctional experience of the i^{th} individual; x_{i15} is a vector of variables reflecting the effectiveness of the criminal justice system in apprehending and punishing offenders; x_{i16} is a vector of variables reflecting the genetic and physiological characteristics of the i^{th} individual; x_{i17} is a vector of variables reflecting the environment in which the individual currently finds her or himself; and ψ is a random disturbance term assumed to follow a lognormal distribution.

For individuals who do not return to crime during their follow-up period, the length of time until return to criminal activity is unobserved.

We recommend that the above model be estimated using maximum likelihood techniques available at most large computing centers. Witte and Schmidt (1977; Appendix) provide an explicit statement for the relevant likelihood function.

APPENDIX F

A DETAILED DESCRIPTION OF THE MODEL AND TOBIT TECHNIQUE FOR WAGES

Based on the analyses described earlier, we propose the following fully specified statistical model for the wage level of correctional releasees if technically trained personnel and adequate computer facilities are available.

$$\begin{aligned} WAGE_i = {} & \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \beta_3 \text{ unionization rate} + \\ & \beta_4 \text{ job permanence} + \beta_5 \text{ job opportunity} + \\ & \beta_6 \text{ minimum wage} + \beta_7 \text{ race} + \beta_8 \text{ sex} + \\ & \beta_9 \text{ criminal record} + \beta_{10} \text{ age} + \beta_{11} \text{ education} \\ & + \beta_{12} \text{ previous work record} + \beta_{13} \text{ marital} \\ & \text{status} + \beta_{14} \text{ number of dependents} + \beta_{15} \text{ avail-} \\ & \text{ability of other income} + \beta_{16} \text{ physical condition} \\ & + \beta_{17} \text{ mental condition} + \beta_{18} \text{ motivation} + \\ & \beta_{19} \text{ level of addictive problems} + \beta_{20} x_{i3} + \varepsilon_i \end{aligned}$$

For observations where we observe nonzero wage levels, $wage_i$ is the observed wage level for the i^{th} individual with a positive wage level; $\beta_0, \ldots, \beta_{20}$ are either parameters or vectors of parameters to be estimated; x_{i1} and x_{i2} are vectors of binary variables indicating occupation and employment, respectively; x_{i3} is a vector of variables indicating the nature of the correctional experience for the i^{th} individual (the variables of interest for evaluating correctional activity effectiveness), and ε_i is a random disturbance term assumed to follow a truncated normal distrubution.

For individuals who are unemployed (i.e., individuals with a zero level of wages):

$$WAGE_i = 0$$

We recommend that the above model of wage determination for correctional releasees be estimated using iterative maximum likelihood estimation procedures available at most large-scale research computing facilities. Amemiya (1973) provides an explicit statement for the relevant likelihood function.

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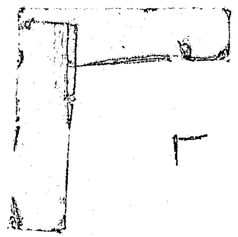

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