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THE ECONOMICS OF CORRECTIONS: AN EXPOSITION

City University of New York

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THE ECONOMICS OF CORRECTIONS: AN EXPOSITION

by

GAIL S. FUNKE

A dissertation submitted to the
Graduate Faculty in Economics
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy, The City
University of New York.

1981

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This manuscript has been read and accepted for the Graduate Faculty in Economics in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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ABSTRACT

THE ECONOMICS OF CORRECTIONS: AN EXPOSITION

by

Gail S. Funke

Advisor: Professor Herbert Geyer

The purpose of this dissertation is to present an exposition of the applications of economics to corrections. The approach includes a synthesis of knowledge in the area, suggestions on how economics might be further brought to bear on correctional issues, and recommendations for future research. The overall framework is one of policy analysis, in which objective, scientifically-based information is used in the action setting of public programs.

A review of the history of corrections is included to provide an appreciation for the multiple, conflicting goals under which corrections functions today. A review of the state-of-the-art in corrections provides a sense of the magnitude of the populations, activities, and expenditures which characterize this component of the criminal justice system.

The role and contributions of cost, comparative cost, cost-effectiveness, and cost-benefit analysis are extensively surveyed, illustrating the substantial existing knowledge of correctional inputs and the lesser state of output measures and valuation.

Economic research on institutions (prisons and jails) is reviewed and critiqued. Preliminary findings on correctional cost functions, the nature of marginal and average costs for state and

federal institutions are reviewed and policy recommendations discussed. Prison industries are discussed in the context of opportunity costs, human resource accounting, and the need for goal specification prior to further analysis.

Corrections in the community is analyzed from an economic perspective; private sector service providers, subsidy programs, and offender restitution, fees, and financial aid are reviewed from both the viewpoint of current research findings and the potential for additional economic research.

Contributions and recommendations are examined for their feasibility in a policy setting and suggestions are offered to improve future research and widen the application of economics to corrections.

DEDICATION

To My Father

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Every author is indebted to those who provide guidance, assistance, intellectual stimulation, encouragement, and otherwise contribute to a research effort. I am grateful to a number of persons without whom this dissertation could not have come to fruition.

My committee members: Professors Herbert Geyer, Dennis Young, Bernard Okun, provided valuable criticisms and comments on my work; Professor Gerald Pogue also assisted in the defense. I am particularly indebted to Professor Herbert Geyer, my principal advisor through the M.A. and now the Ph.D. His faith, support, and confidence that I could indeed identify a new field of applied economics played a critical role in the creation of this work.

I am also fortunate to have been a working researcher in the field, due to the inspiration of Billy L. Wayson, who founded the Correctional Economics Center. The Center, under his guidance, was the beginning of the idea which culminated in this dissertation--the relevance of the principles of economics in analyzing correctional activities.

Finally, thanks go to my principal typists, Joan Peterschmidt and Jan Coffinberger, who endured extraordinary hours and endless revisions, but never lost sight of quality.

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Chapter One

INTRODUCTION AND STUDY OVERVIEW

1.1. Study Purpose

The purpose of this inquiry is to investigate and analyze the relationship and application of the principles of economics to the field of corrections through a synthesis of existing knowledge, the incorporation of economic thinking into correctional issues and the provision of recommendations for future research. Both economic principles and issues of social deviance have been with us since the beginning of collective behavior, yet the relationship has hardly been formally recognized and never systematically represented. In part this may be attributed to the nature of the two fields. The development of the theory and concepts of microeconomics, for example, took place over a period when public production was less broad than today. Critical analysis of public provision of goods and services has been late in arriving. Perhaps, too, the issue has been clouded because of the tendency to view the process of service delivery as the product.

None of this is to say that economics has not been responsive to questions surrounding public goods and services. Rather, the issue is more one of the extent of the applications and the absence of a systematic framework for cataloging and assessing the contributions. Richard Musgrave took this approach when he collected and applied additional economic principles to develop his theory of the public economy.¹ By recognizing issues such as resource use and income distribution he broadened and enhanced the relevance and

application of the theory of the public household. (The author lays no claim to producing a work of equal magnitude, only of similar intent.) Musgrave thus armed scholars with a systematic representation of the myriad of concepts and tools available to examine the activities of the public sector.

However, the dearth of a similar systematic application to corrections cannot be laid solely at the doorstep of economics. Corrections must take the responsibility for being more a collection of changing activities with changing goals than a clearly defined field. Amorphousness is perplexing generally, but lethal in analysis; issues do not spring forward ripe for analysis -- often it is not perceived that an analytical problem exists or that choices can be made. Corrections has been characterized by conflicting goals and evolving financing since its inception. It is, perhaps, the only public activity whose goals and process spawn such considerable disagreement; in others, conflict tends to center more on process (e.g., not whether a service should be provided, but rather by whom and to what extent).

Application of economic principles to address correctional issues of course occurs. This range of applications remains but a segment of the potential depth and breadth at a time when the need would appear to be great. Criminal justice system activities generally and corrections particularly consume large amounts of public and private resources. Issues such as cost containment, correctional standards, and the role of prison industries have prompted those responsible for corrections' activities to sometimes turn to the

economist for assistance. Questions surrounding determinants of criminal behavior and the implications for policy have begun to interest a generation of economists. What is still missing is a framework to systematically categorize these extant and potential contributions. Economics represents a way of thinking about the world that is manifested in theorizing about an issue or applying a specific analytical technique. But it is the way of thinking that must provide the backdrop for a useful framework, the structure under which the concepts and techniques are arrayed.

If corrections is ready for such an application, an analytical hybrid has eased the way. In recent years the concept of policy analysis has emerged as a framework for addressing public issues. Policy analysis is the unification of scientific research and the action setting of public programs. Multi-disciplinary in nature, it is the vehicle by which economics has entered the public program arena. But its decision focus is the attribute of interest for the analytical process. Stated simply, policy analysis requires that the analytical process take into account the setting in which research findings will be implemented.

It is, then, with dual users in mind, that this thesis is developed. Hopefully, economists will find the categorization of existing and potential concepts and applications useful, and inviting of further research (all first works cannot be ends but only beginnings). The correctional perspective is deliberately incorporated to guide this development and, perhaps, conserve resources. Similarly, it is hoped that corrections' professionals will regard the economic perspective of their problems as an incentive to further incorporate

economic thinking into their operating framework and policy decisions. The focus is on corrections as an activity, or collection of activities, rather than on crime or deterrence (although deterrence literature is reviewed and cited to provide balance and examples for the correctional system). We are interested in principles and applications of economics which will produce better, manageable, more informed corrections.

1.2. Corrections

Corrections is a part of a larger set of activities known as the criminal justice system; other system components include police protection, judicial, prosecution and defense services. All activities are carried out at all levels of government but police protection is chiefly a local function, while corrections is primarily a state function. Of the \$24 billion criminal justice system expenditures in 1989, governmental shares were: federal: 13 percent; state: 28 percent; local: 59 percent. Corrections' expenditures were \$5.5 billion and the shares were: federal: 5 percent; state: 58 percent; local: 36 percent (of total criminal justice expenditures).²

1.2.1 Correctional Activities

Corrections comprises activities of supervision, confinement, and rehabilitation provided in varying degrees to persons convicted of crimes or confined awaiting adjudication. Supervision of some kind is always present, controlled by the sentencing function. The other features are affected by the disposition; one or both may be present. Dispositions include:

- institutional incarceration (maximum, medium, minimum security prisons, camps, reformatories, jails)
- probation (community supervision, varying intensity; usually an alternative to incarceration)
- parole (community supervision, varying intensity; usually follows incarceration)
- community corrections (halfway houses, work and education release; may be used as adjunct or alternative to incarceration)
- other (pretrial diversion, restitution, community service)
- fines and suspended sentences.

1.2.2. Crime

The two broad crime categories under which persons may be arrested, tried, and convicted include felonies and misdemeanors. Felonies include serious crimes such as murder, arson, burglary, assault, etc. and are usually punishable by prison terms exceeding one year. Misdemeanors are less serious, punishable by terms under one year and often represent the category into which felony offenses are plea bargained. As a general matter, convicted felons are usually supervised by state authorities, while local jurisdictions supervise misdemeanants. Variations occur, however, both in the mode of supervision and definitions of crime. Some states take total responsibility for misdemeanor populations (e.g., North Carolina) while others take none (e.g., Massachusetts). Many offenses are regarded differently by jurisdictions (e.g., possession of marijuana) and conviction and sentencing practices (as well as crime statistics and offender population distribution) will reflect these differences, creating wide variation in incarceration rates and time served.

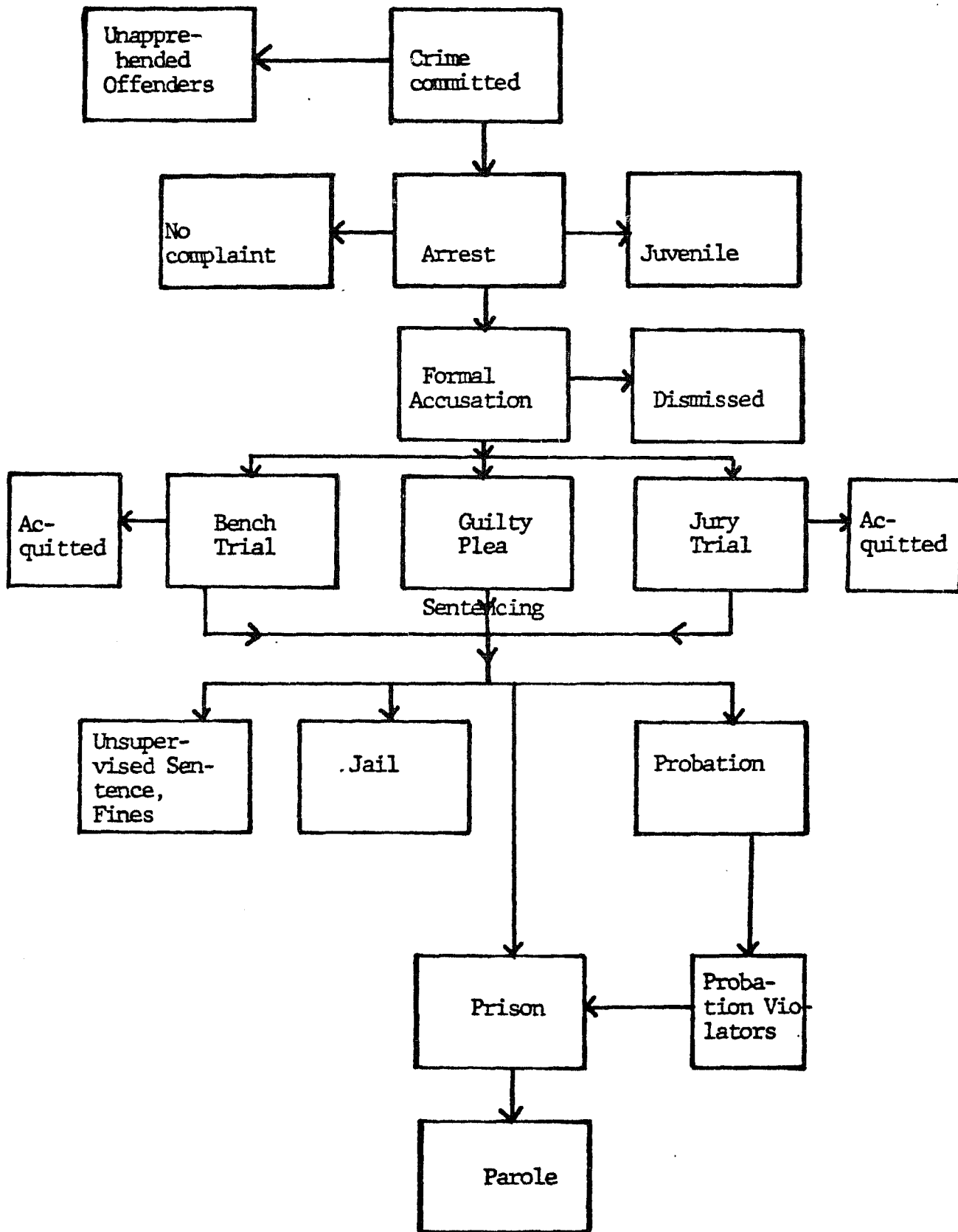
Few persons apprehended for crimes ever reach the correctional system. In fact, only slightly over half of all estimated serious crimes is reported to police; arrests comprise 20 percent of reported crime. The probability of conviction of the charged crime or a lesser offense is slightly less than one-half; about half of those arrested are subsequently convicted. In 1978, ten million serious crimes (homicide, rape, assault, burglary, robbery, larceny, auto theft) were reported.³ Admissions to state and federal institutions totalled 153,300, of which 77 percent were parole violators. Releases totalled 145,600, of which 17 percent were unconditional and 70 percent involved supervision of some kind.⁴ Figure 1 presents a generalized flow chart of the American criminal justice system.

1.2.3. Correctional Populations

Correctional clients may be supervised at the federal, state and local level. The federal system provides incarceration, probation and parole services for its clients. Some state correctional systems are responsible for all activities, including community corrections and jails, while others may only control secure incarceration. Probation may be a state or local function. At the federal level, prisoners and persons under supervision are overseen by the Federal Bureau of Prisons of the U.S. Department of Justice. At the state level, the Department of Corrections may be a separate administrative body or part of an umbrella agency such as Health, Education and Welfare, Social and Health Services, etc. Adult and juvenile agencies may be combined or separate. Local corrections may be carried out by the jails, courts, or separate agencies.

FIGURE 1-1

Criminal Justice System Model



Absolute levels and distribution of correctional populations vary widely by state, reflecting different preferences for supervision and incarceration rather than differences in crime rates. At year-end 1980, nearly one-half million persons were confined in prisons and jails, an increase of 42 percent from 1972; there were 21,000 federal, 299,000 state and 158,400 local prisoners.⁵ Populations had been relatively stable for the preceding two decades. The largest growth in population has been at the state level, with an increase of 125,000 prisoners during the nine-year period. Closed (secure) prisons account for approximately 60 percent of persons in state correctional facilities; the balance are housed at farms (13 percent), road camps (3 percent), community corrections centers (4.7 percent), and reception-diagnostic (intake) centers (5 percent). At closed institutions, 40 percent of inmates are designated maximum security, one-third medium and the balance minimum security. Parole and probation populations account for an additional 1.5 million persons under supervision.

1.2.4. Correctional Services

Accounting for differences in correctional per capita expenditures, as well as reflecting a state attitude toward offenders, is the range of services offered under different correctional alternatives. Services provided in secure settings will vary in number and level but include education (elementary through college), vocational training, counseling, diagnostics, medical and dental care, recreation, visiting; inmate work programs (prison industries); library and legal services, religious services, work and education release, and pre-

release services. Some institutions (states) are more treatment or rehabilitation oriented and provide substantial enrichment services, while others take a more punishment-oriented approach, stressing hard labor and few privileges.

Services in the community may be provided in the probation, parole or halfway house setting. Probation and parole may include specialized caseload services such as employment placement or counseling, but minimal contact and supervision is more common. Services provided through residential settings may include counseling, job placement, or drug or alcohol therapy.

1.3. Historical Perspectives

It is neither necessary nor helpful to consider corrections merely as a free-standing phenomenon of the present. Indeed, an appreciation or sympathy for modern corrections may best be gained by examining its history. Services have been provided under changing jurisdictional control, financing, and goal structures; this has created many problems, not the least of them analytical. While these issues are treated more extensively in the main text, an overview is offered here of the changing nature of control and financing, goals and purposes.

1.3.1. Control and Finance

Corrections began in this country as a local function, where offenders were confined in city and county jails.⁶ Larger institutions, called Houses of Correction, were begun in the seventeenth century; these were financed and maintained by counties. In 1787, the first "penitentiary" was opened in Philadelphia; the Walnut Street

Jail separated sentenced felons from misdemeanants and detainees -- for the first time. By 1800, eight states had constructed prisons; in other states prisoners continued to be held in old county jails and houses of correction. The early and mid-nineteenth century witnessed construction of additional, large (1,000+ beds) state institutions.

During this time, federal prisoners were cared for by state and local jurisdictions. By 1885, there were over 1,000 federal prisoners in state prisons and another 10,000 in local jails. Ten years later these figures had grown to 2,500 and 15,000 respectively. Finally, at century's end, federal money was appropriated to rebuild the military prison at Fort Leavenworth, Kansas.

The early twentieth century saw a movement toward more statewide assumption of prison supervision. Previously, although states built and financed their own institutions, these constituted little more than a collection; what would be called a state system today simply did not exist. Indeed, the tendency to locate prisons in remote settings which were difficult to access set the stage for the independent, "reservation" style of prisons, a feature which prevails yet today in many states.

By the early 1900s, the use of probation as an alternative to imprisonment had begun to emerge. Most northern states had probation laws by 1910, and by 1915 such laws were also found in the western states; other regions followed later. Today, probation may be a state or local function; the issue regarding whether it still serves as an alternative to prison is widely debated.

Another alternative to incarceration, work-release (a prisoner may be housed in a secure setting but is free to go to work during the day), was introduced in 1913 in Wisconsin. This alternative was developed because of severe prison overcrowding and in succeeding years many convicted persons were channeled into work-release. For forty years, no state followed; in 1957, North Carolina passed similar legislation for similar economic reasons. By 1965, there were laws for some kind of work-release in 24 states.

Halfway houses -- community residence in a non-secure setting -- were first suggested in 1817 in Massachusetts to no avail. Three facilities were opened during the nineteenth century and were privately operated and financed by charitable organizations. It was not until mid-twentieth century that their numbers began to proliferate. In 1961, the Federal Bureau of Prisons funded the first federal pre-release center. Such houses, still largely private, represented the beginning of private sector involvement in the provision of correctional services. Their purpose has not been to serve as total alternatives to incarceration except for juveniles.

Other private sector activities in corrections have also occurred during the past 25 years. Specific service provision, rather than total corrections, in areas such as drug abuse, training and employment has become prevalent. As corrections has moved from the county jail to the community, its problems have become more complex as more services are supplied in more settings under variegated financing arrangements.

1.3.2. Purposes of Corrections

The purposes, or supposed goals of corrections have ebbed and flowed over more than three centuries from punishment, reform and self-support to treatment, rehabilitation and finally reintegration. This flow has been affected by changing views of criminals and their behavior as well as the role of the institution-prison itself in society. However, it is interesting to note that it is the relative emphasis, more than the goals themselves, that has changed. A punishment motive, for example, still exists, if better couched in professional terms and implicit practice. This multi-goal phenomenon aids in understanding the sometimes piecemeal and seemingly unfocused nature of corrections today.

Early corrections in America translated into punishment by death as a common sanction. The "goal" at that time was removal of the offender from society. In Philadelphia, in 1682, the Quakers introduced the idea of "partial removal" by substituting confinement for death. The emphasis was on hard labor and time to repent; the prisoner lived and worked in solitude, confined always to a single cell.

The perspective of reform was introduced in 1787 with the Walnut Street Jail. The separation of convicted felons permitted for them a program of discipline and labor, with an opportunity for early release, if "reformed."

At the beginning of the nineteenth century, the perceived needs of the prisoner began to be comingled with the needs of the system. The Auburn system provided for solitary cells and congregate labor, which was more than the busy work of the Quakers. As larger

numbers became confined, this idea of the self-supporting prison, where work was not performed just for its own sake, gained favor. In 1825, the lease system began, whereby a private contractor could pay a fee and own the services of the convicts. This arrangement created many self-supporting prisons.

The mid-1800s saw the development of the reformatory concept for younger offenders; training and education became the tools by which to accomplish positive behavioral change. These changes were largely the result of the efforts of private groups. Social activists influenced the 18th and early 19th century prisons far more than any concern springing from corrections itself. The federal government was caring for its own prisoners by the turn of the century but as yet there existed no adequate agency to provide leadership. The Federal Bureau of Prisons was not created until 1930. By 1915, however, another trend was on the way: the beginnings of the understanding of the prisoner as individual, rather than part of an incorrigible collective. Under this approach, the individual prisoner was regarded as sick with evil ways; rehabilitation or the "medical model" endeavored to alter this inappropriate behavior. The 1970s saw the rise of the concept of reintegration, whereby treatment was modified to provide those skills and habits necessary to perform productively and legally in society; program participation also was made voluntary. In 1975, the concept of the self-supporting prison was raised again (this time by federal assistance to correctional industries) and the appeal of at least self-sufficient industries continues to the present. The concept has been modified dramatically from the old contract-labor systems, however. Today's self-sufficient industry is intended

to attain that goal within the context of meaningful work (rehabilitation) and improved work habits (reintegration).

Corrections has experienced a history of goal ambiguity and conflict. Three hundred years have clarified some goals, removed others, but left a legacy of multiple goals. The historical emphasis on confinement in fortresses has created a pattern of slow adaptation; it simply is not easy to change correctional technology. Confinement and punishment embody much different production processes than training and community involvement. And, public preferences really are not known, but have tended to vacillate, often influenced by publicity on crime.

1.3.3. Goals of Modern Corrections

From both a social and analytical perspective, it is useful to understand the mandates and expectations under which corrections operates today. It is the change in relative emphasis, rather than the presence or absence of particular goals, that guides much of today's correctional activity. There is more emphasis on offender as individual and some attempt to use programs in a tailored way. This is not to say that perfect diagnosis and classification exist. Critics charge that we overincarcerate (the rate of incarceration per 100,000 population in the United States exceeds that of every nation in the world save South Africa) and that a taste for punishment results in confinement of many persons more suited to gentler alternatives.

The goals of correction, then, in the United States remain a conglomerate of punishment, deterrence (avoidance of future crime by

the offender or by others due to the "example" of incarceration), safety (through incapacitation), recompense (an "in-kind" payment, such as forfeiture of freedom or loss of job or skills, made by the offender to society for deviant behavior) and rehabilitation or reintegration. Some of these "modern" goals were articulated by Voltaire:

The end of punishment, therefore, is no other than to prevent the criminal from doing further injury to society, and to prevent others from committing the like offense.

and by Bentham:

The evil of the punishment must be made to exceed the advantages of the offense.

The conflict between punishment and rehabilitation has been addressed by two persons, 120 years apart. Rather than eliminating one or the other, the suggestion is to make the treatment more explicit. First called the "Irish System," the concept was promulgated in England in 1855 as a response to the closing of the American penal colonies.⁹ Treatment occurred in three stages: the first, pure punishment, in solitude; for two years; the second, congregate labor leading to some release date; finally, supervised release. This system was in fact used but politics ended the practice after a few years.

A similar idea recently appeared in the economics literature. Tabasz argues for an explicit, two-staged system of solitary confinement (punishment) and rehabilitation, claiming that the present simultaneity robs each concept of its effectiveness and does not satisfy the public's need to punish.¹⁰ (Indeed, Becker argues that post-release job discrimination results because it is felt prisoners were

not punished enough.¹¹⁾ While the idea may be conceptually appealing, it may be that society is indeed quite comfortable with this mixed set of goals and that the explicitness borne of discreteness would not be welcome. It appears, then, that for the time being, corrections is saddled with this multiplicity of goals. The economist, like the reformer, will simply have to work with (or around) them. It is hoped that the advent of better analysis at least may make the price of the ambiguity more explicit.

1.4. Economics and Corrections

1.4.1. Corrections and the Criminal Justice System

The economic analysis of corrections confronts the same issues as analysis of public services generally, with a few additional considerations. As with other public activities, price is absent, outputs undefined or ambiguous. But because corrections is often evaluated by what persons do not do, including those with whom the system has no contact, and because of the multiplicity, fragmentation and interdependence of criminal justice system activities, the problems are exacerbated. Consider the issue of consumer preference. Assuming for the moment the citizen as consumer, there exist many arenas in which preferences for criminal justice system activities generally and correctional activities specifically may be expressed. Besides the normal federal, state and local election processes, there are referenda, interest groups and so forth -- but there are many criminal justice system outcomes. In a sense, the non-offender public makes choices for second (criminal justice system) and third (offender-client) parties. An increase in demand for police services, for

example, will create repercussions throughout the criminal justice system, even without any expressed change in preferences regarding these other activities. A change in preferences about parole will create effects on other segments of the system. In other words, preferences expressed for sanctions or activity levels at one point in the system impact on many others. Absolute budget constraints limit the level of a particular function (law enforcement, incarceration), while relative budget constraints or changes in relative shares may bottleneck the system and aggravate the initial problems of constraint. Higher police allocations may produce more arrests but courts may be backlogged or prisons full. The criminal justice system is a collection of interdependencies -- caseloads, calendars, cells -- which are not managed as if the linkages were recognized.

This interdependence is crucial to understanding and analyzing corrections. It results in corrections having no control over its major input -- convicted offenders. If decisions about determinate sentencing and parole reduction are included, corrections may also have little control over its output (the quantity, not the quality). Corrections is also a field in which the quality of its output, i.e., released offenders with some portfolio of education, skills, therapy, etc., is judged by outcomes beyond its purview (recidivism -- additional criminal behavior). If crime-free behavior (for correctional clients) is what the public views as a final good, then corrections is essentially an intermediate-goods producer -- of investments in human capital. In addition, its constituency is characterized by negative attitudes, its purpose(s) shifting and conflicting and its interdependence with the competing segments of the criminal justice

system problematical.

1.4.2. Correctional Decision-making

One last consideration is necessary to round out the setting -- the correctional decision-making process. It has been suggested that policy analysis is the appropriate framework for organizing and carrying out economic and other analyses. Policy analysis explicitly recognizes the decision milieu in which choices are made and implemented. The preceding discussion has highlighted some of the issues facing correctional decision-makers. Some further comment on the nature and process of planning and research in corrections is warranted. Because of its history of confinement and the unpleasant nature of its clients, corrections grew up located in remote settings, staffed with caretakers. Prison management translated into controlling offenders, minimizing escapes and generally maintaining order. Such isolated containment attracted reformers, eventually psychologists, but few others until recently. Research and analysis were virtually unknown for most of its history, although this phenomenon is not unique to corrections: "It is only recently that analysis has been formally associated with public decision-making."¹² Corrections, moving from a system of institutional caretakers to the state umbrella was perhaps farther away from other public activities in its lack of professionalism. The decision sphere was not one which incorporated large quantities of scientifically derived information. One author, reviewing current decision-making in corrections, found a "widespread belief that to take all data is in some way a sign of a poor decision-maker; a good decision-maker is to some extent one who can manage on the smallest

amount."¹³ Another study identified the gap between decision-makers and their researchers; many managers preferred not to use scientifically-derived information but to rely on "experience" or summary data.¹⁴ But the right questions are beginning to be asked, if not always by corrections itself, by the legislatures which guide and finance. Cost constraints, correctional standards, the demand for relevant programming, the role of the private sector, increasing expectations -- such issues provide a milieu ripe for -- indeed, in need of -- analysis.

1.4.3. Economic Analysis

This section expands on the conceptual framework introduced at the beginning of the chapter and provides some examples from the literature on progress and problems. The process by which the study will be conducted is outlined and some areas of inquiry suggested.

Economics, as we know only too well, is the study of the processes by which scarce resources are allocated among alternative uses to satisfy wants. Its concepts and analytical techniques are designed to produce information which will foster optimal decision-making -- for the individual, the firm, the industry, the public program administrator.

Conceptually, economics and other scientific processes proceed similarly. A phenomenon is observed and selected for analysis; a search for a general theory to explain the phenomenon then ensues. Often, these two steps occur nearly simultaneously, as when an analyst searches for manifestation of a theory. Then, relevant concepts and analytical techniques are identified. Data are collected, the

techniques applied, and it is tested whether, or to what degree, the theory explains the phenomenon. In policy research, public policy activities are presumably guided by analysis. This general process has been applied to many public service areas, e.g., health care, education, etc. Within the sphere of criminal justice, many applications have taken place.

The process has, however, been less systematically applied to corrections. Analysis has been conducted, but no organized body of knowledge guides the process. Economics as a way of thinking in corrections is very rare. For example, concepts such as the theory of the firm, production, even demand and supply, have not been systematically overlaid upon the issues confronting corrections.

1.4.4. Why Economics Has Not Been Useful in Corrections

In order to understand the potential contributions of economic principles to corrections (and, indeed, to guide the analysis), it is useful to consider some of the reasons for the lack of analysis.

The issue has not gone unnoticed. Kenneth Avio, writing in 1973, found it "puzzling" that economics had not been used more broadly in analyzing correctional institutions.¹⁵ Blumstein, Cohen and Nagin in a vast analysis and critique of the research concluded (in 1978) that after ten years of analysis, there was still no good evidence on either the existence or magnitude of the deterrence effect.¹⁶ Sam Myers provided an echo for the eighties in his work on punishment and rehabilitation, reflecting that economists have had little to say on these issues.¹⁷

1.4.4.1. Definitions. A systematic, if summary, investigation of the reasons may help clarify why analysis has not been more widely used. Part of the problem has been definitional. Inputs and outputs, the sine qua non of economic analysis, simply have not been defined in a manner suitable for analysis. In social service delivery, one ordinarily begins with goal statements as a way of defining an output. But until recently, it has been common to encounter correctional goals such as: "protect society," "rehabilitate," "provide positive attitudinal skills" with no assistance on clearer definition and measurement. Some of this may be endemic to social service provision; a 1975 study encountered the goal: "having the client feel better about him/herself" in many organizations providing correctional services.¹⁸ And some may be the confusion between output and outcome: lower recidivism is an outcome which may result if a related output (possibly skills training) is appropriately produced. There has been some tendency to muddle the two and hold corrections directly responsible for outcomes. On the other side, inputs have not always been defined or sometimes even known. In part this may be blamed on the budget process as well as general lack of incentive. Legislatures tend to prefer line item budgets because resources are presumably explicit. But this confounds the problem of categorizing inputs along more programmatic, or functional lines, i.e., in a context more suitable for economic analysis. Capital budgets, for example, are typically centralized and not tied to the organizational unit on whose behalf the expenditures are made. Other information may be maintained centrally and never appear in the outlays

of a correctional facility. As Schick observes, "conventional budgeting is fundamentally anti-analytic and . . . efforts to funnel policy analysis through routine budget procedures are not likely to succeed."¹⁹ Budgeting systems, besides being non-analytic, are usually non-comparable between political subunits. And, until the 1970s, budget constraints were not generally recognized as explicitly as they are today.

1.4.4.2. Data Problems. Poor or unavailable data continue to present serious problems. For a time, the inadequacy of data was not widely recognized; in 1975 a correctional researcher stated, most inaccurately: "each action or service is costed by applying business office or auditor figures to each unit of action and service and totalling the cost."²⁰ It is precisely because this was not and is not the case that facile and wholly misleading comparisons frequently are made, e.g., average daily prison costs in state X and state Y. There are measurement problems: Zimring speaks of the use of the "police eraser" in distorting reported crime figures which may subsequently find their way into analysis.²¹ Data may be available but too highly aggregated: specific components, inclusiveness and completeness may be indiscernible. Among other criticisms of Erlich's work on capital punishment as a deterrent is the charge that the data he used were too highly aggregated.²² Finally, data may be unavailable or simply hard to get. Seemingly straightforward items for the private sector become difficult to discern in public accounts. One study of prison costs required considerable time and effort to determine fringe benefit expenditures.²³

Another required similar pains to determine client attendance and turnover in community programs.²⁴ The few studies of cost functions for correctional institutions have had to omit quality considerations from their analysis (a critical oversight in the face of prison overcrowding and correctional standards) because of unavailable data.²⁵

1.4.4.3. Effect on Analytical Process. The effect of all this on the analytical process has been frustrating if not devastating. One outcome was that essentially only specific studies on specific problem areas were performed, usually with targeted funding. An analyst simply could not perform meaningful studies with the available definitions and data, so research has been idiosyncratic. The woeful state of in-house corrections' research has already been noted. Second, many research results have been qualified, often suspect. Blumstein, et al, found many studies on capital punishment flawed, failing to control for a variety of additional variables, and sensitive to small variations in assumptions.²⁶ Results have been incomplete; for example, marginal costs are notoriously difficult to deduce for almost any criminal justice system activity. Analyses which would be strengthened by such information (e.g., the savings in incarceration costs attributable to a pre-trial diversion program) are robbed of their full impact. The lack of appropriate cost allocation procedures often results in omission of information and a less comprehensive analysis.

1.4.4.4. Effect on Policy Decisions. Analysis performed in the policy arena carries a special burden since presumably activities

will be altered in accordance with findings. Proponents of capital punishment, for example, have cited Erlich's work as proof of deterrence, perhaps without realizing that this work is still widely debated. Preliminary work on cost functions could be used to justify prison populations substantially larger than existing experience. The costs of a wrong decision in such matters are not low. Sometimes the policy recommendations (whether appropriate to the analytical procedures or not) simply may be infeasible, perhaps because of the analyst's lack of familiarity with the phenomenon (e.g., corrections) under analysis. For example, one author concluded that, since violence in prisoner populations was a major cost determinant, the cost-conscious administrator should minimize the intake of violent persons.²⁷ It was not uncommon in the early 1970s to observe the use of average institutional costs as the "savings" occasioned by utilizing community alternatives.²⁸ The problem is more than academic since decisions based on incorrect information will themselves be incorrect. The policy arena provides enough opportunities to misuse even correct information.

Finally, another author bemoans the "theory gap" whereby the present stock of knowledge "is singularly bereft of a general theoretical structure in which to incorporate and organize particular experimental findings." The remarks are made with respect to deterrence but their relevance is far from limited. The same author concludes by identifying a "credibility gap" with respect to scholars and policy: "In short, policy makers do not trust social scientists."²⁹

1.4.4.5. Some Recommendations. Without belaboring the issue, it is worth noting that some social scientists have produced some concrete suggestions for improving analysis, if not the analytical process. A poignant example makes the point: there exists research which has identified, by state, the changes in index crime prison populations to achieve a reduction in crime, λ , (i.e., an incapacitation effect).³⁰ The problem arises because λ , the crimes committed by individuals while free, has not been estimated. Recommendations for amending this and other problems in deterrence are quite straightforward: the need for specific, individual-oriented knowledge of crime types, levels, and career length. Other information needed includes cross-sectional time series on crimes and criminal justice system processing, by state, county and city jurisdictions and SMSAs; better data by age, race and sex across such variables as reported crime, arrests, charges, convictions, numbers of persons sent to each type of correctional institution, and average length of stay.³¹ And these are only the data required to begin estimating the existence and magnitude of deterrence. Research and analysis in corrections has those same data needs and a multitude of others. What is needed, however, is more than good information, or economists in analytical roles: what would truly benefit corrections is an economic approach -- as Becker maintains, analyzing an entire phenomenon from an economic perspective.³²

1.4.5. A Typology of Contributions

Having explored what has not been done, we turn to a brief discussion of progress in the field. The discussion is organized

around the features of successful analysis, from opening corrections to economic analysis to providing viable public policy options.

1.4.5.1. The Economic Approach. Some work has been most valuable because it illustrates the general applicability of economic principles to criminal justice system activities. Becker, for example, removes much of the "mystique" from criminal behavior by classifying it as part of a more general (utility) theory. A person commits crime when the expected utility exceeds that of other (legal) activities. Essentially this clears the way for non-extraordinary analysis.³³ He goes even further and discusses potential policy recommendations within the context of negative externalities, claiming that the introduction of fines essentially eliminates the analytical differences.³⁴ Erlich makes a similar contribution by treating crime within the choice model of behavior under uncertainty.³⁵ Such work serves to legitimize the approach proposed here.

1.4.5.2. Contributing Analyses. These refer to work that, while not an exact application of economic principles to correctional activities, serves to identify parameters or constraints and help delimit analysis and recommendations. Such work has been performed by Blumstein and Cohen on the stability of punishment.³⁶ While still calling it "a theory," the authors extensively examine data and conclude that the United States has a taste for a specific level of punishment. It is punishment, rather than crime, then, that is maintained at constant levels. This is accomplished by either altering definitions of and sanctions for criminal behavior or altering punishments.³⁷ (The President's Crime Commission noted in 1967 that

crime rates and actual numbers of crimes were partially a function of behaviors termed illegal.)³⁸ If Blumstein and Cohen are right, or even close, there are important implications for policies attempting to reduce actual levels of correctional populations.

1.4.5.3. Applications of Concepts. There are some cases in which economists have applied economic concepts to correctional activities. Avio, for example, uses the theory of the firm to postulate a model of the prison as a standard, non-profit, multi-product firm. He thus treated the prison as an economic entity, producing incarceration services and training services. The production function included a factor for "negative" training (criminal career development fostered by too long an incarceration).³⁹ Tabasz considered cost functions for prisons producing captivity and rehabilitation outputs; he proposed a model which examined crime costs over the career of an offender, including net captivity benefits.⁴⁰ Choice models have been offered by several authors as explanatory of criminal behavior pre- and post-incarceration.⁴¹

1.4.5.4. Analysis. The literature abounds with analytical efforts. Some are tied directly to a theory hypothesized as explanatory. Avio applies his model to the Canadian prison system;⁴² Tabasz analyzes the operations of the Federal Bureau of Prisons, estimating the increase in social value for additional dollars allocated to the Bureau;⁴³ Cook analyzed recidivism data in Massachusetts, finding that a positive change in legitimate opportunities reduced parolee recidivism.⁴⁴ Singer took a human capital approach and used data

on pre-incarceration earnings to estimate the value of foregone inmate labor.⁴⁵

Other (indeed, the majority of) analyses have been performed with a more indirect theory link. That is, the analysis was a specific application designed to answer a specific question, rather than an offshoot to first theorizing about the problem. A common example is cost-benefit analysis, which is widely used in program evaluation. Holohan, for example, was interested in the scholarly application of cost-benefit analysis and used a diversion project as his focus.⁴⁶ Funke and Wayson were requested by the State of Massachusetts to estimate the operating cost of a local house of corrections.⁴⁷ One hybrid study even presented the theoretical concepts of cost-benefit analysis cross-referenced to a practical application.⁴⁸

1.4.5.5. Public Policy. Some studies do not proceed to policy recommendations, others do. Of these, some are global, some possibly infeasible. Becker, for example, called for the use of fines as an optimal criminal justice policy theoretically, but recognized that data did not exist by which to estimate a fine which must compensate for the price of the offense and the cost of apprehension.⁴⁹ Avio recommended a more centralized decision-making process for Canadian Corrections but acknowledged that the government probably would not relinquish the sentencing decision to correctional authorities.⁵⁰ Tabasz, in analyzing the Federal Bureau of Prisons, concluded that the Bureau should minimize its incarceration of persons over forty, as they were less dangerous and the captivity benefits were low.⁵¹

This latter, through the use of parole, is a recommendation capable of implementation.

1.5. An Exposition

The following chapters will present a systematic investigation and categorization of the principles and techniques of economics as applied to the field of corrections. The preceding review has identified a certain timeliness for exposition: the state-of-the-art of corrections, the scattered nature of the research (much of it of good quality), and the need for viable policy options suggest that such work is needed.

The study will address major issues and activities of corrections and the economic theory and concepts which have been or could be used to study them. Questions to be addressed include the relationship between the theory and the issue; and, what concepts are relevant to understanding, defining and analyzing the issue. Available research will be reviewed and critiqued in light of the application of theory, assumptions employed, data used, and policy feasibility. For example, assumptions might be made which are inappropriate to the correctional framework and these need to be made explicit. Further, the data collected might be insufficient or inappropriate, too aggregated, etc. Finally, policy recommendations will be examined for their realism and feasibility in a correctional setting.

1.5.1. Special Considerations

Several economic concepts have extraordinary relevance for the analysis of correctional activities and will be encountered in

several settings.

- Opportunity Cost. This is a critical, yet often unused concept in corrections, particularly in decisions involving large capital investments. Because prisons are very costly and very durable, constructing them may reduce future flexibility to utilize less coercive alternatives. Human opportunity costs also are more important, given the nature of corrections, in which decisions are made by a few for many. Millions of dollars of productivity are foregone by incarceration and detention; the choice to minimize idleness has a high cost in terms of foregone skills training and potential future behavior. A system that opts to maximize punishment and minimize humaneness may be incurring future costs as well as those of the present. Failure to incorporate opportunity costs may understate the costs of correctional activities and lead to inappropriate resource allocation.
- Externalities. The impact of correctional activities extends far beyond supervision and care. Punishment through confinement may produce some undesired side effects, including the "school for crime" phenomenon. Providing community services may strain the resources of non-criminal justice agencies yet not appear in any accounting. Exclusion of such external costs will tend to understate the real cost of correctional undertakings.
- Indivisibilities. Lumpiness of resources creates problems both for the analyst and for changing production processes. One generally either has an entire prison or a complete system of perimeter security or none at all. Such factors may affect analysis and subsequent policy recommendations.
- Joint Products. Prisons produce a combination of services, including incarceration, deterrence and rehabilitation, which may not uniquely separate for analysis. Vocational training may produce a combination of job skills and positive attitudes, yet not be susceptible of division. It is critical to recognize these joint products, even if analysis is not possible, in order not to overstate costs.

1.5.2. The Issues

The multitude and complexity of the issues present problems to corrections but opportunities for economics. With this in mind,

two presentation formats will be used, one by correctional issue, outlining the components discussed above. The second will group the correctional issues within the economic concepts used to address them. The intent is to produce analysis and recommendations which are of value to corrections as well as economics. Issues to be discussed include:

- Optimal Scale of Plant -- the concept of an "ideal" prison size;
- Cost Analysis -- the nature and level of total, average and marginal costs for different corrections activities;
- Subsidies -- provision of incentives by states to local jurisdiction;
- Restitution -- financial reparation by offenders to victims;
- Transitional Aid to Offenders -- the use of financial incentives to control criminal behavior;
- Private Sector Service Delivery -- the nature of the market and characteristics of the firm;
- Cost-Effectiveness Analysis -- its role in evaluating correctional programs;
- Cost-Benefit Analysis -- its structure and usage in a correctional setting.

The intended total result is to illustrate the conditions under which economics is relevant and the assumptions and information required to carry it forth. It will display not only the appropriate applications of existing techniques but also the insight to be gained from the analysis of correctional issues and activities from the perspective of economics.

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Chapter Two

THE CORRECTIONAL SETTING: PAST

2.1. Introduction

The development of corrections in the United States has been characterized by one author as: "A History of Good Intentions."¹ Indeed, the colonial departure from prevailing European philosophy set the stage for the development of a prison, then correctional system with attendant political, managerial and economic consequences. To understand corrections as it exists today and to begin to apply the principles of other disciplines to its problems, one might first benefit from an understanding of the historical background, the setting which truly created modern corrections. The organization and management of today had their origins in the creation of the prison system and the reform movements of the nineteenth and twentieth centuries. The systems presently in place have emerged only recently as a totality resulting from reform efforts, population and financial pressures, and changing treatment philosophies. Economists and other social scientists working in public policy can gain insight into present corrections by considering its past. Goal conflict exists today because new ideas were consistently overlaid on the original penitentiary concept, never eliminating it, but rather creating an uneasy truce.

2.2. The Beginning

Goldfarb and Singer write: "Essentially our correction system is built around imprisonment."² Had we followed the example of our European forebears, this might not have been the case. The systems of punishment in the earliest colonial period reflected the practices of England and the continent: execution, flogging, mutilation, branding, and lashing.³ More minor criminals -- "unruly apprentices, sturdy beggars, strumpets, vagrants and rogues" were disciplined in work-houses, or Houses of Correction which were instituted in England at the end of the feudal system.⁴ By 1576 each English county had its house of correction for the unruly and its jail for detention prior to trial.⁵ This practice of using confinement only as an intermediate step prevailed in early America, with serious corporal punishment or execution the ordinary outcome for other than very minor crimes. Confinement per se, then, was not the punishment, only its precursor.⁶ The early houses of correction continued to hold vagrants and minor criminals for whom capital punishment was not justified.

The first harbinger of change occurred in 1682, at the behest of William Penn. A change in the laws of Pennsylvania made hard labor in a house of correction the primary method of punishment of most crimes in that state. The first departure was short lived: after Penn's death, the Pennsylvania assembly in 1718 reimposed much of the old English criminal code. Twelve new capital offenses were identified and corporal punishment was re-emphasized.⁸

2.2.1. The American System

The more formal beginning of the American prison system as it

is known today was proposed by Benjamin Rush, a signer of the Declaration of Independence. Rush sought to remedy the mockery which had been created in the wake of the abolishment of the widespread use of capital punishment -- the use instead of public humiliation and degradation, including hard (public) labor in harlequin costumes. In 1787 Rush proposed that imprisonment be used as punishment in lieu (generally) of execution and of corporal punishment. This idea was considered "novel," "even radical" in the colonial period.⁹ The Rush concept was that prisons be used to "regenerate" offenders (rather than public humiliation) and that work was the way to regeneration.

The outcome of Dr. Rush's proposals was America's first penitentiary (it was also his idea not to use the word "prison"). In 1790, a new section of the Walnut Street Jail in Philadelphia called "Penitentiary House" was opened. It was within the jail itself but reserved for the confinement of "sentenced, hardened criminals."¹⁰ Thus the Walnut Street Jail became, in the words of its historian, "The Cradle of the Penitentiary."¹¹ And, "the more obvious recommendation that 'doing time' should replace capital and corporal punishment was in 1790 written into American penal philosophy for all time."¹²

Indeed, besides forever setting the tone of the American prison system, the Walnut Street Jail was the first penitentiary in the world. During the first ten years of its existence it became a "mecca for students of penal reform."¹³ However, the social tone was not all that was set at this time. This and the penitentiaries soon to follow were constructed along European designs used in Belgium and Rome: "The atmosphere was like a medieval fortress. It incorporated no imaginative plan, nor did it create a reformatory atmosphere."¹⁴

Later authors would claim that this type of physical design, incorporated into indestructible buildings, created a permanent divergence between accommodations and reform programs.¹⁵

2.2.2. Prison Practices

The opening of the first penitentiary also marked the commencement of the system of "solitude." Patterned after the Quaker system, this arrangement required total silence and solitary confinement. Inmates lived and worked in their cells, later in small groups, but conversation was not permitted and eye contact discouraged, lest "contamination" result. The concept of solitude was thought to produce introspection, then repentance, and finally, reform.

The movement spread quickly to other states; at century's turn, many states eliminated the widespread use of capital punishment, called for reform and constructed penitentiaries. The institutions were fairly large (300-500 beds) and generally consisted of rectangular tiers of cells which either were placed along the outside walls or back-to-back in the center of the rectangle. The major departure from this cell-block design was created by Jeremy Bentham in 1791. An economist with a major interest in prisons, Bentham designed the Panopticon, a circular set of cell block tiers, overseen by a control point in the center. Although one institution of such design is still in use in Illinois, this was the most unsatisfactory institutional design of the era, creating substantial surveillance and security problems.

The next "model" institution and program became Auburn Prison (New York). With the construction of single cells in 1823, the

"Auburn System" soon was emulated in America and worldwide. The new code was silence, not solitude. Prisoners performed group work in total silence; since they no longer continually occupied their cells, new dimensions of 7-by-3½-by-7-feet were smaller than at Walnut Street. Auburn also inaugurated the "lock-step" a system of walking, or shuffling, with head down, from cell to workplace.¹⁶ Cell design too, then, began to reflect the philosophy of the times. Sing Sing's cells (7-by-3-by-6-feet) reflected the sentiment of the warden: "Reformation could not possibly be effected until the spirit of the criminal was broken."¹⁷

2.2.3. Early Finances

William Penn and Benjamin Rush not only changed American penal philosophy but in doing so created a continuing financial burden for the states. The financial history of corrections is characterized by burgeoning construction and operating costs -- even to the present -- and a constant quest for means by which to defray these costs. As will be seen, prison labor was the major vehicle by which institutions of all kinds were financed; this approach took many directions in the eighteenth and nineteenth centuries and has finally come full circle in the 1970s and 1980s. While the data on the level and financing of operating costs are limited, it is known that such costs accounted in part for the demise of the Walnut Street Jail in 1835. It was during this time that Pennsylvania, at least, developed the system of charging the counties for the prisoners they sent to the keep of the state. In 1834 the charges at the Eastern Penitentiary in Philadelphia were:

Provisions (clothing, food, fuel, medicine):
\$.20/day/inmate

Bedding: \$2.00/year/inmate.¹⁸

The chargeback was not the only method of defraying the state's costs, however. Inmate-produced goods were sold on the open market and produced additional revenues. While at the beginning of the century these devices were insufficient to produce self-supporting prisons, the picture improved over time. It was estimated that the nation's prisons "lost" \$165,000 from 1797-1829, but by 1830 many were operating in the black.¹⁹

2.2.4. Self-support

The concept of self-support, that a prison should indeed provide for itself, is critical to understanding the developments of the nineteenth century and the implications for correctional practice today. In essence, self-support dictated for over one hundred years the occupation of inmates in income-producing, rather than reformatory or educative activities. The approach probably delayed as well the formation of centralized state systems and the acceptance of corrections as an entity, in addition to influencing the public regard for prison functions.

In colonial times, prisoners' costs were defrayed through fines, indenture, contributions of relatives or sale of goods. The employment of prisoners by the jailers was the precursor of the public, or state account system which began with the penitentiary movement. Under this system, the state fed, housed and clothed its prisoners, bought raw materials, supervised production and sold

the prison products. Its success was somewhat delimited by the fact that the usual warden was not experienced in business affairs. The nineteenth century saw the emergence of the contract system, (Massachusetts, 1807), which proliferated after the opening of Auburn (1824). Under this system the state provided necessities of life to its prisoners but engaged a private contractor to buy raw materials, superintend the use of the inmates, and market the finished goods. The contractor divided his profits with the institution or otherwise paid for the use of the inmates.²⁰ Inmate pay was not unknown under this system and the prisoners at Auburn averaged \$.23 - \$.48/per day.²¹ This system was considered more efficient than the state account system but obviated reform; it became the practice to retain wardens according to the return on prisoner labor.

Another variation on this system was introduced in Kentucky in 1815: the lease system. Under this arrangement, the state "handed the prison over bodily" to the leasee, i.e., engaged in a contract under which the contractor was completely responsible for the inmates. Food, shelter, clothing, and an assurance of escape prevention were all supplied by the contractor who then put the prisoners to work and paid the state a sum for their labor.²² Again, while counter-productive to reform efforts, this system was financially successful and flourished in the nineteenth century. Since the "keeper" or warden received half the net profit, this position became popular, beginning in the 1840s.

While, as indicated, there are little aggregate data available until the late nineteenth century, the Prison Discipline Society of

Boston gathered and published whatever pieces of information were made available to them by the various states. While hardly conclusive or capable of analysis, they provide a sense of the magnitude of expenditures and revenues. A report from the Walnut Street Jail indicated that over a seven year period, salaries and provisions totalled \$31,200 while crafts and other prisoner earnings, and city and county chargebacks produced revenues of \$43,900. In 1829, a New Jersey prison recorded expenditures of \$6,200 and revenues of \$3,400 while for Connecticut these figures were \$5,900 and \$9,100 respectively. In 1852, a total surplus of \$23,000 was returned to the revenues of nine states.²³ One occasionally comes across in the Reports an excerpt extolling the lucrative opportunity of inmate labor.

2.3. A Changing System

By 1835, although the Walnut Street Jail had perished from escapes, riots, and financial and administrative problems, there was no doubt that the penal system in America was firmly established. The early glow of reform was by then caught up in some harsher realities, such as the lack of effect on crime, and the riots that followed the granting of minor privileges and the deemphasis of the system of silence. However, construction continued: "The failure of the theoretical inspiration to take hold did not check the rapid development of prisons throughout the land."²⁴ This phenomenon was recognized in Europe, where America was lauded for changing prison ideas.²⁵

2.3.1. Reform Efforts

The mid-nineteenth century, however, saw the emergence of

reform efforts which would create permanent effects on the prison system. First conceived for juveniles, or young adult first offenders because of concern that "reform" was not being effectuated, the new approach had some unique features. One was the introduction of the indeterminate sentence, whereby sentence was not fixed, but left to vary until the prisoner was "reformed." The other was a grading system, under which the prisoner earned new privileges, housing, and lowered supervision for appropriate behavior. This plan was known as the "Irish System" and is credited to Sir William Crofton, who introduced the principle abroad. Under this arrangement, the prisoner first underwent a period of punishment and retribution characterized by solitary confinement and harsh conditions, Then, through good behavior, the prisoner moved among different (better) living, supervisory and working arrangements, and then to supervised release. This system would also prove to be the formal forbear of the use of good time, parole and conditional pardon.²⁶

As with most variations, or reforms, of the original penitentiary concept, these ideas originated from private individuals or groups and not from concern arising from prison officials. "New" twentieth century notions of parole and probation had their origin decades before in the isolated, small efforts of well-meaning individuals. In any case, in 1876 the concept of reform for the prisoner had its formal beginning in the opening of the Elmira Reformatory for young men. The new emphasis was "reformation rather than vindictive suffering" and embodied indeterminate sentencing, education and a graded reward system which prevails today.²⁷

The impetus for the reformatory was probably spurred as much by perceived crime waves as anything else and a new era was now envisioned. "Nobody suspected the disillusionment just around the corner."²⁸

The new concepts, while real and heralded, were somewhat overshadowed by dramatic increases in prisoner populations which forced a wave of construction during this period. The architecture continued to mirror the earlier fortress-style which was so contrary to the reformatory system. Even Elmira, sadly, doubled and eventually tripled its original 500-inmate population and conceded that the programs were not working. Prison industry became a concern for inmate management and control at the same time that the prosperous years of pay-your-own-way convict labor arrangements were faring poorly.²⁹

2.3.2. Financing and Prison Labor

The early lease and contract systems had helped realize a nineteenth century goal of self-supporting prisons. However, these systems faced opposition later in the century from reformers, distraught administrators who had little control, and groups concerned with prison-made goods competing in private markets. In 1885, the value of prison-made goods constituted one half of one percent of the value of private goods. This statistic was used successfully by status quo advocates until the end of the century.³⁰ An everpresent concern was the avoidance of idleness among the inmates. Three new work systems emerged during this time, two of which continue today. These systems only gradually supplanted the old lease and contract arrangements.

The piece price system restored control of the prisoners to the wardens, who presumably would provide more considerate care. Instead of, in effect buying the prisoners, the contractor now paid some agreed sum for the work performed by prisoners on various goods. The daily schedules and output quotas were determined by the prison administrators.³¹ The goods continued to be sold in the market; however, this system never became prevalent and peaked in 1895 when 14 percent of the inmates (9,000) worked under this arrangement. By 1940 it had virtually disappeared.

The state-use system, however, endures to the present. First inaugurated in 1865, by 1899 this system was in place in thirty-five states. The state is still the manufacturer under this system but the disposal of goods is sharply delimited. As the name suggests, prison-made goods generally may only be sold to public agencies and divisions, usually state, but sometimes local.³² All aspects of production are under the auspices of the prison administration. This system represented the final concession to the interests against unfair competition. By the end of the nineteenth century the contract and lease systems were operative, but declining.

The public works and ways system has to some degree always been a part of the prison system and its support. It is mentioned here as the last formal convict-labor program although it reached more prominence in the early twentieth century. The control arrangements are much the same as under the state-use system, except that the focus is on structure or improvement of public works, such as roads, buildings, land clearing, etc.³³ There was little early conflict

in the competitive market, although the mid-twentieth century would see the prohibition of the use of Federal funds for prison construction employing convict labor.

All of these work systems, however, while restoring control to prison officials, did less to enhance the self-supporting prison than did their predecessors. It is testimony to the strength of the reformers that the more lucrative, if onerous, systems were eventually replaced by the more problematical state-use and public works systems.³⁴ This problem was exacerbated by the fact that at the end of the nineteenth century there was little that could be characterized as a state prison system, only a conglomerate of institutions operating within a state's boundaries. By century's turn, upwards of sixty institutions were housing perhaps seventy thousand persons. Nonexistent were central offices of administration which produced budget requests to state legislatures and coordinated their system's activities. While states clearly were contributing to the support of their prisons, even aggregated data only became available in the twentieth century. Nationwide data on prisoner populations only became available in 1885 because the Department of Labor was interested in prison industries and began to generate statistics.

At century's end, then, the financing structure of American prisons had changed. It was now clear that it would be necessary for the state to assume an ever-increasing role in the financial support of prisons.

2.4. The Twentieth Century

Called by some the "Progressive Era," the first twenty-odd

years of the century did indeed witness significant departure from prior years.³⁵ It was generally acknowledged that the prison movement which had begun well at the beginning of the nineteenth century was not working well at its end. The Auburn system ended for all time and what one author calls the "heyday of reformatory penology" occurred during this period. The reformatory concept was plagued by poor administration, restrictive labor laws and evidence that criminal behavior seemed unaffected by prison -- or reformatory -- experience.³⁶

2.4.1. Treatment

Changes during the early twentieth century included new practices behind the walls: silence was eliminated, as was the lock-step; "amusements" were initiated, including recreation, exercise, visiting privileges, prisoner organizations and work clothes rather than striped costumes.³⁷ Then came the psychiatrists and the beginning of diagnostics and classification. This marked the beginning of treatment (or punishment), of the individual, rather than according to the crime. Environmental, psychological and mental factors were viewed as critical contributory factors and their specification necessary to defining deviance and promoting the adjustment process.³⁸ However, this recognition of the prisoner as an individual with special needs was not immediately translated into programs; at that time, and many claim even now, it was not known, given the "problem," how to cure it.³⁹ However, the practical appeal of the institutional control suggested by this approach was not without favor. In addition, it fostered the growth of alternatives

to prison, such as probation and parole, but also further use of the indeterminate sentence.

2.4.2. Probation

A system of probation, or supervised release in the community, had its beginnings in Boston when a bootmaker took pity on an arrested drunk. John Augustus personally and closely supervised nearly 2,000 people from 1841-1859, predating widespread use of probation by fifty years. (Augustus' other innovation, realization that alcoholics required specialized treatment rather than punishment, predated actual implementation for one hundred years.)⁴⁰ The United States was the first country to use probation: at 1900, six states had provisions for and used probation; by 1920, thirty-three states had adult probation and all had juvenile probation; the system became operative in all the states in 1956. The probation decision is made at the time of sentencing; frequently the judge is provided with a pre-sentence report prepared by a probation officer which is designed to assist the choice between secure and non-secure alternatives.

2.4.3. Parole

Parole, as probation, had its "father," in this case an Australian penal colony governor. Emerging at the same time as John Augustus' probation, parole, or the serving of part of one's sentence under supervised release, was adopted by the English, then the Irish, before being used at the Elmira Reformatory in 1876.⁴¹ Twenty states were using parole by 1900, forty-four by 1922. Widespread use of parole was prevalent in the states soon after its

adoption; over one-half of the releases were parolees in the twenties, about 70 percent today. Critics argue that the use of parole may actually work with the indeterminate sentence to increase the time spent under supervision.⁴²

The twenties and thirties brought institutional specialization -- prisons for the criminally insane, more reformatories, institutions for women, and differentiation by security level. In part this was made possible by ever-increasing populations, state assumption of prison systems and the need to separate for appropriate treatment. It was during this period that the concept of "defective delinquent" emerged -- the practice of sentencing those so designated to lifelong custody if necessary.⁴³ Many of the new prisons were extraordinarily large, thoroughly departing from the old concept of an ideal, five-hundred bed institution. Illinois and California had prisons holding more than 3,000 persons and Michigan had one institution with capacity in excess of 5,000 beds.

2.4.4. The Federal System

It was also during this period that the Federal Bureau of Prisons was created. There were federal prisoners confined in state and local facilities in the nineteenth century (11,000 in 1885 and 28,000 in 1895). At the turn of the century, funds were finally allocated to construct a federal facility at Fort Leavenworth. Other prisons followed, but the federal sector operated much as the states -- without a centralized administrative framework; oversight was provided through the Department of Justice.⁴⁴ In 1930, the United States Bureau of Prisons was created within the Justice Department, establishing a separate prison, parole and probation administration. At its creation,

the Bureau already had three penitentiaries, two reformatories, and eight camps under its jurisdiction. During the 1930s, new legislation placed more serious types of offenses (kidnapping, national bank robbery, racketeering) under federal jurisdiction and new construction was necessary to alleviate overcrowding. The numerous institutions created the capability to establish an elaborate classification system; through this and other practices the federal system was regarded as a model for some states.⁴⁵

The twentieth century, then, saw dramatic changes in systems of prison administration, treatment modalities and alternatives. The 1950s saw riots, turmoil, and overcrowding, followed by new construction, reform and the reintroduction of standards by which to measure correctional conditions and performance. The American Prison Association in recognition of the times changed its name in 1954 to the American Correctional Association. By 1960 most states had classification systems and the staff to carry them out; citizen participation was occurring and vocational training became more widely used. Prisoners' rights to litigation and grievance procedures were recognized.⁴⁶ Research and evaluation of treatment and effectiveness were undertaken; in 1968 the establishment of the Law Enforcement Assistance Administration provided federal funding for innovation, technical assistance and evaluation research. The final step, residential treatment in the community, also came in the 1960s, although the concept, as the other changes, was not without precedent. One author has characterized the period 1930-1960 as a closed time, when prison administrators were expected to manage their own institutions and contain matters behind the walls.⁴⁷

2.4.5. Community Treatment

Halfway houses, which provide supervision to the offender in a residential community setting were first introduced in Massachusetts in 1817; a few other, private houses appeared during the nineteenth century but the idea was not popular. The American Prison Association, contemplating their use in partial lieu of sentence, feared that such houses would "perpetuate (the) prison stigma and create a permanent class of undesirable citizens."⁴⁸ Some support at the turn of the century from the Volunteers of America resulted in a halfway house for Sing Sing releasees and a few more in other cities. However, as parole was used more widely, corrections officials maintained that such houses were not necessary and finally all were closed following the Depression. As parole later proved less than totally satisfactory, the idea was reintroduced in the 1940s; however, the houses really constituted pre-release centers on prison grounds and violated the concept by this isolation. The movement rekindled, still under private auspices, in the 1950s, but was not considered a total alternative except for juveniles. An accompanying concept, work-release, had similar origins -- it was informally used in the nineteenth century, legalized in one state in 1917 and lay dormant until 1957.⁴⁹

In 1959, Dismas House (Fr. Charles Dismas Clark, S.J.) was founded in St. Louis to provide shelter and help for released inmates returning to the community. In 1961, the Bureau of Prisons opened its first city-based pre-release centers and in 1965 the Prisoner Rehabilitation Act authorized the Bureau to establish houses in the community. A network was finally created in 1963 with the

founding of the International Halfway House Association.⁵⁰ Halfway houses remain small and mostly privately funded but now have formal contracts with corrections agencies to provide client services.

The emphasis in corrections has gone from confinement, to reform, to treatment to rehabilitation, to querying whether any approach is effective. Present corrections may be said to be providing a mixture of rehabilitation, retribution, recompense, deterrence, and incapacitation.

2.4.6. Populations and Finances

From 1885, when nationwide data were first collected, to 1970, the number of persons incarcerated has increased nearly sixfold. When this is standardized by population, however, incarceration rates per 100,000 persons have increased by only 28 percent. Table 2-1 illustrates prison and jail populations 1885-1970 for federal, state and local institutions. In 1885 the incarceration rate was 115 prisoners per 100,000 population; it was 147 per 100,000 population in 1970, with fluctuations during the intervening years.

The financial burden imposed by the elimination of the contract and lease systems has already been chronicled. In 1902, states devoted 10.3 percent of their total expenditures to corrections; that share is about 2 percent today. Expenditures increased gradually (although declined as a share of total expenditures) until 1946, then increased dramatically. This in part reflects the final decline of the contract system and the end of a wartime "boom" in industry production under war contracts. Indeed, by the 1920s and 1930s the total elimination of the lease system had removed any vestige of

TABLE 2-1
 PRISON POPULATIONS AND INCARCERATION RATES, 1885-1970^{a/}

	<u>Federal</u>	<u>State</u>	<u>Local</u>	<u>Per 100,000 Population</u>
1885		41,877	15,882 ^{b/}	114.9
1895		54,244		
1904		78,726		
1917	3,018	71,442	42,216	126.8
1922	5,540	78,673	65,918	142.01
1926	6,803	89,322		
1930	12,181	115,314		
1935	14,777	129,888		
1940	19,260	154,446	138,717	237.22
1945	18,638	115,011		
1950	17,134	148,989	98,343	175.6
1955	20,088	165,692		
1960	23,218	189,739	133,058	193.0
1965	21,040	189,855		
1970	20,038	176,391	131,591	146.5

a/ Sources: 1922-1970: U.S. Bureau of the Census, Historical Statistics of the United States, Bicentennial Edition, Parts I and II (Washington, D.C.: 1975); 1917-22, Number of Prisoners in Penal Institutions (Washington, D.C.: 1923; 1885-1904: Department of Labor, Convict Labor: Annual Report of the Commissioner of Labor (Washington, D.C.).

b/ Partial sample of survey for National Prison Association, 1886.

self-support; it was observed that "humanitarianism was proving expensive."⁵¹ The 1929 ban on interstate commerce of prison-made goods forced the disappearance of private contractors. In 1923 such arrangements accounted for 24 percent of the value of prison-made goods, state-use only 18 percent; in 1932 these shares had reversed, to 8 percent and 28 percent, respectively; and by 1940 there was no contract activity and state-use accounted for 60 percent of the value. To 1940 also, the current dollar value of prison-made goods declined from \$76 million to \$57 million.⁵² The number of inmates involved in prison industries has steadily declined as a percentage of the total inmate population since 1885 and by 1970 fewer absolute numbers of inmates were so employed. This latter decline was interrupted by the Depression and World War II.

By 1970, then, states were spending upwards of \$1 billion on corrections and supervising over 176,000 prisoners. Old prison fortresses were being supplemented, not supplanted, with new institutions with construction costs approaching \$50,000 per bed. Emphasis on treatment and rehabilitation provided additional financial pressure, with annual per inmate costs in the thousands. Prison industries had ceased to provide much assistance in attaining self-sufficiency and in fact generally were losing money. Corrections had, in fact, become big business and its programs and activities were ripe for economic and policy analysis.

FOOTNOTES

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Chapter Three

THE CORRECTIONAL SETTING: PRESENT

The preceding chapter has outlined the forces and events which shaped corrections as it exists today. This chapter provides an overview of the level and type of correctional expenditures, populations and correctional activities. Since economic analysis is capable of providing information on a wide variety of correctional issues, this chapter provides familiarization with various correctional dispositions and their characteristics as well as information on expenditure levels and distribution.

3.1. Definitions and Activities

Corrections refers to the set of functions and activities which provide supervision and treatment to persons convicted of crime. This definition is often broadened to include persons in pretrial status, but our focus here will generally be on the post-adjudication population.

3.1.1. Criminal Justice System

More a collection of activities than a system, criminal justice functions include law enforcement and police protection, judicial services, legal services and prosecution, public defense, and corrections. System activities are carried out by all levels of government. Table 3-1 illustrates criminal justice system relative shares, by function, for 1978. Nationwide, criminal justice expenditures for that year were \$24 billion, of which corrections

represents 23 percent. This amounts to nearly \$110 per capita, while corrections expenditures were \$25 per person, nationwide. The major criminal justice activity is police protection (54 percent of all expenditures), primarily carried out at the local level; corrections is primarily a state function. Local governments account for nearly 60 percent of all criminal justice expenditures, state governments 28 percent, the federal government 13 percent.

TABLE 3-1
Criminal Justice System
Relative Shares, 1978^{a/}

<u>Activity</u>	<u>Percent of Total Criminal Justice</u>	<u>Shares</u>		
		<u>Federal</u>	<u>State</u>	<u>Local</u>
Police Protection	54.4	14.9	14.4	70.7
Judicial	12.7	10.5	33.0	56.5
Legal Services and Prosecution	6.0	14.7	26.4	58.8
Public Defense	2.2	39.9	18.7	41.4
Corrections	22.9	6.1	57.5	36.4
Other	1.8	19.9	28.0	52.1

a/ Source: U.S. Department of Justice, Bureau of Justice Statistics and U.S. Bureau of the Census, Expenditure and Employment Data for the Criminal Justice System 1978. (Washington, D.C.: U.S. Government Printing Office, 1980).

Table 3-2 displays the relative shares of total expenditures for the criminal justice system and corrections, 1971-78 for state and local governments. Criminal justice system expenditures have remained fairly constant at about 4 percent at the state level and about 12-13 percent for local governments. For the states,

TABLE 3-2

RELATIVE SHARES
STATE AND LOCAL GOVERNMENTS FY 1971-78^{a/}
(Dollar Amounts in Thousands)

	State			Local		
	<u>Total Expenditures</u>	<u>Percent Criminal Justice System</u>	<u>Percent Corrections</u>	<u>Total Expenditures</u>	<u>Percent Criminal Justice System</u>	<u>Percent Corrections</u>
1971	66,199,825	4.0	2.0	54,553,238	12.1	1.6
1972	72,483,444	4.0	1.9	61,336,542	11.9	1.5
1973	78,013,610	4.2	2.0	67,849,595	11.9	1.5
1974	86,193,242	4.5	2.1	73,352,505	12.4	1.7
1975	104,193,071	4.4	2.1	83,784,662	12.5	1.7
1976	124,107,908	4.2	2.0	93,692,546	12.8	1.8
1977	128,767,717	4.5	2.2	101,117,425	12.8	1.8
1978	136,544,931	4.9	2.3	109,502,000	13.1	1.8

^{a/} Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Sourcebook of Criminal Justice Statistics Series 1973-79 (Washington, D.C.: U.S. Government Printing Office); _____, Trends in Employment and Expenditure Data for the Criminal Justice System 1971-77 (Washington, D.C.: U.S. Government Printing Office, 1980); Bureau of the Census, State Government Finances Series 1971-78 (Washington, D.C.: U.S. Government Printing Office, 1972-79).

corrections' share has also hovered consistently at about 2 percent, slightly less at the local level. This constancy is perplexing; it may be a random occurrence or the result of a subtle predetermination. Corrections' expenditures have fluctuated significantly over the decade in both current and constant dollar terms (see Table 3-6) yet relative shares remain virtually unchanged. Less surprising but still interesting is the correctional share of criminal justice system allocations illustrated in Table 3-3. The results follow from Table 3-2 and indicate the federal corrections' share at about 23 percent of all criminal justice system expenditures, states at 48 percent and local jurisdictions at 14 percent.

3.1.2. Corrections

Upon conviction, an offender may be fined, released or sentenced to supervision under the auspices of a corrections department. Such departments may be separate state agencies or part of another umbrella agency. (There are about 115,000 separate criminal justice agencies at the state and local level; of these, 5,500 are corrections' agencies, and 20 percent are at the state level. Adult agencies comprise 85 percent of the state and local total.) The level and circumstances of supervision are set by the sentence, which may be fixed (or determinate), or indeterminate, usually with a range. Dispositions fall into three major areas: an event, such as a fine or restitution payment; supervision in confinement; or supervision in the community.

Nationwide, over two million persons are under federal, state or local correctional supervision on any given day. Of these, about

TABLE 3-3

RELATIVE SHARES
DIRECT CORRECTIONS EXPENDITURES TO CRIMINAL
JUSTICE SYSTEM EXPENDITURES 1971-78^{a/}

	<u>Total</u> Percent Corrections	<u>Federal</u> Percent Corrections	<u>State</u> Percent Corrections	<u>Local</u> Percent Corrections
1971	21.8	9.1	49.3	12.9
1972	20.6	8.9	46.7	12.5
1973	21.1	10.3	46.4	12.9
1974	21.8	11.5	46.6	13.3
1975	22.3	9.9	47.5	13.7
1976	22.3	10.5	47.6	13.8
1977	22.9	10.8	49.0	13.8
1978	22.9	10.8	47.5	14.0

^{a/} Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, and U.S. Department of the Census, Trends in Employment and Expenditure Data for the Criminal Justice System 1971-77, (Washington, D.C.: U.S. Government Printing Office, 1980) Tables 2, 4, 8, 10.; _____, Expenditure and Employment Data for the Criminal Justice System 1978, (Washington, D.C.: U.S. Government Printing Office, 1980) Table 1.

one-fourth are in federal or state prisons and local jails; nearly two-thirds are on probation; the balance are on parole.¹ Exact figures are available for all functions only for the federal system; state prison populations are counted every year. Jails are surveyed irregularly; the last census was taken in 1978 and before that in 1972. Parole figures are kept somewhat more regularly; but probation is administered from 885 separate agencies and completely reliable figures are seldom available.

These populations in no way represent a national consensus on what constitutes deviant behavior nor what combination of retribution, punishment, rehabilitation and reintegration is appropriate for the offender; nor what the length of the supervision period should be. Incarceration, probation and parole rates vary by state and the intrastate variation is even more complex.² One may observe urban-rural differences in sanctions for crimes; some states may incarcerate only felons, others may include misdemeanants; some states widely utilize community alternatives, others do not.

3.1.3. Institutions

These represent secure confinement under federal, state or local auspices. There are 55 federal facilities, 1,324 state facilities (925 adult) and over 3,400 local jails, including prisons, camps, community facilities, etc. There are about thirty federal and six hundred state facilities which could be classified as prisons in the traditional sense. Institutions vary by security level: maximum, medium, minimum; although women's institutions, because of smaller populations, generally incorporate all security levels.

Other specialized units include reformatories, honor camps, work- and pre-release centers. Offenders sentenced to confinement are normally first diagnosed and classified to determine necessary level of security and treatment plans. Prisons normally provide a variety of education, counseling, vocational and work opportunities although these vary widely in quality and inmate participation rates. Idleness continues to be the primary pastime of inmates.³ In 1979, for example, there were 25,000 inmates working in state prison industries -- 9 percent of the population.⁴ Education and vocational programs experience similar or lower participation rates. Federal prisons tend to have higher participation rates; their 1979 industry participation was over twice that of the states. Programs of any type are far more limited in jails.

Table 3-4 presents federal, state and local correctional institution populations for 1971-78. Populations declined in the 1960s but increased steadily in the seventies. The increase from 1971 to 1978 was 56 percent for the states, 42 percent federal and 12 percent in jails. However, since 1975, populations have been increasing at a decreasing rate. The average length of stay in prison is presently about 22 months, and has been increasing.⁵ While jail populations presently number nearly 160,000, this figure provides an inaccurate reflection of the number of persons who experience detention or sentence. Jail turnover is high, estimated at about 5 million persons annually. There appears to be a trend toward longer prison sentences and increasing populations, although a recent study found prison capacities to be as accurate a predictor as more elaborate models.⁶

TABLE 3-4

CORRECTIONAL INSTITUTION POPULATIONS 1971-78^{a/}

	<u>Federal</u>	<u>State</u>	<u>Local</u>
1971	20,948	177,113	
1972	21,713	174,470	141,600
1973	22,815	181,534	
1974	22,361	196,105	
1975	24,131	218,619	
1976	26,799	236,492	
1977	32,088	267,936	
1978	29,803	276,799	158,400

a/ Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Sourcebook of Criminal Justice Statistics, Series 1973-78. (Washington, D.C.: U.S. Government Printing Office); U.S. Department of Justice Bureau of Justice Statistics, Prisoners in State and Federal Institutions on December 31, 1978, National Prisoner Statistics Bulletin SD-NPS-PSF-6. (Washington, D.C.: U.S. Government Printing Office, 1980).

Incarceration rates are one way of indexing prison populations. America incarcerates at the highest rate in the world, with the probable exception of South Africa and the Soviet Union. Table 3-5 illustrates incarceration rates at the federal and state level for 1971-78, and an increasing trend is apparent. In 1972, 163 persons were incarcerated per 100,000 population, but by 1978 this ratio had risen to 209, an increase of nearly 30 percent. (The infrequency of jail census efforts prohibits deriving total incarceration rates except in selected years.) Whether driven by available bedspace or punitive tendencies or longer sentences, it is clear that progressively higher proportions of the population are experiencing secure confinement.

TABLE 3-5

INCARCERATION RATES^{a/}
(per 100,000 population)

	U.S. Total	Federal	State	Local
1971		10.2	86.2	
1972	162.9	10.5	84.1	68.3
1973		10.9	86.8	
1974		10.6	93.0	
1975		11.0	102.0	
1976		13.0	111.0	
1977		14.1	117.8	
1978	209.3	13.4	124.6	71.3

^{a/} Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Sourcebook of Criminal Justice Statistics 1978 (Washington, D.C.: U.S. Government Printing Office, 1979) Table 6.22; U.S. Department of Justice, Bureau of Justice Statistics, Prisoners in State and Federal Institutions on December 31, 1978, National Prisoner Statistics Bulletin SD-NPS=PSF-6 (Washington, D.C.: U.S. Government Printing Office, 1980) p.3 and Table 1.

In 1978, state and federal admissions (153,300) exceeded releases by nearly eight thousand persons.⁷ Had a constant incarceration rate prevailed, institutional populations in state and federal institutions would number 224,205 instead of 306,602.

A recently completed study projects increasing state prison populations but a slowing of the rapid growth of the mid 1970s; under the fastest growth rate, a population of about 340,000 prisoners was predicted for 1983.⁸

Characteristics of the institutionalized population are surveyed periodically. The population is predominantly male (96 percent), nearly evenly balanced racially (except the different representation in the general population produces a much higher incarceration rate for blacks), and young (38 percent are under 25 years old, 60 percent under 30 years old). Slightly over half are incarcerated for serious crimes against persons (murder, rape, assault, robbery).⁹ Prisons over one hundred years old still house 16 percent of the population; 26 percent are confined in institutions built between 1875 and 1924. Seventy percent of all maximum security prisoners are housed in institutions over fifty years old; 30 percent are in facilities more than one hundred years old. As a result, larger institutions (1,000+ beds) accommodate 56 percent of the institutional population while a mere 22 percent are housed in facilities with capacities of five hundred beds or less, a recommended alternative, according to correctional standards, for some time.¹⁰

3.1.4. Probation

Probation may be imposed as an alternative to incarceration. The term generally is set by the maximum sentence, but legally may

exceed it because the individual is not in an incarcerative status. A short jail term occasionally precedes probation. One-half to three quarters of all convicted persons are sentenced to probation annually. Exact figures are elusive: there is no general agreement between states as to which jurisdictional levels should administer probation -- laws vary by state as do the administrative arrangements. Five states administer juvenile and adult probation through the Department of Corrections and thirty states provide separate agencies to jointly administer probation and parole services; thirteen states administer adult probation locally through the courts and thirty-two have this arrangement for juveniles. As an example of the magnitude of locally administered probation, New York has sixty-nine separate probation departments.¹¹ Figures available for 1976 indicated that 1.25 million persons were on state and local probation with another 67,000 under federal supervision. Nationwide, the 1977 probation rate was 583 for each 100,000 persons.¹² Preliminary (unpublished) 1979 figures indicate that 1,126,000 persons were on state and local probation with another 42,000 under federal supervision. Entries slightly outnumber removals, so a small increase in probationer populations is taking place.¹³

Probation is designed to assist convicted persons by providing supervision and guidance. Generally, there are conditions, such as reporting to the probation officer, remaining a local resident, or the inclusion of fines or restitution payments. The usual service arrangement is a once/monthly contact for a few minutes at the probation office. Caseloads of over one hundred are not uncommon.

Some probation departments offer more intensive services under a specialized caseload, whereby the probation officer provides extra guidance in securing employment or other services, or with a contractual arrangement under which the probationer or parolee and officer mutually agree to behavioral objectives to be accomplished.¹⁴

3.1.5. Parole

Parole is the practice whereby an incarcerated offender serves some remaining portion of the sentence under supervision in the community. It tends to be a state or Department of Corrections function. Parole boards are full time in one-half the states and generally are political appointees. Most boards have full autonomy although in a few states they report to the governor. Parole is not considered automatic and decisions are made by a parole board which typically visits a prison once a month, interviews potential candidates (e.g., those who have served at least one-third of their sentence), and analyzes related information. Generally, about one-half of those interviewed at any given time are granted parole, which is the prevalent method of release. The release conditions resemble those of probation but there is ordinarily more intense contact and supervision in the beginning. Persons on parole are increasing as each year parole entries exceed those removed.¹⁵ In 1976, over one quarter-million persons were on parole, with 16,000 of those under federal supervision. The 1977 parole rate was 98 per 100,000 persons.¹⁶

3.1.6. Community Corrections

Placement in a residential setting in the community is sometimes used to ease the adjustment process of released adult offenders. For juveniles, this alternative is used more frequently instead of incarceration. The halfway house, as it is frequently called, provides counseling and other services such as employment placement, education, training, substance abuse, either in-house or through community resources. Facilities may be privately managed, working from contractual arrangements with departments of correction, or operated directly by correctional agencies. A recent survey found an average daily population of over 13,000 adults in 402 community-based pre-release facilities, during 1978. Fifty-six percent of the facilities are state-operated; 40 percent are privately managed and the federal system and local governments each operate 3 percent. Overall capacity of these facilities is estimated at 16,500 beds.¹⁷

3.2. Expenditures

Total corrections expenditures totaled \$5.5 billion in 1978, nearly one-fourth of all criminal justice system expenditures. Financing comes from direct state expenditures, intergovernmental transfers and assistance from federal grants. Law Enforcement Assistance Administration (LEAA) grants to states and localities totaled \$715 million for the period 1971-78.¹⁸ For the period 1971-78, corrections expenditures increased 94 percent in current dollars for all levels of government. Table 3-6 presents correctional expenditures for the period in current and constant dollars. In constant dollars, federal expenditures increased by 65 percent (123

TABLE 3-6

CORRECTIONS DIRECT EXPENDITURES FY 1971-78^{a/}
 CONSTANT DOLLARS
 (1972 = 100)
 (Dollar Amounts in Thousands)

	Federal			State		
	Direct Expenditures	Constant Dollars	% Change Constant Dollars	Direct Expenditures	Constant Dollars	% Change Constant Dollars
1971	\$110,801	\$119,656		\$1,323,104	\$1,400,110	
1972	133,272	133,272	11.4	1,377,776	1,377,776	- 1.6
1973	170,854	159,230	19.5	1,533,920	1,449,829	5.2
1974	214,529	185,098	16.2	1,812,529	1,530,852	5.6
1975	216,778	170,022	- 8.1	2,193,000	1,690,825	10.4
1976	256,352	190,738	12.2	2,474,783	1,797,228	6.3
1977	298,712	209,329	9.7	2,847,020	1,917,185	6.7
1978	337,174	217,813	4.0	3,176,963	1,959,878	2.2
1971-78	122.8		64.9	94.0		34.8

TABLE 3-6 - Continued
CORRECTIONS DIRECT EXPENDITURES FY 1971-78^{a/}
CONSTANT DOLLARS
(1972 = 100)
(Dollar Amounts in Thousands)

	Local		
	Direct Expenditures	Constant Dollars	% Change Constant Dollars
1971	\$ 857,168	\$ 907,056	
1972	911,282	911,282	0.5
1973	1,035,434	978,671	7.4
1974	1,213,338	1,024,779	4.7
1975	1,433,535	1,105,270	7.9
1976	1,654,377	1,201,436	8.7
1977	1,788,329	1,204,427	0.2
1978	2,008,574	1,239,096	2.
1971-78	91.0		32.3

^{a/} Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, Expenditure & Employment Data for the Criminal Justice System, Series 1971-78. Washington, D.C.: U.S. Government Printing Office. U.S. Department of Commerce, Bureau of Economic Analysis, Business Statistics, 1978 (Washington, D.C.: U.S. Government Printing Office, 1979). (Federal & State & Local purchases of services deflators.)

percent current), state by 35 percent (94 percent current) and local by 32 percent (91 current). Total constant-dollar expenditures for 1978 are \$3.4 billion. Real state expenditures only increased by 2.2 percent from 1977-1978, the smallest change of any level of government.

3.2.1. Non-Capital Outlays

Expectedly, labor comprises the largest share of expenditures: 72 percent federal; 68 percent state; 70 percent local. In 1978, 265,000 persons were employed directly by corrections agencies; additional personnel services frequently are provided under contractual arrangements and do not appear in these totals. Table 3-7 presents employment and payroll information for 1971-78 for all levels of government. Correctional employment has risen nearly 50 percent since 1971, but federal employment rose by 72 percent, local by 53 percent and state employment grew by 43 percent. The "average" correctional employee earnings in 1978 were \$20,300 federal (an increase of 22 percent from 1977); \$14,200 state (a 6 percent increase); \$13,800 local (an increase of 4 percent). The large disparity between federal and state-local is partially explained by higher federal pay scales generally and the fact that federal salaries do not vary by region. Extreme regional differences and the higher turnover (of new employees at entry-level salaries) explain a great deal of the differences. Historically, prison employees earned less than almost any other employee group. One author claims this resulted in only the most uneducated, most unskilled workforce, a workforce that through seniority, found its way to managerial positions.

TABLE 3-7

CORRECTIONAL EMPLOYMENT, 1971-78^{a/}
(Dollar Amounts in Thousands; Full-time Equivalents)

	Federal				State			
	<u>Number of Employees</u>	<u>Payroll</u>	<u>% Change, Employees</u>	<u>% Change Payroll</u>	<u>Number of Employees</u>	<u>Payroll</u>	<u>% Change, Employees</u>	<u>% Change, Payroll</u>
1971	7,140	92,304	-	-	106,045	943,776	-	-
1972	7,929	112,752	11.1	22.2	107,785	1,040,520	1.6	10.3
1973	8,969	130,644	13.1	15.9	112,176	1,146,780	4.1	10.2
1974	9,967	154,620	11.1	18.4	121,160	1,328,520	8.0	15.8
1975	10,707	188,316	7.4	21.8	126,933	1,479,024	4.8	11.3
1976	11,717	203,256	9.4	7.9	134,420	1,655,136	5.9	11.9
1977	11,760	195,348	0.4	- 3.9	145,552	1,956,948	8.3	18.2
1978	11,918	241,983	1.3	23.9	151,408	2,155,848	4.0	10.2

TABLE 3-7 - Continued
CORRECTIONAL EMPLOYMENT, 1971-78^{a/}
(Dollar Amounts in Thousands; Full-time Equivalents)

	Local			
	<u>Number of Employees</u>	<u>Payroll</u>	<u>% Change, Employees</u>	<u>% Change, Payroll</u>
1971	66,776	605,640	-	-
1972	70,079	674,316	4.9	11.3
1973	75,134	767,436	7.2	13.8
1974	82,070	898,404	9.2	17.1
1975	86,880	1,028,280	5.9	14.5
1976	93,156	1,176,288	7.2	14.4
1977	97,696	1,302,792	4.9	10.8
1978	102,058	1,412,556	4.5	8.4

^{a/} U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistics Service, Trends in Expenditure and Employment Data for the Criminal Justice System 1971-77, (Washington, D.C.: U.S. Government Printing Office, 1980), Tables 5, 9, 11; Expenditure and Employment Data for the Criminal Justice System 1978, (Washington, D.C.: U.S. Government Printing Office, 1980) pp. 3-4, Tables 4-5.

The limited vision thus brought, he maintains, kept development at a low ebb.¹⁹ In any case, even correctional administrators today often earn less than their counterparts in other activities; college degrees are beginning to become a requirement for some administrative and security positions.

Table 3-8 illustrates the distribution of state correctional expenditures for seven years. Institutions for men comprise the largest expenditure category. Care and treatment costs vary by type of institution; the allocation for juveniles is higher than their corresponding proportion of bedspace. (The predominant philosophy has been that juvenile offenders have a greater rehabilitation potential which justifies the more specialized, costly treatment.) The same perspective prevails for women as well. For localities, data are more limited but a sample of expenditures indicated that institutions (i.e., jails) account for approximately seventy percent of expenditures.²⁰

Probation, parole and pardon functions now account for one-eighth of expenditures; the increase in administrative costs reflects the reorganization of corrections into separate departments during the decade.

The aggregated nature of the data prohibit detailed examination and analysis. However, even in aggregated form some contrasts are apparent. Corrections at the state level expends over five times as much on prisons as on probation, pardon and parole. Limited data for localities suggest this ratio to be about 2.5.²¹ The distribution of population, however, is markedly in the reverse, with 22 percent

TABLE 3-8

DISTRIBUTION OF STATE DIRECT CORRECTIONAL EXPENDITURES, 1971-77^{a/}

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
<u>Institutions</u>							
<u>Total</u>	70.6	75.1	74.3	72.7	70.7	69.9	68.5
Men	45.7	46.0	45.4	45.4	45.1	45.0	45.0
Women	1.7	1.9	2.0	2.1	2.0	2.1	2.1
Juveniles	23.3	23.6	22.7	20.1	19.1	18.6	16.6
Other	<u>b/</u>	3.6	4.2	4.5	4.4	4.2	4.8
<u>Correctional Administration</u>	3.7	4.6	5.6	6.4	7.1	7.7	7.2
<u>Probation, Parole & Pardon</u>	8.6	11.0	12.7	12.6	12.4	12.5	12.0
<u>Miscellaneous</u>	6.2	1.5	1.0	1.4	1.7	1.9	2.3
<u>Capital Outlay</u>	10.9	7.8	6.4	6.9	8.1	8.0	10.0

a/ Sources: U.S. Department of Justice, Law Enforcement Assistance Administration, National Criminal Justice Information and Statistical Service, Expenditure and Employment Data for the Criminal Justice System, Series 1970-71-1977 (Washington, D.C.: U.S. Government Printing Office, 1972-78).

b/ Included in percent for men.

of the supervised population incarcerated nationwide, the balance in the community. A Colorado study revealed that the institutionalized population consisted of 15 percent of all supervised persons, yet consumed 85 percent of expenditures; the relationship was just reversed for persons under community supervision.²² Probation and parole costs are, understandably, much lower than institutionalization. In New York, 1978 costs per parolee were \$1,100 for supervision, but the range of \$5,000 to less than \$500 reflects the differing intensity of service. Probation services ranged from \$260 to \$285 annually per client.²³ Federal probation, nationwide, cost \$800/client in 1977; no breakdown on parole supervision was available.

The (slightly) falling share of institution expenditures has come mostly at the expense of facilities for juveniles. However, in real terms the average annual expenditure per inmate has been declining over the last four years. In aggregated money terms, the annual average expenditure for each of the 268,000 inmates in custody during 1977 was \$7,279, a slight decline from the prior year and a 35 percent increase over seven years. But in real terms, this expenditure was \$4,900 in 1972 dollars and has fallen by \$1,000 since 1972. The detail for states appears in Table 3-9, demonstrating the total change in real terms to be -12 percent for the 1971-77 period.

This annual per capita cost does not convey adequately the range of costs. Some states, with substantial overcrowding and few services, fall well below this average. Secure prison confinement expenditures will greatly exceed costs for camps and farms, for example, because of their high security and program costs. A recent

study of the New York prison system identified annual per-inmate costs ranging from \$10,700 for Attica to nearly \$21,000 for a women's facility. In New York City the average per inmate cost in 1978 was \$24,900, or \$68 per day.²⁴

The New York study provides a detailed example of the distribution and magnitude of prison operating costs. In the state prison system, inmate costs separate as follows:

Security	50%	
Administration, Plant Operations, Prisoner Processing	22%	
Prisoner Necessities	15%	
Programs	10%	
Prison Industries	2%	25

TABLE 3-9

ANNUAL AVERAGE INMATE COSTS IN CURRENT AND CONSTANT DOLLARS 1971-1977
STATE INSTITUTIONS
(1972 = 100)

	<u># Inmates</u>	<u>Cost/Inmate Current Dollars</u>	<u>Percent Change</u>	<u>Cost/Inmate Constant Dollars</u>	<u>Percent Change</u>
1971	177,113	\$5,274		\$5,581	
1972	174,470	5,930	12.4	5,930	6.3
1973	181,534	6,278	5.9	5,934	0.07
1974	196,105	6,719	7.0	5,675	- 4.4
1975	218,619	7,092	5.6	5,468	- 3.6
1976	236,492	7,315	3.1	5,312	- 2.9
1977	267,936	7,279	- 0.5	4,901	- 7.7
<u>Total Change</u>			34.50		-12.23

Some attendant inmate dollar figures in 1978 include: food, \$1.83/day; health services, \$532/year; administration, \$3,300/year; security, \$7,500/year; programs, \$1,500/year.²⁶ Community facilities, by contrast, have costs ranging from, nationwide, \$6,300 - \$10,000/client/year for only basic services, to \$8,600 - \$13,400/client/year for comprehensive in-house services. Other service delivery mixes fall within this range.²⁷

Local data are somewhat less thorough than those for state or federal activities but based on expenditure and population information previously displayed, plus an estimated 71 percent jail share in 1972 and 70 percent in 1978, some comparisons are possible. For 1972, average annual inmate costs in local jails are estimated at \$4,600; in 1978, the cost in current dollars was \$8,900, but \$5,500 in real terms. The internal distribution of costs, however, varies widely between state or federal institutions and jails. Jails expend far more on booking, in-processing, out-processing and court-related functions than does an institution which confines the average person for nearly two years.

3.2.2. Capital Outlays

A final note on capital is warranted for perspective. Table 3-7 indicates that in 1977 capital expenditures were 10 percent of state correctional expenditures, an increasing proportion following a 1971-72 decline. This represents approximately \$28.5 million; and generally reflects major improvements to physical plant and new construction. However, variations in accounting practices create difficulties in analyzing this aggregated figure. In addition,

carrying, or financing charges are typically not included in such figures (nor are imputed rents) so that true capital charges will always be understated. Subsequent parts of this study will address this problem, but the estimating process is somewhat tedious, generally individuated.

The costs of expansion are not trivial; for 1981 a per-bed cost (a catchall phrase which encompasses cell, administrative and program space, perimeter security, etc.) is estimated at over \$70,000 for medium-security institutions and well over \$80,000 for maximum security. Financing charges triple or quadruple these bed costs.

3.3. Conclusion

Modern corrections exhibits similarities to and variations of the historical visions. On the one hand, the goal of Penn and Rush to substitute confinement for death and torture has certainly been realized. The goal of repentance and reform through solitude and industrious labor probably has not. Corrections today may be said to have as a goal the policy of reintegration -- less the reform and rehabilitation of earlier eras, but the positive re-entry of convicted persons into society. The variety of mechanisms to accomplish this has expanded from imprisonment to include many forms of community supervision. The number of persons under supervision is increasing and prison populations represent ever higher rates of incarceration per 100,000 population.

Expenditures for corrections totaled \$5.5 billion in 1978 for which approximately \$3.8 billion (70 percent) was expended on the 22 percent of the population which is incarcerated; 18 percent was

expended on supervising the remaining population (78 percent) in the community. In real terms, the average dollars expended per prisoner have been declining since 1973.

Correctional administration has changed markedly over two hundred years. Evolving from a system of individual prison fiefdoms charged with maintaining order, today's federal and state administrations tend to be centrally organized (the federal system is regionalized but has a central office). Only local corrections still mirrors the independent style of yesteryear. The field is becoming professionalized and departments of research are becoming more common and frequently do more than maintain population statistics. The advent of federal money in the 1970s permitted program innovation and evaluation. One still encounters the range, however, between the pro-active, progressive states and those which conduct corrections in less ambitious style.

The concept of the self-supporting prison vanished at the turn of the century; since then, functions, populations -- and expenditures -- have grown substantially. Prison industries, once the vanguard of support, are now under some scrutiny to assess the feasibility of making themselves self-supporting. Nationwide, the states had 1978 industry gross sales of \$233 million but costs exceeded revenues for most. In New York State, for example, the costs of industries were \$13.5 million but revenues were \$9.6 million.²⁹

A few states are experimenting with subsidies and chargebacks; under the first arrangement, states provide a subsidy to localities which keep under their jurisdiction persons who otherwise would have been committed to state facilities; chargebacks are similar to the

eighteenth-century practice of assessing local jurisdictions a fee for sending convicted persons to the state system.

Two divergent themes reflect corrections today. The first is the overall difficulty of providing services in the face of increasing commitments and legislative parsimony. "Outback management" has become a widely voiced, if not widely applied term. The other theme is the advent of standards for correctional activities, a sort of nationwide professionalization of the field.

While standards in some form have existed for nearly four hundred years, in the seventies a national accreditation agency was formed to evaluate the conditions, policies and procedures of prisons, jails, field and community services. The process is elaborate and essentially provides for the usage of the same criteria in assessing the various correctional facilities and activities.

Corrections thus faces the twin pressures of budget constraints and the need to improve the quality of its output. It is with this in mind that we turn to the various contributions of economics in analyzing and explaining correctional activities, and the utility of such analysis in a public setting.

FOOTNOTES

1. U.S. Department of Justice, Bureau of Justice Statistics, Sourcebook of Criminal Justice Statistics 1979. (Washington, D.C.: 1980).
2. Two nationwide research projects to study differential incarceration rates have just been undertaken (National Institute of Justice; National Institute of Corrections).
3. For a description of institutional life, see Andrew Rutherford et al., "Life in a Cell," Prison Populations and Policy Choices Volume I. (Washington, D.C.: 1977), pp. 100-104.
4. Correctional Industries Association, Inc., Industries Directory 1980. (New York: 1980).
5. Rutherford, op. cit., p. 165.
6. Ibid.
7. U.S. Department of Justice, Bureau of Justice Statistics. Prisoners in State and Federal Institutions on December 31, 1978. (Washington, DC: U.S. Government Printing Office, 1980), p. 4.
8. Joan Mullen, et al., American Prisons and Jails, Vol. 1, Washington, D.C.: U.S. Government Printing Office, 1980), pp. 96-97.
9. U.S. Department of Justice, Bureau of Justice Statistics, Prisoners in State and Federal Institutions 1978. (Washington, D.C.: 1980), Tables 1, 3; U.S. Department of Justice, Law Enforcement Assistance Administration, Sourcebook of Criminal Justice Statistics 1978. (Washington, D.C.: 1979), Table 6.27.
10. Rutherford, op. cit., pp. 20-22.
11. Ronald L. Goldfarb and Linda R. Singer, After Conviction: A Review of the American Correction System. (New York: Simon and Schuster, 1973), p. 218.
12. U.S. Department of Justice, Bureau of Justice Statistics, op. cit., T. 62.
13. Jane Maxwell, National Council on Crime and Delinquency (NCCD)-Research Center West. State and local figures derived from extrapolation of 92 percent sample; differences in definitions may also cause minor variations.

14. Stephen D. Minnich, The Planned Implementation of Mutual Agreement Programming in a Correctional System. (College Park, MD: American Correctional Association, 1976).
15. NCCD, Uniform Parole Reports, Parole in the United States, 1976 and 1977. (San Francisco: NCCD Research Center West, 1978), pp. 44-45.
16. U.S. Department of Justice, Law Enforcement Assistance Administration, Sourcebook of Criminal Justice Statistics 1978. (Washington, D.C.: 1979), T. 6.2; U.S. Department of Justice, Bureau of Justice Statistics, op. cit., T. 62.
17. William DeJong, et al., American Prisons and Jails, Vol. V. (Washington, D.C.: U.S. Government Printing Office, 1980), pp. 3-4, 25.
18. U.S. Department of Justice, Law Enforcement Assistance Administration, op. cit.
19. Rothman, Conscience and Convenience: The Asylum and Its Alternatives in Progressive America. (Boston: Little, Brown, 1980).
20. U.S. Department of Justice, Bureau of Justice Statistics, op. cit.
21. Ibid.
22. Sally F. Familton and Gail S. Funke, The Costs of Colorado Corrections. (Report to Colorado Commission on Criminal Justice, Correctional Economics Center, 1978).
23. Douglas McDonald, The Price of Punishment: Public Spending for Corrections in New York. (Boulder, CO: 1980), pp. 59-71.
24. Ibid., pp. 18 and 129.
25. Ibid., p. 25.
26. Ibid., p. 55.
27. Gail S. Funke and Billy L. Wayson, Standards and the Cost of Correctional Change. (Institute for Economic and Policy Studies, Report submitted to the National Institute of Justice, 1979).
28. Correctional Industries Association, Inc., op. cit.
29. McDonald, op. cit., p. 56.

Chapter Four

ECONOMIC ANALYSIS OF CORRECTIONS : COST ANALYSIS

4.1 Introduction

Cost analysis has been the most widely utilized application of economic analysis to corrections. In a field where, until recently, quantitative information on inputs and outputs was virtually unknown and unused, cost analysis has provided decision-relevant information. There are four broad types of cost analysis: cost, comparative costs, cost-effectiveness and cost-benefit. Cost and comparative cost analyses require comprehensive and accurate information about resources -- the input side. Cost-effectiveness analysis requires identification and specification of outputs, and cost-benefit analysis values the outputs and permits comparison with inputs. The most powerful policy tool of the cost analyses, cost-benefit analysis has not been the most widely utilized technique. The frequency with which it is requested in program evaluations and government solicitations belie the difficulties associated with applying this technique in a corrections setting. Merely specifying the input side has not been unproblematical.

Although the prevalence of cost analysis is of recent vintage, and use of cost-benefit analysis even more recent and rare, the earlier use of this latter technique is worthy of mention. The economics of corrections perhaps had its foundation a century and a half ago (as we discovered that many "new" ideas in corrections had their origins

in the eighteenth and nineteenth centuries). A scant half-century after the beginning of the American prison system, the use of imprisonment for certain crimes was questioned in a cost-benefit framework. While the author, an attorney, may be faulted for not calculating marginal costs or estimating future benefits, his work is presented here as a real, if lighthearted example of the first use of cost-benefit analysis. Even included is also the first known estimate of offender opportunity costs.

TABLE 4-1
COST-BENEFIT ANALYSIS OF IMPRISONING DEBTORS^{a/}

<u>Costs</u>	<u>AC</u>	<u>No. of Cases</u>	
Apprehension	\$3.38	43	
Commitment	2.86	↓	
Jailer's key fees	.40		
Filling out citation	1.00		
Serving citation	1.25		
Justice's fees	1.00		
Board (\$.25/day x 31 days)	7.75		
Value of debtor's time (\$.50/day x 31 days)	<u>15.50</u>		<u>43</u>
TOTAL	\$33.14		43
<u>Benefits</u>			
Average debt	\$5-20		
Total actual debt recovered	\$456.75		
Average debt recovered	\$ 10.62		
Benefit-Cost Ratio:	$\frac{\$10.62}{\$33.14} = 0.32$		

^{a/} Adapted from Charles Sedgwick, Esq., 1830 letter to Prison Discipline Society, Reports, Vol. 1 (Boston: 1855), pp. 391-2.

We now turn to more contemporary applications of cost analysis.

4.2. The Input Side: Cost and Comparative Cost Analysis

Correctional inputs are of course not different than inputs utilized in any production process. The analytical issue has been to identify and correctly evaluate all inputs associated with a particular activity in order not to underestimate true costs or to develop a distorted production function (with the concomitant effects on efficiency and output levels). Production processes vary according to the activity under analysis: field or community services, or institutions.

4.2.1. Typology of Costs

A series of cost definitions have been developed specifically to permit analysis of correctional activities. The perspective is economic but the components specifically relate to corrections activities.¹

4.2.1.1 Criminal Justice System Costs. These include direct outlays for, or the imputed value of, goods and services provided by:

- Law enforcement agencies;
- Courts;
- Legal services agencies, bureaus or firms;
- Other agencies, organizations or individuals whose stated mission could not be carried out if there were no crime;
- Activities of organizational units or individuals financed by any of the above.

The criminal justice system thus is defined to comprise the activities and agencies listed above.

Criminal justice system costs may be further subdivided in the following way:

- Public Expenditures -- direct outlays for, or the imputed value of, goods and services provided or financed by governmental agencies or units.
- Private Expenditures -- direct outlays for, or the imputed value of, goods and services provided or financed by non-governmental agencies or units.

4.2.1.2. External Costs. These include direct outlays for, or the imputed value of, goods and services provided by all agencies, organizations or individuals external to the criminal justice system defined above. External costs, also, may be further subdivided into:

- Public Expenditures -- direct outlays for, or the imputed value of, goods and services provided or financed by governmental agencies or units. (Examples would include: welfare, health, and mental health departments or facilities; employment and training programs; public schools and departments of education.)
- Private Expenditures -- direct outlays for, or the imputed value of, goods and services provided or financed by non-governmental agencies or units, e.g., private mental health practitioners.

4.2.1.3. Direct and Indirect Costs. The following types of costs apply to both criminal justice and external costs when a specific "cost objective" is sought, for example, the cost of an activity such as citation, arrest, diversion, and so forth.

A fairly simple way to view direct costs is to consider them as including personnel expenditures and others directly associated with the provision of a specific service to a specific client. For example, the salary of a patrol officer issuing citations to specific individuals would be considered a direct cost of the citation activity. Likewise, transportation costs incurred in the provision of that service would be considered direct costs.

Indirect costs, according to standard federal government

definitions, include those "(a) incurred for a common or joint purpose benefiting more than one cost objective, and (b) not readily assignable to the cost objectives specifically benefited, without effort disproportionate to the results achieved."²

In terms of this analysis, point (a) includes expenditures for items associated with more than one activity, where the specific proportion devoted to each is not readily identifiable, e.g., administrative costs. Point (b) above refers to the expenditures that under the normal definition would be direct costs but that are more practically treated as indirect costs. For relatively self-contained activities, such as correctional institutions, most halfway houses, and diversion projects, indirect expenses do not play a large role. Most expenditures for these activities are readily assignable to the "cost objective," or activity, in question. It is important to emphasize that identifying direct costs of a particular activity and indirect costs allocable to that activity are simply means of arriving at an accurate picture of the activity's total cost, as measured in an accounting framework.

4.2.1.4. Opportunity Costs. The central concept of economic cost, opportunity cost, is a measure of the cost that results from undertaking one activity and thus foregoing another. Sometimes it is directly reflected in resource prices, but sometimes it is necessary to develop or modify resource prices. It may be viewed from many different levels of resource aggregation. That is, there is an opportunity cost associated with:

- A single resource which could be used in different ways (such as a person who can hold different jobs);

- A set of resources which could be used in alternative criminal justice activities (such as \$10,000 for pre-trial detention instead of release activities);
- A set of resources which could be used in alternative criminal justice program areas (such as educational programs for pretrial instead of post-adjudication inmates);
- A set of resources which could be used in alternative public activities (such as government doctors for criminal justice instead of public health programs);
- A set of resources which could be used in public or private activities (such as \$10 million in loans to build a correctional institution instead of private homes).

From the perspective of a single resource which could be used in different ways, one measure of the opportunity cost of an inmate in pretrial detention is the productivity of his labor that is foregone; or, the opportunity cost of using a person to teach inmates is the teaching (or other tasks) he or she might have performed elsewhere. At the level of alternative pretrial activities, the opportunity cost of using a set of resources to perform one particular activity (for example, detaining accused persons) can be considered the result or product that could be obtained from using those same (or smaller) resources in other types of pretrial activities (such as diversion or release on recognizance). At other levels of resource use suggested in the list above, individual pretrial activities, or pretrial activities as a group, can be compared to other criminal justice activities, or non-governmental activities.

In all of these comparisons, if the opportunity cost (that is, the product of the activity foregone) is greater than the product of the activity undertaken, there is a loss or "cost" to society above and beyond the types of costs described earlier. This loss to society

is a social cost attributable to undertaking the activity whose productivity is lower. The question of how to define and measure productivity (or more important, relative productivity) becomes a major problem when the analysis moves from the level of individual resources to criminal justice activities whose "products" are differentially defined as deterrence, rehabilitation and so forth, by policy-makers and analysts.

4.2.2. Decisions Using Cost and Comparative Cost Analysis

These analyses, as indicated, are useful when only knowledge of inputs is necessary to the decision or planning process. Examples of such decisions include the implementation of standards to improve the conduct of correctional activities. Here, the output is somewhat specified by the content of the standards, but does not constitute an integral part of the analysis. We assume, rather, that agencies are interested in the new resources and attendant costs of correctional change. Other scenarios include jurisdictions interested in the true costs of conducting correctional activities or internal analyses of fixed and variable costs. Comparative cost studies involve analysis of alternatives: prison vs. community treatment; residential vs. nonresidential care; alternative procedures for carrying out criminal justice functions (e.g., citation vs. arrest, traditional vs. intensive probation caseloads, diversion vs. pretrial detention).

4.2.2.1. Considerations in the Analysis. The typology of costs presented above outlined the range of costs which must be considered for accurate analysis. Each analysis will exhibit its own variation on that generalized typology; jail costs may only include items related

to operations and capital construction, while an analysis of a diversion program would include external, community-incurred costs; an analysis of prisons might include the opportunity cost of land and physical plant.

Budget, or expenditure analysis will ordinarily constitute the first step in discerning costs. Object-of-expenditure or method-of-payment budgets confound the analysis; program budgets help but still may not allocate administrative or other indirect costs. Some costs may appear in other agency budgets or be shared with other operating units. Often an activity's cost will be subsumed within a larger entity and cost allocation or application of surrogate or proxy measures will be necessary.

There are available manuals on budgeting and cost analysis as well as extensive technical narratives within actual studies.³ The intent here is not to reproduce the detail of the various analytical procedures but rather to highlight the caveats to assure appropriate evaluation of finished studies.

4.2.3. Types of Analysis

As suggested above, the detail and types of costs to be examined will be determined in large part by the policy decision being informed. Providing an overview of costs may supply a sense of magnitude to the just curious; while more detailed, carefully drawn information will be necessary to inform a specific decision. Aggregated analysis, such as the cost of crime nationwide (see Appendix A) may be useful for national priority setting, but would be of little use to a correctional decision-maker.

4.2.3.1. Techniques. At a fairly aggregated level, some techniques for performing cost analysis are presented below. These techniques are notable because they produced cost information in an area which had never been analyzed -- correctional standards. As such, they provided valuable data to corrections decision-makers interested in the general impact of standards and produced national, or aggregated data on the resource implications of change.⁴ Originally performed in 1974, the research has been upgraded recently to include evaluation of assumption and revision of dollar estimates.⁵ The cost estimates, while prepared from nationwide data, are presented for "typical" subunits or jurisdictions and have utility for general planning purposes. One technique, sample budgeting, was used to produce resource and cost information for halfway houses and pretrial diversion programs conforming to National Advisory Commission Correctional Standards.⁶ No single organization studied was providing all the services suggested in the standards, nor was all necessary cost information available in one setting. Essentially a composite, based on actual, comparable operating entities, was constructed, which illustrated ranges both for services provision and cost. Table 4-2 illustrates the results of the sample budget technique, with a comparison of basic and comprehensive services for halfway houses. Other hybrids (e.g., basic services plus community resource referral) are not included but fall within the upper and lower bounds of the table. Table 4-3 provides another example of a sample budget for an employment diversion activity.

Model budgeting was developed for cases in which the proposed activities so differ from existing practices that actual or sample budgets would yield misleading information on resources and costs.

TABLE 4-2

SAMPLE BUDGETS, HALFWAY HOUSES, 1978^{a/}

<u>Item</u>	<u>Basic Services Average Cost</u>	<u>Comprehensive Services Average Cost</u>
Personnel		
Salaries and Wages		
Director	\$ 18,142	\$ 18,142
Asst. Director	14,154	14,154
Counselors	12,112 (1)	44,713 ^{b/}
Night Counselor	11,038 (1)	11,038 (1)
P-T Counselor	4,660 (1)	9,320 (2)
Secretary/Bookkeeper	8,605	8,605
Housekeeper/Cook	7,874	7,874
Fringe Benefits (19%)	14,554	21,633
Total	<u>\$ 91,139</u>	<u>\$135,479</u>
Other Costs		
Professional fees & svcs.	\$ 3,456	3,456
Travel	3,595	4,064
Rent/Rental equiv.	11,644	12,816 ^{c/}
Maintenance	2,600	2,600
Utilities	4,402	4,402
Communications	2,094	2,460
Supplies	2,913	3,295
Food	17,822	17,822
Other	1,883	1,883
Total	<u>\$ 50,409</u>	<u>\$ 52,798</u>
Total Operating Costs	\$141,548	\$188,277
Annual Client Cost (18)	\$ 7,864	\$ 10,460
Daily Client Cost	\$ 21.54	\$ 28.66

^{a/} Source: Original Work, Donald J. Thalheimer, Cost Analysis of Correctional Standards: Halfway Houses (Washington, D.C.; 1975), updated by Funke and Wayson, 1979.

^{b/} Three counselors and psychologist.

^{c/} Includes equipment @ \$1,172.

TABLE 4-3
 SAMPLE BUDGET, EMPLOYMENT DIVERSION, 1978^{a/}

<u>Item</u>	<u>Average Cost</u>	
Personnel		
Salaries and Wages		
Administrator	\$ 22,778	(1)
Job Developer	13,529	(1)
Counselors	92,211	(7)
Screeners	37,007	(3)
Data Analyst	16,781	(1)
Secretary/Receptionist	10,144	(1)
Accountant	8,158	(1/2)
Fringe Benefits (19%)	38,124	
Overtime	1,513	
Total	<u>\$240,245</u>	
Other Costs		
Professional Fees and Services	\$ 2,143	
Travel	10,664	
Rent, Utilities and Maintenance	19,762	
Communications	5,960	
Supplies	10,120	
Administration	9,976	
Duplication	1,700	
Clients Emergency Fund	5,671	
Other	3,963	
Total	<u>\$ 70,959</u>	
Total Operating Costs	\$311,204	
Average Client Costs		
Design Capacity (260)	\$ 1,197/year	\$3.28/day
Actual Clients (250)	\$ 1,245/year	\$3.41/day
Successful Clients (200)	\$ 1,556	

^{a/} Source: Original Work, Ann M. Watkins, Cost Analysis of Correctional Standards: Pretrial Diversion (Washington, D.C.: 1975), updated by Funke and Wayson, 1979.

Cost estimation is thus performed in a more indirect manner than the usual examination of existing budgets and expenditures.⁷ This technique has been used to analyze the resource implications of standards for probation and pretrial services.⁸ The basic procedure involves precisely describing the functions of an organizational entity and then estimating the personnel and other resource units required to carry out these functions. In the case of probation, for example, the number of probationers, services required and the time and other resources necessary to provide these services would be ascertained. This is calculated for each procedure, using survey techniques to determine the actual time and type of resource required. Support and supervisory staff and other resources are determined once the line staff complement has been identified. Figure 4-1 illustrates work unit values for probation functions and Table 4-4 presents a model budget for probation services.

The differential cost technique has the most utility for comparisons of different activities designed to achieve similar ends. The procedures associated with each activity are identified; procedures common to all activities and clients are excluded from the analysis; side effects, or externalities associated with new procedures are added to the analysis. This technique has been used to estimate the costs of utilizing less drastic interventions in lieu of pretrial arrest and detention -- field citations and summons.⁹ In this case the common desired outcome is appearance in court. The method may be expressed thus:

$$\text{Cost of Activity } j = \sum_{i=1}^n (C_i \times F_i)$$

Where:

Activity j = one of the alternative procedures,
in the example, traditional arrest,
field citation, stationhouse citation;

C_i = average cost/person for a procedure i
required under activity j ;

F_i = case flow exposed to procedure i under
activity j ; and

i = procedures to which equal numbers of
persons would not be exposed under all
alternatives, i.e., procedures unique
to one or more but less than all
activities.¹⁰

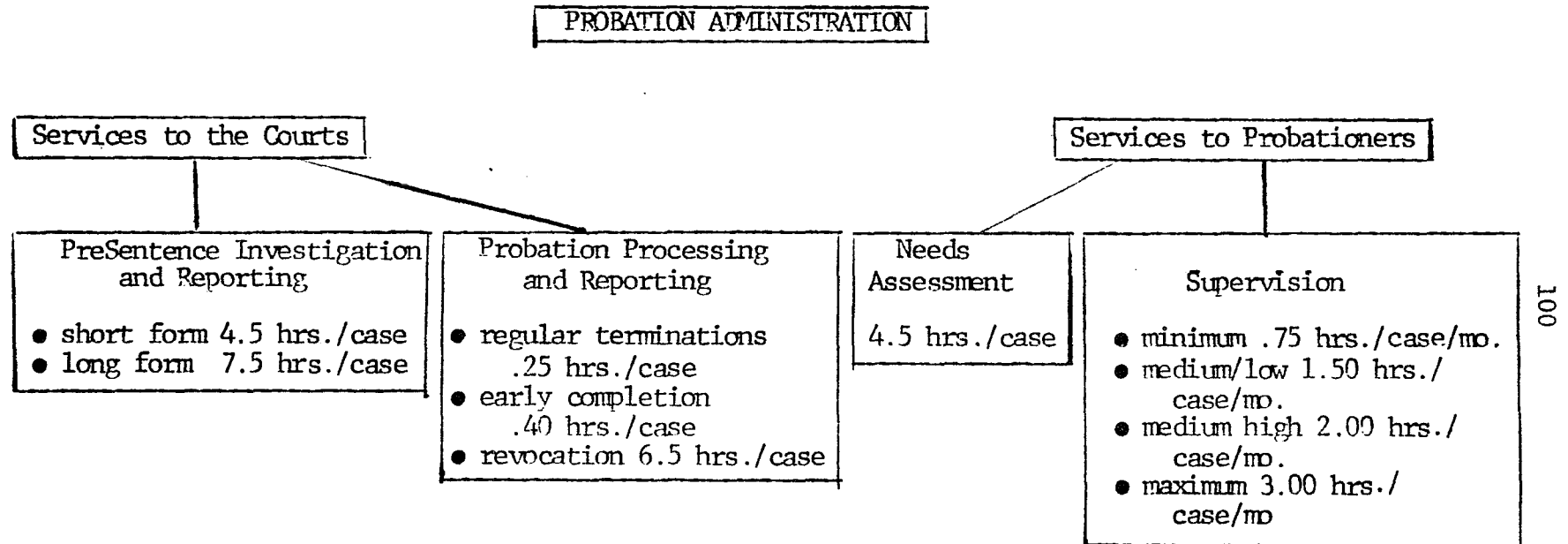
Figure 4-2 illustrates the potential case flow, nationwide, for utilization of alternatives to arrest. Table 4-5 indicates the case flows and, resources, times and costs for the various procedures, for a "typical" jurisdiction.

Much of the good or useful work in the field is notable either for comprehensiveness and accuracy or for unique approach, as the analytical techniques discussed above. The bibliography contains more extensive references; selected studies are reviewed here to illustrate methodology, analytical detail and interesting results. Because the general technique is essentially cost-input analysis, the reviewed work is arrayed by topical area, with the exception of opportunity cost.

4.2.3.2. State Corrections. A detailed study of the cost of corrections in one state has been conducted by McDonald.¹¹ He encountered substantial problems in the analysis, including indivisibility in expenditures and poor reporting and accounting: ". . . one corrections agency in New York which spends over \$100 million a year has not issued an annual report in over a decade."¹² Costs of many agencies

FIGURE 4-1

Service Structure and Work Unit Values, Probation^{a/}



^{a/} Source: Donald J. Thalheimer, Cost Analysis of Correctional Standards: Community Service (Washington, D.C.: 1977).(adaptation by author).

TABLE 4-4

MODEL BUDGET, PROBATION SERVICES, 1978^{a/}
 (typical jurisdiction of 700,000 population)

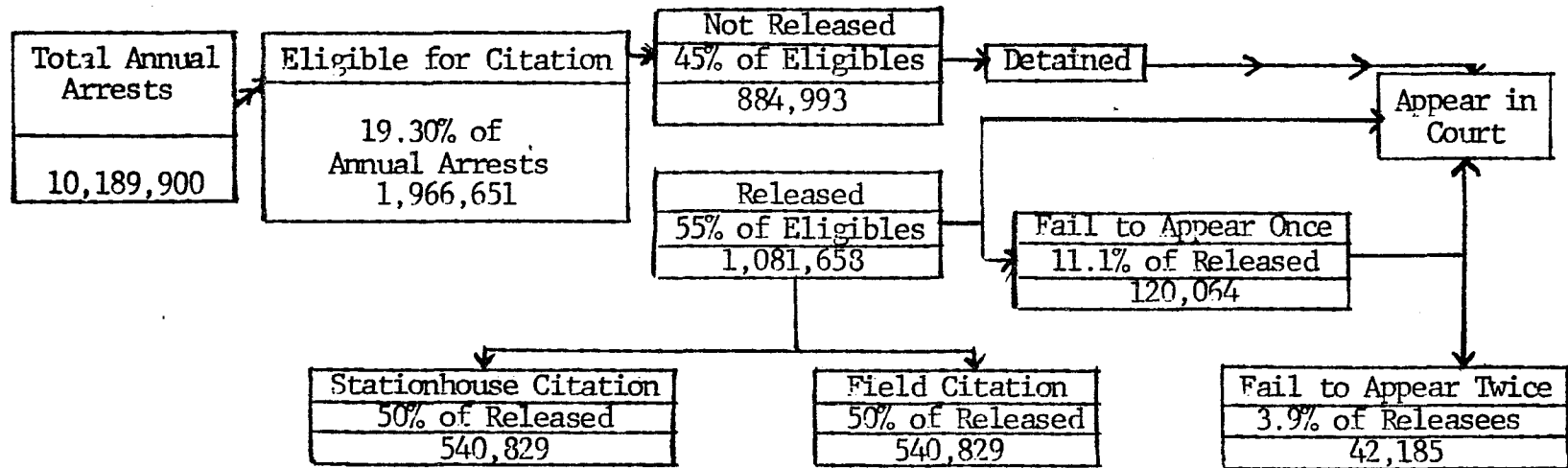
<u>Item</u>	<u>Average Cost</u>	
Personnel		
Salaries and Wages		
Director	\$ 20,757	(1)
Supervisors	161,773	(10)
Probation Officers	742,632	(60)
Support Staff	204,970	(28)
Fringe Benefits (19%)	214,725	
Total	<u>\$1,344,857</u>	
Other Costs		
Professional fees and services	\$ 23,993	
Travel	24,734	
Rent, Utilities, Maintenance	65,314	
Communications	20,840	
Supplies	21,454	
Administration	112,325	
Training	12,481	
Other	10,888	
Total	<u>\$ 292,029</u>	
Total Operating Costs	\$1,636,886	
Average Costs^{b/}		
Minimum Supervision	\$12.53/mo.	\$150.30/year
Medium Supervision	\$31.96/mo.	\$383.50/year
Maximum Supervision	\$50.07/mo.	\$600.87/year

a/ Source: Original work, Donald J. Thalheimer, Cost Analysis of Correctional Standards: Community Supervision (Washington, D.C.: 1977), updated by Funke and Wayson, 1979.

b/ Based on average caseload of 71, with 2/3 of probation officer time spent in this function.

FIGURE 4-2

Case Flow Used for Analysis of Citation Activities Nationwide, 1977^{a/}



^{a/} Source: Original Work, Susan Weisberg, Cost Analysis of Correctional Standards: Alternatives to Arrest (Washington, D.C., 1975): upgraded by author, 1979.

TABLE 4-5
 COSTS OF CRIMINAL JUSTICE FUNCTIONS, 1978^{a/}
 ("typical" urban county)

Activity/Procedure	No. of Clients	Resource	Time	AC/ Accused	Total Costs
Citation					
Field	620	Patrol	15"	3.15	1,953
Stationhouse	620	Patrol	30"	6.30	3,906
Bookings	10,122	Patrol	75"	15.75	159,422
Detention	2,807	Patrol	7.5"	1.58	4,435
		Detention	6'	5.88	16,505
Failures to Appear					
#1	138	Patrol	30"	6.30	869
#2	48	Patrol	13"	2.73	131
		Magistrate	30"	14.62	702
		Prosecutor	30"	11.10	533
		P. Defender	30"	13.09	628

^{a/} Source: Original work, Susan Weisberg, Alternatives to Arrest (Washington, D.C.: 1975); updated by Funke and Wayson, 1979.

were found buried in the accounts of others; the budget for the New York City Department of Correction reflected less than two-thirds of total 1978 jail outlays. "In short, the accounts in most states do not readily reveal how much money taxpayers spend on criminal justice and corrections."¹³

McDonald's study protocol included site visits and numerous meetings with officials to collect and analyze expenditure data. (This continues to be the best assurance of accurate, complete analysis of a fragmented system.) In aggregated terms, the study found 1978 expenditures on state and local corrections to be \$600 million, while another \$2.2 billion was expended on other functions of the criminal justice system. These figures and those that appear subsequently in the text are among the most carefully derived ever obtained for a state correction system. Some major findings:

- Prison expenditures are 30 percent higher than correctional budgets indicate. Fringe benefits, retirement, some psychiatric services and drug programs are funded from other accounts. Federal grants comprise nearly \$5 million of the \$285.5 billion estimated in the study.
- Incarceration costs vary widely -- from \$9,500 to \$39,000 per prisoner year. Smaller, lower-security prisons tend to have higher costs than more traditional, large institutions.
- Staff-inmate ratios increase as security levels decrease; overall security represents 50 percent of all costs.
- Prisoner programs account for 10 percent of all expenditures.
- It was impossible, given present reporting systems, to determine a statewide cost per client for probation services. In New York City the cost ranged between \$260 - \$285/year.

- The cost of holding a prisoner in a local jail is \$38/day outside New York City. The cost is \$68/day in New York City.

The study's impact is muted only by its failure to include allowances for capital charges, although the new bed cost figures (\$70 - \$90,000) are consistent with other new work and financing charges are discussed; and by lacking a mechanism to separate costs by factor of production within function. Fringe benefits for the state are not reported in corrections expenditures and they could not be overlaid on personnel costs, yet they constitute a sizeable \$9/day/inmate. Table 4-6 presents 1978 corrections costs in New York State by function. The distribution of average inmate costs provides a sense of the importance of various functions in correctional thinking. The appropriation for drug abuse treatment, for example, was \$.01/day for every inmate in the system. Since only 562 prisoners were admitted to the treatment program, the expenditure for each of these inmates was \$.36/day. But 11,450 prisoners had been identified as narcotics addicts prior to their incarceration. Outside grant monies were, however, available to the drug program.¹⁴

4.2.3.3. County Corrections. A more modest analysis of the real operating costs of a county house of corrections was conducted by the author five years before McDonald's work.¹⁵ As with the McDonald study, it was found that the presence of external costs caused actual operating costs to greatly exceed those reported in the corrections budget -- in this case by 28 percent. The budgets also confounded capital charges and non-capital costs, further distorting daily operating costs. A unique feature of this study was the estimation of the opportunity

TABLE 4-6

PRISON EXPENDITURES BY FUNCTION, NEW YORK STATE, 1978^{a/}

Function	Total Cost	Annual Cost Inmate ^{b/}	Daily Cost/ Inmate
Security			
Guarding Prisoners	\$109,918,691	\$ 5,795	\$15.83
Emergency Units	39,681	2	.20
Uniforms	1,403,479	74	.005
Identification & Misc	96,472	5	.01
Administration ^{c/}	23,354,858	1,231	3.37
Plant Operations	24,396,206	1,286	3.52
Prisoner Processing	1,455,655	77	.21
Prisoner Necessities			
Food Prep & Service	12,638,535	666	1.83
Health Services	10,098,956	532	1.46
Recreation	2,113,188	111	.31
Wages	3,231,743	170	.47
Misc. (laundry, clothing, etc.)	5,951,207	314	.86
Programs			
Coordination	5,364,648	283	.77
Psycho-therapeutic	1,866,635	98	.27
Drug	75,000	4	.01
Academic Education	6,653,419	351	.96
Vocational Education	5,295,095	279	.76
Religious	1,344,850	71	.19
Temp. Release & Misc.	1,529,134	81	.22
Prison Industries ^{d/}	4,403,075	232	.64
Other	555,069	29	.08
Fringe Benefits	60,326,732	3,180	8.71
Total	\$272,112,328	\$14,346	\$39.30

^{a/} Source: Douglas McDonald, The Price of Punishment: Public Spending for Corrections in New York (Boulder, CO; 1980), Tables 2.4, 2.7, 2.8, 2.9, 2.10.; Capital Charges not included.

^{b/} All estimates (except prison industries) based on 1977-78 state population of 18,968.

^{c/} Includes central office as well as facility administrative expenses.

^{d/} Expenditures net of revenues.

costs of land and facilities (see later discussion). The analysis is conducted with the same detail as McDonald's; its modesty arises from the fact that it was a single operating unit, although combined with a jail which created some allocation problems.

The impact of excluding capital charges but incorporating non-reported costs is indicated in Table 4-7. The study methodology resembled McDonald's, including extensive on-site survey work. It might be mentioned in passing that this study was commissioned by a state department of corrections which had an interest in buying and operating the facility. The county, before contemplating sale, was interested in knowing what its corrections operation was costing and what the worth of the facility was. Aside from public hearings, to date, action has yet to be taken.

4.2.3.4. Correctional Standards. A 1979 study identified for the first time, state costs for compliance with correctional standards.¹⁶ The analysis was conducted in five states involved in the accreditation process of the American Correctional Association Standards. Since these standards will be the ones by which most states will abide, the analysis was intended to produce interest beyond the subset examined. Protocol followed the studies above, except in this case, marginal costs were of interest. It was not possible to use statistical cost functions, both because of the small number of organizational subunits and because the focus was on incremental costs associated with new, rather than existing, activities. An added feature of the work was the development of detailed architectural costs for renovation and new construction. Traditionally these figures have been more elusive

TABLE 4-7

EFFECT OF COST ANALYSIS ON LOCAL BUDGETS^{a/}

Cost Component	Total Cost	ADC (or change)
Original HOC Budget ^{b/}	\$2,131,458	\$25.84
Adjusted HOC Budget (capital excluded)	2,064,458	25.02

Jail Staff		
2 Senior C.O. \$27,223	121,209	1.47
9 C.O. 93,986		
Fringe Benefits	162,292	1.97
Medical 63,753		
Retirement 98,539		
Food Services	69,692	.84
Transportation	29,106	.35
Sheriff (50% of time)	11,831	.14
Salary 10,700		
Fringes 1,131		
Total	\$2,458,588	\$29.80
Administrative Overhead	45,552	.55
TOTAL CURRENT COSTS	\$2,504,140	\$30.36

Federally Funded Programs	228,997	2.78
ESTIMATED FUTURE COSTS	\$2,733,137	\$33.13

^{a/} Source: Billy L. Wayson, Gail S. Funke and Thomas A. Henderson
A Model for Policy Analysis Training. (Washington, DC: L.E.A.A.,
1978).

^{b/} HOC: House of Corrections.

to derive than operating costs, usually being presented in gross, undetailed form.

Total compliance costs for the five states were prepared by standard (465 standards for adult institutions alone), organizational subunit (prisons, parole, community facilities), and major item-of-expenditure (capital and non-capital). Estimated costs were \$85 million in 1978 dollars for the five states, of which \$16 million was for annual operations and \$60 million was for capital charges for plant and equipment.¹⁷ It is doubtful that actual outlays will approach these figures since 100 percent compliance is not a requirement of the accreditation process. In addition, compliance is idiosyncratic and different jurisdictions will have varying interpretations of the content of the standards and the resources required for compliance. However, the knowledge of implementation costs, particularly in the detail provided in the study, is expected to have utility in the planning process. The concept of systems planning, mentioned earlier, is facilitated by an analysis which aggregates not only by facility but across standards category (e.g., education, training, etc.). Table 4-8 provides an excerpt of the compliance costs for one state. Although the project findings highlighted the deteriorating capital stock of correctional institutions, not included in these estimates are ongoing renovation and construction exceeding \$100 million. In addition, these states received \$39.9 million in L.E.A.A. monies for correctional improvement from 1971 to 1978 which must be considered as additional outlays associated with standards compliance.¹⁸

A 1975 study of jails identified local costs for compliance with state-promulgated jail standards. Again, the only work on a

TABLE 4-8

COMPLIANCE COSTS--PERSONNEL--SELECTED STANDARDS
 CANON CORRECTIONAL FACILITY, COLORADO, 1979^{a/}

Standard No.	Short Description	Personnel		
		Type	Time	Total
<u>Special Management Inmates</u>				
4210E	Visitation Privileges-- Segregation	Corr. Supv. Corr. Officer Step 4 Corr. Techni- cian Corr. Officer Step 4	.8 FTE ^{b/} 1.6 FTE .8 FTE .8 FTE	\$74,920
4213E	Segregation--shave/ shower	Corr. Officer Step 4 Corr. Officer Step 4	.4 FTE 2.0 FTE	40,502
4214E	Segregation--laundry, hair, etc. Barber Shop Laundry	Corr. Supv. Corr. Officer Step 4	1.0 FTE .2 FTE	27,824
4216E	Legal Materials	Law Librarian (Lib II Step 4)	.9 FTE	19,800
4217E	Reading Materials	Lib II Step 4	.3 FTE	6,600
4222E	Psychological Assess- ment	Psychiatrist	1.0 FTE	46,528
<u>Sanitation, Safety and Hygiene</u>				
4246E	Special clothing-- kitchen			
4249E	Daily Clothing Exchange			
<u>Medical and Health Care Services</u>				
4253E	Medical/Dental Svcs.	Dentist Dental Asst. Oral Hygienist	1.0 FTE 2.0 FTE 1.0 FTE	74,329
4264E	Records	Clerical	1.0 FTE	10,769
4279E	Psychiatric Consulta- tion	Psychiatrist	.56 FTE	28,082

a/ Source: Gail S. Funke, Cost Analysis of Correctional Standards: Colorado. (Alexandria, VA: IEPS, 1980).

b/ FTE = Full-time equivalent.

statewide basis, a compliance cost of over \$60 million was estimated for 45 jails to conform to a set of 248 standards.¹⁹ The analysis highlighted the problems of gathering accurate and complete local data and the disproportionately high compliance costs for very small jails, both for operations and capital improvements. A feature which confounds the economist's need for clearly specified outputs in order to ascertain the inputs necessary to achieve them is the often vague content of standards; e.g., standard 32: "Staff shall be constantly alert to prisoner depression, family rejection, loneliness, resistance to staff or programs, and the effects of use of substances prohibited by facility rules or law."²⁰ The methodology of the study involved an in-depth, case study approach for a sample of the jails to determine deficiencies and compliance resources. Extrapolation, with indexes and weighted averages was used to derive costs for all jails.²¹ Policy recommendations emanating from this work included study of regional jails and cessation of the jail function in small jurisdictions.

4.2.3.5. Opportunity Cost. Opportunity cost analyses are seldom performed in corrections and usually not as a separate effort. Yet, as discussed above, the concept is a critical one for many aspects of corrections. Two contributions are discussed here which touch on sensitive areas: the foregone productivity of incarcerated prisoners, and the "value" of prison land and physical plant.

The value of foregone productivity due to incarceration is of interest from society's perspective because of the loss of goods and services not produced and taxes paid. In addition, the figures have utility for cost-benefit analyses addressing the costs of incarceration.

While not estimated here, there are additional burdens of public assistance and deterioration of family and community ties. In 1973 Singer estimated the value of foregone productivity and the analysis was repeated with more recent data in 1979.²² Essentially, the methodology involved applying data on the characteristics of the inmate population (job type, educational level) to occupational categories with earnings weighted by educational attainment. Allowances were then made for ex-offender unemployment rates and participation in prison work programs to develop a net figure. Client-provided information might be less than fully accurate but this is probably more than compensated for by indirectly valuing the institutional work at "outside" rather than prison wages. Table 4-9 presents estimates for 1978 of foregone productivity, per inmate year and nationwide.

The opportunity costs for prison site and facilities were developed as part of an overall study on local correctional costs.²³ They illustrate the use of multiple data sources to produce an approximation for a 300-bed institution. Essentially, the land (368 acres) was valued at its best alternative use -- rural residential housing; and insurance estimates were used to estimate building value. The equipment value was included as well because of the state's contemplated purchase. Table 4-10 illustrates the costs for the house of correction, including an estimate of foregone tax revenue.

This section has summarized in varying degrees of detail a selection of contributions of cost analysis for correctional functions nationwide, as well as state and local analyses. Contributory methodologies were discussed, and exhibits from much of the work were presented to convey a sense of the detail and findings. The

TABLE 4-9
 FOREGONE INMATE PRODUCTIVITY, 1978^{a/}

Estimation	State Institutions
A. Potential Productivity per Inmate Year (assuming zero unemployment)	\$12,703
B. Unemployment Allowance (A x .15)	1,905
C. Allowance for Inmate Involvement in Institutional Maintenance Work (A x .10)	1,270
D. Allowance for Inmate Involvement in Prison Industries Vocational Training and Work Release (\$6,554 x .33)	3,144
E. Estimated Foregone Productivity per Inmate Year (A-(B+C+D))	6,384
F. Total Population	(276,799)
G. Estimated Foregone Productivity Nationwide (E x F)	\$1,767,091,200

a/ Source: Original work: Neil M. Singer, The Value of Inmate Manpower. (Washington, DC: American Bar Association, 1973) -- and Virginia B. Wright, Cost Analysis of Correctional Standards: Institutional-Based Programs and Parole. (Washington, DC; 1976, updated by author. Potential productivity estimates of state prison inmates and expected annual earnings by job classification. No separate data were available for jail inmates.

TABLE 4-10

OPPORTUNITY COSTS, COUNTY HOUSE OF CORRECTIONS^{a/}

	<u>Total Value</u>
<u>Land</u>	
Prison (178 acres x \$5,000)	\$ 590,000
Free (190 acres x \$5,000)	\$ 950,000
<u>Building</u> ^{b/}	\$ 9,021,000
<u>Equipment</u> ^{b/}	\$ 224,000
Total one-time Costs	\$11,085,000
<u>Tax Revenue</u>	
A. Free land	
No. Residential units	150
Value of Lot & House	\$ 30,000
Tax Rate	
(\$174/1,000 x .28)	\$ 1,462
Foregone	
Annual tax Revenue	\$ 219,300
B. Prison land	
No. Residential units	140
Foregone annual	
tax revenue	\$ 204,680

^{a/} Sources: Gail S. Funke and Billy L. Wayson, Comparative Costs of State and Local Facilities (Washington, D.C.: American Bar Association, 1975) and Carl W. Nelson (in Chapman and Nelson), A Handbook of Cost Benefit Techniques and Applications (Washington, D.C.: American Bar Association, 1975).

^{b/} Average of estimates obtained by county officials and insurance companies.

following section addresses outputs through the perspective of cost-effectiveness and cost-benefit analysis.

4.3. The Output Side: Cost-Effectiveness and Cost-Benefit Analysis

These techniques address both inputs and outputs and thus possess greater sophistication and analytical force than cost analysis. Externalities gain importance here, particularly in cost-benefit analysis, as we are looking for positive outcome effects (e.g., lifetime earnings enhanced by a training program) as well as unplanned effects, such as costs borne by non-criminal justice agencies, citizens, and others. These analytical techniques had their primary origins in the systems analysis of defense projects. There exist elaborate techniques for conducting such analysis, which have yet to be applied to correctional activities. Dozens of cost and effectiveness categories and ratio criteria have been developed for military systems and subsystems.²⁴

While our cost categories remain those outlined above and effectiveness categories will continue to stress program time, recidivism, and employment as achieved by alternative endeavors, some general criteria on how to proceed are directly comparable, however, and worthy of mention here.

Kazanowski has outlined a "standardized approach for conducting cost-effectiveness evaluations. While more elaborate (i.e., "advanced systems") than correctional methodologies, there is certainly agreement that all cost-effectiveness analysis must begin with:

- common, identifiable goals;
- alternative means for attaining goals;
- observable constraints for limiting the analyses.²⁵

These analyses always deal with choice, and the use of economic techniques to clarify and inform the choice. This is true whether or not a decision to alter existing situations is actually made.

Kazanowski further points out that problems in the analysis usually arise from poor specification of the effectiveness, rather than the cost side. It is necessary to specify the measures of effectiveness; then, one may proceed to the next stage: selecting either the fixed cost or fixed effectiveness approach. (Or in the economist's parlance, \bar{C} , Q variable or \bar{Q} , C variable.) Formats for displaying data are usually developed at this stage. One step which is recommended but not usually undertaken in correctional cost-effectiveness is sensitivity analysis.²⁶ For our purpose this would ordinarily constitute a closer examination of the assumptions and the techniques used to evaluate client outcomes. Sensitivity analysis is critical in all types of cost-benefit analysis and in any cost-effectiveness analysis where present value is being estimated. Its use is far from limited to present value, however, since varying assumptions about crime levels, costs of crime, external effects, averted criminal justice system events and costs and so forth all will affect the analytical results.

4.3.1. Decisions Using Cost-Effectiveness and Cost-Benefit Analysis

These analyses are most useful for decisions about the effects of a given set of activities or the impact of a set of resources and production process. Cost-effectiveness is most helpful in cases where the outputs or outcomes are similar, e.g., reduced recidivism, job placement, crime-free days, etc. If it is assumed that community corrections, probation and prisons are producing similar outputs,

and cost is the decision criterion, then cost-effectiveness is the appropriate analysis. When outputs are dissimilar (or do not share total commonality), when externalities are expected to play a major role, or when several groups are impacted, then cost-benefit analysis is more appropriate. Also, this analysis is highly useful to evaluate a single project either before commencement or before continuance to determine whether the worth received merits the outlay. In correctional practice, most cost-benefit analyses are performed on existing programs rather than at the pre-program stage. At a time when little was known about recidivism, an experimental design which utilized a control group was necessary to produce estimates such as averted crime and earnings benefits. We may be approaching the stage where prior research findings may be used in cost-benefit analysis of contemplated programs.

The sensitivity of cost-benefit results to their assumptions and the number and dispersion of benefits and costs suggests that this type of analysis be conducted only when adequate resources are available and the results are critical to the decision-making process. We begin with cost-effectiveness analysis, which identifies and quantifies outputs but does not value them separately. In other words, outputs or outcomes are evaluated solely in terms of the inputs used to produce them, whereas cost-benefit analysis extends the analysis and examines the dollar value of benefits against the dollar value of costs. In some cases of cost-effectiveness analysis, it may be assumed that, for example, a group of community providers produce equivalent client services and the variations in production costs are of interest. In other cases, alternatives may produce different levels of outputs or outcomes and the interest is in the "price" of these.

4.3.1.1. A Prototype. One feature of cost-effectiveness analysis is that it permits a pricing of outputs in terms of the inputs used to produce them. Comparable input costs, e.g., on a daily basis, cease to be comparable if one alternative has a longer program time to achieve a presumably similar outcome. The client costs, in other words, may differ and a five-year probation term may not compare well on cost grounds with a one-year term in a community facility with higher daily costs. This focus also permits a quasi-output cost to be generated by summing the total inputs per client experience. This quasi-cost may be modified if outcomes vary between treatments. Gray, Conover and Hennessey analyzed cost-effectiveness concepts for correctional alternatives in Minnesota and produced findings utilizing these concepts.²⁷ Their conceptual framework is illustrated below:

FIGURE 4-3

Cost-Effectiveness Concepts ^{a/}			
Concept	Tasks, Activities	Objectives, Intermediate Products	Goals, Final Products
Example	Counseling	Treatment	Reduced Recidivism
Cost Measure	Inputs	Outputs	Outcomes
Cost-Effectiveness Measure	Cost/day	Cost/case	Cost/reduced arrest

^{a/} Source: Charles M. Gray, C. Johnston, and Timothy M. Hennessey, "Cost-Effectiveness of Residential Community Corrections," Evaluation Quarterly, vol. 2, No. 3 (August, 1978) (adaptation).

Outputs and outcomes are valued according to the input costs necessary to achieve them. As such, they provide the framework within

which a corrections agency could reallocate its resources, if, for example, reduced arrests at lowest "cost" was its goal.

The authors developed seriousness indices for crimes and severity indices for sentences to qualify their outcomes. This technique greatly enhances validity but is not widely utilized. They found wide variation in client costs, from \$3/day for adult probation to \$34/day in halfway houses to \$60/day for maximum-security facilities. Included in the input side were costs of other community agencies accepting correctional client referrals -- a feature which enhances the explanatory power of the figures. Detail on capital charges was sketchy, however, and it is unclear whether they were imputed for all alternatives. Output costs (costs per case) did not reveal a consistently less-expensive setting; variations in length of stay make these results very sensitive. A very short stay at a training center produced the lowest cost per case for adults, whereas for juveniles, institutionalization or probation or parole are less costly than community treatment only in the very short run. This finding held when analyzing outcomes as well. In the short and long-run, however, community corrections is more cost-effective than institutions.²⁸ The study results produced some policy options, such as increasing the occupancy rates in residential facilities (to reduce average costs), reducing lengths of stay and increasing client-staff ratios in the least cost-effective options. More research would be necessary to test the effect of these recommendations on recidivism. The study is probably most useful in providing a framework for future cost-effectiveness analysis.

4.3.1.2. Community Corrections. A fairly complete cost-effectiveness analysis was performed for community corrections and its alternatives in Iowa.²⁹ Lancaster used a risk-seriousness scale for crime and two- and-three-year follow-ups. Regression analysis was used to estimate client cost functions for prison, probation, jails and a community program. Using a limited sample, the study found that community corrections was:

- more cost-effective than the men's reformatory;
- less cost-effective than probation;
- equally cost-effective with the jails in the short run.

For a two-year follow-up, community corrections becomes equally cost-effective with probation and more cost-effective than jail. Risk and seriousness proved to be better predictors of follow-up cost than program (case) cost.³⁰

Cost-effectiveness analysis may, as mentioned, be used to compare a group of "similar" providers and examine their input costs. A recent study examined 28 private sector organizations providing services to released offenders in one state.³¹ Regression analysis was used to test for significant differences between providers but residential status proved to be the only explanatory variable. It was then possible to examine the 12 residential and 16 nonresidential agencies from a cost-effectiveness perspective. Since only sketchy and poorly defined outcome data were available, the evaluation examined the relationship between input costs and intermediate outputs (service units). The analysis was presented in terms of a series of ratios, which, in effect compared the agencies with each other on a number of scales. Table 4-11 indicates the disparity of performance on

TABLE 4-11

COST-EFFECTIVENESS MEASURES, COMMUNITY CORRECTIONS PROVIDERS^a

Agency ^b	Index: Client Costs (CC) ^c	Index: Service Units (SU) ^c	Index: Service Unit Cost (SC) ^c	Index SU Index CC	Index SU Index SC
R1	3.64	1.07	2.65	0.29	0.40
R2	1.34	1.07	0.97	0.80	1.10
R3	0.39	0.32	0.94	0.82	0.34
R4	1.32	1.49	0.70	1.13	2.13
R5	0.92	1.62	0.45	1.76	3.60
R6	0.45	1.22	0.30	2.71	4.07
R7	0.51	0.22	1.82	0.43	0.12
R8	1.08	0.53	1.60	0.49	0.33
R9	0.57	1.10	0.40	1.93	2.75
R10	0.44	1.72	0.21	3.91	8.19
NR1	0.33	1.65	0.08	5.00	20.63
NR2	0.33	2.06	0.07	6.24	29.43
NR3	0.69	1.13	0.27	1.64	4.19
NR4	0.52	0.62	0.26	1.19	1.59
NR5	1.13	0.41	1.15	0.36	0.36
NR6	0.40	1.65	0.19	4.13	8.68
NR7	0.48	0.93	0.38	1.94	2.45
NR8	0.97	2.16	0.19	2.23	11.37
NR9	0.69	0.41	0.68	0.59	0.54
NR10	1.30	1.24	0.44	0.95	2.82

a/ Source: A. Vilinsky, G. Funke, B. Wayson, Cost-Effectiveness of Community Corrections in Connecticut, Report to the Criminal Justice Education Center, Hartford, CT, 1980.

b/ R = Residential; NR = Nonresidential; numbers used instead of agency names.

c/ CC = Annual Client Costs; SU - Average Service Units/Client; SC = Annual Service Unit Costs.

these measures for a sample of agencies. Recalling that these agencies are ostensibly providing the same kinds of services to the same kinds of clients, one can observe wide variation. For example, agency R7 (a code number for a particular residential agency) provides client services at 51 percent of average costs for the 12 organizations (the "cost" side, Col. 1). However, its service unit provision (the "effect" side, Col. 2) is substantially below the average (.22), and the measure combining the two (Index SU/CC), at .43 reflects poor performance (Col. 4).

Similarly, when service costs and units delivered were compared, Agency NR8 displayed client costs near the norm, but service unit costs at .19; its cost-effectiveness (Index SU/SC) then becomes 11.37, indicating much higher than average performance. Measures such as these can be useful to funding organizations seeking to maximize the effect of resource allocations.

4.3.1.3. Correctional Institutions. Bloom and Singer evaluated both program content and cost-effectiveness for an institution in Maryland.³² The alternative in this case was a "conventional" state prison without the extremely intensive treatment and longer average length of stay of Patuxent, which until 1977 was an official institution for "defective delinquents." Their model evaluated program effects on post-release criminal behavior, utilizing the assumption that the longer such behavior is avoided the more likely it is to remain so -- essentially a dynamic approach. Parameters $P(\infty)$ indicating the long-run rearrest probability of releasees, and t_{mean} , the average length of post-release time per releasee until the first arrest, were estimated, with $P(\infty) = .76$ and $t_{\text{mean}} = 2.3$ years. Seventy-six percent of the

sample will be rearrested by 2.3 years after release. Had this same group been sent to conventional prison the values are $P(\infty) = .84$ and $t_{\text{mean}} = 1.3$ years.³³

This "success" for Patuxent becomes somewhat dulled when costs are brought into the analysis. The authors estimated annual prison operating costs and foregone inmate earnings; these figures were then multiplied by the average length of inmate stay at each institution to derive a "cost per case." Since some of these costs would be incurred in the future, discounting was used to produce a present value. As Table 4-12 indicates, Patuxent's improved outcome (lower rearrest probability and a longer elapsed time before the first crime) is more than offset by its higher inmate costs. In effect, it costs the state at least \$38,000 to postpone rearrest by one year.³⁴ The results show that the longer stay and higher treatment costs are not justified on cost-effectiveness grounds. The major policy recommendation is in favor of controlling the length of stay by developing additional release criteria.

Cost-effectiveness analysis, then, is useful for evaluating case or client costs. The alternative which appears to be least costly on, e.g., a daily basis, often turns out to be more expensive when the desired outcomes are evaluated. This type of analysis represents a major improvement over simple cost analysis and the preceding excerpts illustrate that its entry into corrections is timely and useful.

TABLE 4-12
 COST-EFFECTIVENESS OF CORRECTIONAL INSTITUTIONS^{a/}

	Patuxent	Cost For Prison	
		At Designed Capacity Utilization	At Actual Utilization
5% Discount Rate			
Cost to State	112,000	57,000	39,000
Foregone inmate earnings	53,000 ^{b/}	40,000	40,000
7.5% Discount Rate			
Cost to State	104,000	54,000	37,000
Foregone inmate earnings	49,000	37,000	37,000
15% Discount Rate			
Cost to State	85,000	47,000	32,000
Foregone inmate earnings	40,000	32,000	32,000

a/ Source: Howard S. Bloom and Neil M. Singer, "Determining the Cost-Effectiveness of Correctional Programs," Evaluation Quarterly, Volume 3, No. 4, November 1979, p. 624.

b/ Assumes zero displacement and thus represents an upper bound.

4.3.2. Cost-Benefit Analysis

This form of analysis is perhaps the most elegant of the cost approaches. As discussed earlier, it is highly relevant to external effects and distribution of costs and benefits. Theoretically, there is little difference between costs and benefits, and the analyst may be tempted "to regard all decision problems as ones of benefit maximization subject to resource constraints."³⁵ The general approach here will take the more conventional practice of articulating benefits and costs and performing some sort of comparison between the two. The major analytical issue is identifying and appropriately valuing all relevant benefits and costs, two separate exercises. Decisions

regarding whether a particular phenomenon is a benefit or a cost -- and to whom -- as well as placing appropriate values on them, are particularly thorny issues in analysis of public activities. As Musgrave and Musgrave state: although cost-benefit analysis is "(e)minently practical in application, it nevertheless involves some knotty theoretical problems."³⁶

The readiness of corrections for cost-benefit analysis was pondered over a decade ago. A review of the efforts to date, (although these were primarily cost-effectiveness studies) led one author to conclude that managerial and information constraints were becoming less formidable and that an alternative to recidivism rate analysis was a useful change. Adams also hoped that correctional administration would become more involved with the criminal justice and societal systems and that analysis would play an integral role.³⁷ Two years later, he reported that progress was still slow, and in 1975 observed that "the universe of cost-benefit studies in corrections is still small," but asserted that "cost-benefit analysis had found its way into corrections."³⁸

Conversely, by 1977, the popularity of cost-benefit analysis in evaluating rehabilitation programs was called into question. Although Noble was primarily taking issue with aggregated analyses using secondary data, the general concerns are relevant here. Both analytical assumptions and inferences about client benefits may serve to distort research results; a lack of agreement about the "value" of certain activities and outcomes further complicates the problem.³⁹

The concluding section of this chapter will address more substantively the limitations of analysis, but an introduction is in order because cost-benefit analysis has the potential of being more value-laden and subjective than any other cost analysis technique. The ultimate objective of cost-benefit analysis is to create a decision measure which relates the benefits, or gains, from a particular undertaking, to its costs, or losses. Stated in terms of an objective function which defines the social welfare, W_s to be maximized, the form may be:

$$W_s = \sum_{i=1}^z \sum_{j=1}^n G_{ij} - \sum_{i=1}^z \sum_{k=1}^m L_{ik}$$

where the first term reflects the real welfare gains of the j^{th} type which accrue to the i^{th} group (for all j 's and i 's) and the second term reflects the losses of the k^{th} type which accrue to the i^{th} group, (summed for all i 's and k 's).⁴⁰ This term may be expressed as a ratio as well, but the apparent simplicity of either expression belies the analytical difficulties required for its calculation or the qualifications necessary to its usage.

A frequent criticism of such analyses is that they cannot adequately control for project quality and tend "to reduce multi-dimensional measures of performance to a single ratio."⁴¹ Problems also arise because of the sensitivity of the technique to the underlying assumptions, raising the issue of providing the wrong answer to the wrong question. For example, a small change in productivity rates will produce magnified variations (and indeed has) in cost-benefit ratios. Differing assumptions about discount rates, the future level of unemployment, even the selection of the earnings base for an

employment project will produce a wide range of ratios for ostensibly the same effort. The decision thus made on the basis of one of the many possible ratios has the potential for creating error by making program decisions based on uncertain knowledge and assumptions about costs and benefits.⁴² Issues such as the divergence of social and private benefits (e.g., do programs benefit only the client? the public?), externalities or spillover effects of programs, and even the timing raise further questions about usefulness.⁴³ The wide usage of the (low) government rate for discounting may not be appropriate if the program is one of high risk, since this may overstate the present value of benefits. Or, a low benefit-cost ratio may obscure the fact that the program may still "work," i.e., it may accomplish its objectives.⁴⁴

There is little doubt that cost-benefit analysis can be a powerful tool in correctional evaluation. It needs to be borne in mind, however, following Noble and the earlier discussion that constant attention should be given to:

- research to provide better methods to measure benefits;
- better cost-accounting and statistical reporting; and
- study of the values that recipients place on services.⁴⁵

4.3.2.1. Analysis. There exist many correctional cost-benefit analyses of differing quality. Again, as in the previous sections, a few studies will be discussed as illustration of the usage of the technique for corrections.

As with cost-effectiveness analysis, one begins with clear and measurable objectives. Chapman observes that consensus on the

worth of objectives is unlikely and suggests a net-benefit criterion, i.e., can the gainers potentially compensate the losers. He then argues further that this must be modified along "fairness" grounds, i.e., the decision-maker should consider distribution along with net benefits.⁴⁶ These observations appear particularly relevant in a corrections setting where the benefits may accrue to persons or groups not sharing the cost.

The next step is an articulation of potential costs and benefits associated with achieving objectives. Hahn and Sullivan have developed a set of indicators of costs and benefits associated with correction program evaluation (Figure 4-4).⁴⁷ Figure 4-5 presents a model framework for cost-benefit analysis which illustrates long-run goals, objectives and activities, in this case for a juvenile diversion project. The benefits and costs are distributed across three groups -- the individual, the criminal justice system, and (the local) society. This sort of framework, while cumbersome in analysis, is useful for distinguishing the recipients of benefits and the bearers of cost as well as the time distribution. The analysis then proceeds to measuring, or quantifying, as many costs and benefits as possible and placing a dollar value on the amenable subset.

These values may be real, as in net additions to welfare or net changes in resource costs; or, they may be pecuniary if offsetting changes in relative prices occur -- the latter are relevant only when the analysis specifically includes distributional effects. Real benefits and costs may be characterized as direct, or primary when they are closely related to the project objectives, and indirect, or secondary when they produce effects not specified in the project

FIGURE 4 -4^{a/}

Indicators of Costs and Benefits of Alternative Programs

Specific to the Individual Ex-offender and to Other Ex-offenders

1. hourly wages from paid employment
2. number of hours worked per week
3. welfare and unemployment benefits received
4. any subsidies on room and board in the C.R.C.'s (or alternatives)
5. any subsidies on medical and health care
6. child support payments
7. restitution for previous crimes
8. income taxes paid
9. sales taxes paid
10. number of subsequent convictions
11. type and amount of sentence imposed for each; i.e., length of prison sentence or amount of fine
12. estimates of the benefits (i.e., loot obtained as a result of such criminal activity)
13. stability and type of living arrangements
14. marriage or breakdown of marriage or equivalent
15. number of jobs held over a year
16. number of hours devoted to community service
17. number and type of conflicts with neighbors or acquaintances
18. number of close friends maintained

Specific to the Rest of Society

19. the average profit made on an hour's labor of C.R.C. residents or "graduates"
20. medical bills as a result of crimes committed by offenders in the C.R.C. type group
21. property stolen by these offenders
22. the C.J.S. system costs per conviction
23. estimates of the capital, labor, and other operating costs of running the programs being evaluated
24. stolen property recovered
25. restitution enforced
26. fines paid by convicted offenders
27. complaints received by neighbors regarding the C.R.C.'s
28. number of crimes committed
29. number of newspaper articles praising or criticizing the new programs
30. other "informed surveys" of public opinion.

a/ Source: Robert G. Hahn and Richard Sullivan, "A Cost-Benefit Approach to Evaluating Community Residential Centres," Report to the (Canadian) Task Force on Community Based Residential Centres.

FIGURE 4-4

Goal Hierarchy and Benefit-Cost Model^{a/}

Broad Goal: Reduce Juvenile Crime

Minimize System Involvement (Short-Run)		Reduce Recidivism (Long-Run)	
Objectives:		<ul style="list-style-type: none"> ● Produce Positive Attitudinal Change ● Prepare Juveniles for Employment 	
Activities:		<ul style="list-style-type: none"> ● Counseling ● Contract Programming ● Volunteer Services ● Opportunities for Academic Achievement ● Job Placement 	
	Benefits	Costs	
Individual	1. Greater job finding capacity.	1. Costs to the individual associated with time spent in Program	1. Reduce contact with juvenile system.
	2. Avoid stigma		2. Increased life time earnings from improved education and skills.
	3. Avoid lost work time.		
System	4. Higher self-esteem.		
	5. Improve motivation.		
	6. Vocational skills.		
Society	7. Employment during program participation.		
	8. Reduced cost to "traditional" system.	2. Program costs.	3. Reduce case backlogs.
	<ul style="list-style-type: none"> ● Court ● Probation ● Institution 	3. Cost of education and vocational services provided by outside agencies.	4. More efficient judicial processes.
	9. Increase in contribution to social welfare.	4. Increased risk of victimization.	5. Less long-run costs to juvenile and adult system.
	<ul style="list-style-type: none"> ● Increased taxes paid. 		6. Reduction in crime.
			7. Less fear.
			8. Greater productivity.
			1. Short-run increases in average costs as system adjusts to lower output.
			2. Social costs of security manufacturers, etc. as demand declines.
			3. Increased job competition.

a/ Source: Billy L. Wayson, Gail S. Funke and Thomas A. Henderson, A Model for Policy Analysis Training. (Washington, DC: LEAA, 1978).

objectives. A program specifically intended to reduce delinquent behavior may have as a secondary effect the increase in earnings capability of its clients, or a higher literacy rate. "Tracing of the more indirect benefits may be difficult, but they should be included."⁴⁸ Tangible costs and benefits can be measured in the market sense; intangibles cannot but ordinarily are included as descriptors in the analysis. Inside and outside benefits and costs are characterized according to whether they occur within or outside the jurisdiction in which the project is undertaken.⁴⁹

The final analytical step usually expresses benefits and costs in present value, i.e., expresses future benefits and costs in present terms, or:

$$PVNB = \sum_{t=0}^n \frac{B_t - C_t}{(1 + i)^t}$$

where: PVNB = the present value of net benefits;

and B_t = the sum of benefits to individuals, system and society, present and future;

C_t = the sum of costs to individuals, systems and society, present and future;

t = the time period (years) over which benefits and costs occur;

i = discount rate, used to express a benefit or cost⁵⁰ occurring in the future in present dollar terms.

The choices of productivity and discount rates account for a great deal of the sensitivity of results. The literature is wide and varied on this issue: some argue that the government rate is too low to account for the risk of correctional projects; others, that state and local governments are price takers and should use their own costs; still others that consumers overestimate present consumption value or

that a weighting schema is necessary to avoid discriminating against "worthy" projects.⁵¹ The position taken here and by others is to present cost-benefit results utilizing an array of discount rates, rather than a single number.

4.3.2.2. Pretrial Diversion. Correctional cost-benefit analyses of high quality are still somewhat sparse. The best published effort in the field remains Holohan's analysis of Project Crossroads, a diversion project in Washington, D.C.⁵² Crossroads offered counseling, job placement, remedial education, and supportive services to first offenders in order to produce a positive outcome: dismissal of charges. Holohan identified three areas -- earnings, diversion, and recidivism reduction -- across which to evaluate benefits. A fourth, education, was discussed but not formally evaluated. A comparison group, randomly chosen but closely matched to project participants, and follow-up periods of seven, nine and twelve months permitted estimation of and confidence in net benefit estimates. (A control group and follow-up period greatly enhance cost-benefit analysis but the expense and time mitigate against their wide use and relegate many cost-benefit efforts to studies of cost-effectiveness because there is no measure and valuation of outcomes.)

Another major contribution involved the use of regression analysis to estimate marginal costs (again, an expensive and time-consuming effort) for police, court and corrections services and future earnings of participants. Criminal justice system costs were weighted by probability and type of crime for each stage (8) and event (48), from commission of crime, through the system, into new recidivism

estimates. Besides permitting a detailed cost-benefit analysis, the separate data are highly valuable for more ordinary cost analysis. Holohan evaluated each benefit separately and discounted at three rates, all of which indicated the project was a success (Table 4-13).

Finally, in the policy area, his recommendations recognize the fallacy of generalizing from a single project with perhaps unique staff, but suggests that it is indeed appropriate to view the program as a success; in addition, the study ratios would allow some latitude for including more serious offenders. Theoretically, this practice should stop when the benefit-cost ratio is just equal to one. Subsequent evaluations on pretrial diversion, while generally somewhat less comprehensive than Holohan's, have indicated that this type of program tends to produce results which hold up favorably in a cost-benefit framework.⁵³

4.3.2.3. Supported Work. Another analysis worth discussion involved a more unusual effort than pretrial diversion: a supported work program in New York City organized by the Vera Institute of Justice. Under this program, ex-addicts and ex-offenders are hired by a subsidiary of Vera (Wildcat Service Corporation) or by other agencies. In 1974, approximately 1,400 participants were working in 100 different white and blue-collar jobs. Wages averaged \$100/week, and program time was flexible; thus, the "supported" characteristics of the program means both subsidized work and a low-stress environment. Participants are "disadvantaged" with prior criminal convictions, low educational attainment and poor job experience.⁵⁴

Evaluation methodology included comparisons of what the city would have paid if the work had been performed elsewhere, with the

TABLE 4-13

BENEFIT-COST ANALYSIS PROJECT CROSSROADS^{a/}

PRESENT VALUE OF SOCIAL BENEFITS TO SOCIETY

	5%	10%	15%
Diversion	\$109,994.52	\$104,994.77	\$100,429.78
Earnings	190,282.00	170,729.00	156,074.00
Recidivism	<u>216,963.13</u>	<u>198,448.07</u>	<u>182,634.36</u>
Total Benefit	\$517,240.00	\$474,172.00	\$439,138.00
Total Cost	\$233,256.00	\$233,256.00	\$233,256.00
Benefit-Cost Ratio	2.2	2.0	1.8

BENEFITS TO NON-CRIMINAL MEMBERS OF SOCIETY

Benefits	5%	10%	15%
Diversion	\$109,994.52	\$104,994.77	\$100,429.78
Earnings ^{b/}	28,542.00	25,613.00	23,411.00
Reduced Recidivism ^{c/}	<u>232,150.55</u>	<u>212,339.43</u>	<u>195,418.77</u>
Benefits	\$370,688.00	\$342,947.00	\$299,260.00
Costs	\$233,256.00	\$233,256.00	\$233,256.00
Benefit-Cost Ratios	1.6	1.4	1.2

^{a/} Source: John F. Holohan, A Benefit-Cost Analysis of Project Crossroads. (Washington, DC: National Committee for Children and Youth, 1970), pp. 63-64.

^{b/} Tax benefits.

^{c/} Includes net cost of thefts.

actual costs of using lower-paid, lower-skilled project participants. This allowed calculation of taxpayer benefits as one of the measures. In all, four separate benefit-cost calculations were designed: social benefit-cost, to determine whether the program improves society as a whole (the traditional measure); taxpayer benefit-cost, to examine distribution effects; welfare benefit-cost, comparing welfare department outlays in the presence and absence of the program; and participant benefit-cost -- to "find out how attractive the Supported Work Program is to prospective participants."⁵⁵ Table 4-14 summarizes the results, which were subjected to sensitivity analysis. The net benefits are magnified due to the low opportunity cost of labor, but this is an intentional program component and suggests that future selection should include participants who are unemployed. The successful evaluation results have resulted in replication of this program, but Friedman suggests more research in the administrative and social areas to determine whether program modifications are justified.

4.4. Summary

The discussion above has focused on the definition and use of the various types of cost analysis; a number of studies in the field were reviewed and illustrative results presented.

Cost analysis is a useful tool and a necessary precursor to many other analytical efforts. Since a partial focus of this study is the utilization of economic analysis in the policy setting -- for decision-making -- a few final comments on the usage of these analyses are in order.

General limitations or qualifications fall into two broad areas. First, these techniques focus on inputs and outputs but have

TABLE 4-14

BENEFITS AND COSTS OF SUPPORTED WORK^{a/}
(per experimental man-year)

<u>Social Benefits & Costs</u>	
<u>Benefits</u>	
Value added to goods & services	\$4,519
Post-program earnings	1,154
Averted criminal justice costs	293
Health	(285)
Total Benefits	<u>\$5,681</u>
<u>Costs</u>	
Participant opportunity costs	\$1,112
Staff & non-personnel expenses	2,362
Total costs	<u>\$3,474</u>
Benefit-Cost Ratio	1.64
<u>Taxpayer Benefits & Costs</u>	
<u>Benefits</u>	
Public goods & services	\$4,519
Welfare reduction	1,797
Income taxes	311
Averted criminal justice costs	293
Total Benefits	<u>\$6,920</u>
<u>Costs</u>	
Supported work costs	\$6,131
Benefit-Cost Ratio	1.13
<u>Welfare Benefits & Costs</u>	
<u>Benefits</u>	
	\$2,639
<u>Costs (cash & other welfare)</u>	
	\$2,079
Benefit-Cost Ratio	1.27
<u>Participant Benefits & Costs</u>	
<u>Benefits</u>	
Program wages & fringe	\$3,769
Extra-program earnings	1,154
Total Benefits	<u>\$4,923</u>
<u>Costs</u>	
Foregone welfare	\$1,797
Taxes	311
Foregone earnings	1,112
Total costs	<u>\$3,220</u>
Benefit-Cost Ratio	1.53

^{a/} Source: Lee S. Friedman, "An Interim Evaluation of the Supported Work Experiment" Policy Analysis, Volume 3, No. 2, Spring 1977, pp.165-168.

little to say about the process which links them. Uncertainty about the functional relationships between inputs and outputs suggests that, for example, replication of successful projects should be undertaken with care. In addition, aggregated analysis may obscure effects on client subgroups (i.e., what works, for whom?), creating additional uncertainty.⁵⁶ Kazanowski refers to this as the "sole criterion fallacy" in asking whether the "right thing" was evaluated, or were there several "right things?"⁵⁷

A second general area concerns the use of analytical results in the public setting. Positive and negative study results are not necessarily welcomed with equal vigor by public officials, who "perhaps have little to gain from positive findings but much to lose from negative findings."⁵⁸ In addition, study results are cast "in the language of the legislators: dollars," and may attract more (negative) attention than more traditional evaluations.⁵⁹

More specifically to the analysis itself, the necessary use of proxy measures and shadow prices because of market imperfections, without consensus on valuation, suggests that results be viewed carefully. Valuations tend to exhibit variation and different analyses are not necessarily comparable. The criteria to be used for decision-making is a related issue. Kazanowski refers to a number of "fallacies" which should be borne in mind when interpreting or presenting results. Many of these concern the quantification inherent in cost analyses. Use of a ratio, for example, ignores the magnitudes of benefits and costs. A \$100,000 project with a low benefit-cost ratio may have more appeal than a \$10 million project with a slightly higher ratio. The ratio itself is determined by the variables in the

analysis, a practice which tends to create the impression that all decision-relevant variables can be quantified.⁶⁰ Any analysis is arbitrary in the sense that the analyst determines the variables to be studied. Table 4-15 presents an example of the inclusion of different variables, with alternative weighting schema, for a diversion project. Depending on which benefit variables are included, and the choice of productivity and discount rates, it is possible to obtain many different benefit-cost ratios, none of which is necessarily "right."

Other warnings speak to the necessity of including "spillover" effects and the difficulties which may underlie even just the input side -- e.g., the possibility of two programs having apparently equal costs when one may represent the use of scarcer resources at the margin. Finally, results should be regarded as guides: analytical results provide information on expected effects for a particular program with a particular technology and a specific set of assumptions; as such they are highly useful for the program under evaluation, but only suggestive for program expansion or replication.⁶¹

In spite of these caveats, which are really designed to assist in the development and use of valid and reliable evaluations, cost analysis generally and cost-benefit analysis particularly remain valuable and necessary tools for the economic analysis of corrections. The capacity of cost-benefit analysis to examine externalities and distribution and introduce a time dimension permits analyses which are extremely useful to decisionmakers seeking information on the impact of a program and its returns beyond the immediate program setting.

TABLE 4-15
BENEFIT-COST COMPARISONS^{a/}

Benefits	Estimates				
	1	2	3	4	5
Diversion					
Short-term (reduced disposition costs)	\$96,575	\$96,575	\$96,575	\$96,575	\$96,575
Long-term (reduced participant rearrests)	5,047	5,047	5,047	5,047	5,047
Earnings					
Short-term participant earnings	41,648	41,648	41,648	41,648	41,648
Long-term participant earnings	--	105,000	289,000	626,000	626,000
Assumptions					
Productivity Rate	--	0%	3%	4%	4%
Discount Rate	--	7%	5%	3%	3%
Total - Benefits	\$143,270	248,270	432,270	769,270	769,270
Costs					
Program					
Steady-state	\$429,667	429,667	429,667	429,667	--
Actual first year	--	--	--	--	460,236
Criminal Justice System	15,399	15,399	15,399	15,399	15,399
External	82,202	82,202	82,202	82,202	82,202
Total Costs	\$527,269	527,268	527,268	527,268	557,837
Benefits - Costs	(\$383,998)	(278,998)	(94,998)	242,002	211,433
Benefit-Cost Ratio	.27	.47	.82	1.46	1.38

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a/ Source: Billy L. Wayson et al. (analysis developed by Sally F. Familton, A Model for Policy Analysis Training. (Washington, DC: LEAA, 1978).

As administrators become more aware of resource constraints, this technique should gain more favor in advising resource allocation decisions.

FOOTNOTES

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21. Ibid., Appendix D, "Comparative Effects of Weighted Needs on Alternative Estimation Methods" and Appendix E, "Comparative Personnel Compliance Costs."
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50. For a detailed treatment of resource withdrawal from private sources for public use and its financing, see Musgrave and Musgrave, op. cit., pp. 189-192.
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Chapter Five

ECONOMIC ANALYSIS OF CORRECTIONS: INSTITUTIONS

5.1. Introduction

The last chapter was devoted to a discovery of the insights and contributions of cost analysis. These next two chapters will address the contributions of economics to correctional activities in two broad areas -- institutions and the community setting. The purpose of this dissertation, as discussed earlier, is not only to examine existing and potential applications of economics to correctional activities, but to overlay the public policy decision setting on these applications. Applications are thus relevant as they inform choice, or decision. The problem is thus multi-faceted: to identify issues which may be enlightened by economic analysis; to appropriately evaluate these issues with proper data and techniques; and to translate, or apply findings in the context of known constraints on and realities of public decisionmaking.

Public officials, as their private counterparts, are interested in allocation and choice in various forms, for example, the distribution of offender populations both between institutions and the spectrum of correctional alternatives; or the allocation of labor and capital inputs within the institutional setting; and the proper level and allocation of inputs among all correctional activities. The appropriate analogue for analysis is the theory of the firm in a multi-plant framework. From this it can be discovered whether an

individual plant (prison, community treatment center) is efficient, and, ultimately, the distribution of inputs throughout the production system.

One of the most vital contributions of economics is marginal analysis. Knowledge of the impact of alternative decisions at the margin is critical to private and public sector alike; the nature of the public setting creates (not insignificant) technical problems but the decision criteria are the same. Much of the work discussed in prior sections focused on data collection techniques and methodologies which would permit this ultimate glimpse of the margin. Concerns about identifying outputs and benefits are preparatory to comparisons with costs and evaluation at the margin. When legislators or administrators commission studies on impacts of sentencing changes, they are really asking, What will happen at the margin? When comparative studies of prisons and alternatives are conducted, the underlying issue is really the effect of placing the nth client in alternative dispositions. Decisions about provision of rehabilitative services and their "benefits" implicitly incorporate marginal concepts. We now consider some of the issues associated with correctional institutions which may be and have been informed by economic analysis.

5.2. Optimum Scale of Plant

The plant, in this case, a single prison, is the analogue of the single plant of a multi-plant firm, here "producing" correctional services. In an institutional setting, the two major outputs may be characterized as incarceration services (confinement)

and rehabilitative services (education and work programs and the like). For the correctional decisionmaker, while the question may be posed as one of determining the "best" size prison, the implicit question is the determination of the prison size (or, really, population) which minimizes long run average costs. (An unresolved issue is cost minimization without quality deterioration; this is addressed later in this chapter.) One author suggests that the pressure on prison systems is indeed to minimize costs, perhaps more so than on public organizations producing "highly valued goods and services."¹ In the short run where at least one fixed factor is present (capital), the issue is the determination of population sizes at which average cost exhibits a minimum within a given facility. Over the long run, as plant scale is varied, interest is again in minimum average cost but without the constraint of the fixed factor. We are, therefore, interested in cost functions and structures -- the behavior and movement of costs over time. These cost functions are derived through time series data and are not the same as the analytical cost functions observed in the theoretical literature. Technology cannot be assumed constant over the time series; deflation procedures cannot always fully account for changes in input quality.

Existing analyses have been clouded by the general problems of formative analysis in the public setting, most of which have been addressed earlier. Good data are scarce, less than comprehensive, and often not strictly comparable over accounting periods of between facilities. What constitutes similar production units -- prisons -- presents a technical problem.² Appropriate statistical techniques

are still being examined.³ The problem of joint products has not been resolved; prisons do produce the two broad services mentioned above but the current practice of allocating labor by job title (e.g., guard vs. counselor) is an unsatisfactory method for measuring the resources associated with the various products. Capital remains a thorny problem.⁴

5.2.1. State Prisons

The first major application of econometric techniques to examine correctional institution cost functions was conducted by Block in 1975.⁵ Three California medium-security prisons with variation in their design capacity over the period 1948-1964 were examined.⁶

Rehabilitation services were excluded and the relevant "outputs" designated as confinement, which included hotel, or room and board services, and personal goods and services such as medical care. Quality of confinement services was assumed to be controlled by stratifying by security level, since inmate privileges such as freedom of movement, association with other inmates, visiting situations and so forth are more constricted in a maximum-security environment. It was recognized, however, that it may be necessary to question quality-constant assumptions as increasing numbers are confined. It was correctly cautioned that although the statistical results might suggest optimal populations in excess of those actually confined, that care be exercised in interpreting and implementing such results. Block further suggests the identification of upper and lower physical space bounds because it cannot be assumed that the quality of services afforded the nth inmate is equivalent to those offered to the first inmate.

The upper bound comprises the maximum space per inmate (single celling); the lower, some "minimum permissible level" below which authorities will not permit hotel services to fall.⁷ Hotel services' quality are assumed here not to vary significantly with confinement.

Basically, then

$$C = C(P) \text{ where}$$

C = annual cost of providing all non-rehabilitative services,
and

P = average daily inmate population (averaged for each year),
and

$$H - \text{Hotel Services} = \bar{H}$$

The results are interesting but qualified due to lack of data on capital charges and some problems with data consistency. Two institutions exhibited linear cost functions with marginal costs very close to average costs, suggesting constant costs, and one institution exhibited a non-linear cost function and in fact one in which marginal costs were declining, i.e., decreasing costs.⁸

Although exploratory, this work establishes cost functions as an appropriate framework for analyzing institutions.

5.2.2. Federal Prisons

The Federal Bureau of Prisons (FBOP) is a fruitful system to analyze because of the high comparability of its correctional and accounting procedures. While not problem-free, many of the vagaries of state data systems are not present. In addition, the data set is very comprehensive and FBOP analyses are the most illuminating conducted to date.

McGuire developed estimates of long run average costs for thirteen Federal Correctional Institutions.⁹ The empirical model took the general form,

$$LRAC = B_0 + B_1(CD) + B_2(CD)^2 + B E + u$$

where: CD = confined days

B = a vector of unknown coefficients to be estimated

E = a vector of proxies for environmental variables
(e.g., quality and conditions of confinement)

u = disturbance term

and ordinary least squares was used as the principal analytical technique.¹⁰ The analysis examined characteristics of the inmate population and institutional environment which will be discussed in a subsequent section. The estimated LRAC is asymmetrical, with the cost penalties higher for small-scale institutions than large. Table 5-1 presents relevant results. The minimum occurs at a population of 1,190 persons, at a cost (1976 dollars) of \$16.49/day. The estimated optimal size did not significantly exceed some of the institutions studied, but was substantially in excess of the average. There is no flat region to the curve but it is shallow and U-shaped. The cost penalties for deviation from the minimum thus are low over a fairly wide range.¹¹

The major policy implication is that relatively larger, uncrowded institutions are more cost-effective than are smaller ones. The range suggested by a .95 confidence interval (± 412 inmates) falls between 778 and 1,602 inmates; this exceeds present Bureau experience in the upper range and should be regarded gingerly. The confidence interval for the costs was $\pm \$9.14$ as applied to the minimum cost of \$16.49/day.¹²

TABLE 5-1

LONG RUN COST-OUTPUT RELATIONSHIPS^{a/}

<u>Confined Days/Month</u>	<u>Average Annual Population</u>	<u>Cost Per Confined Day</u>
0	0	\$37.04
5,000	164	31.76
10,000	327	27.27
15,000	492	23.56
20,000	656	20.63
24,000	789	18.85
28,000	918	17.56
32,000	1,049	16.78
36,000	1,180	16.49
40,000	1,311	16.71
45,000	1,475	17.68
50,000	1,639	19.42

Average Population in existing FBOP institutions: 669

Average Daily Cost: \$21.11

^{a/} Source: William J. McGuire, "An Economic Model of Criminal Correctional Institutions: Empirical Cost Analysis and Cost-Benefit Measures," unpublished dissertation, University of North Carolina at Chapel Hill, 1978, Table 4-5 and text pp. 80-81 (extraction).

Some later work by McGuire and Witte expanded and refined the analysis of this data set.¹³

The basic function to be estimated was an outlay function using OLS procedures:

$$\begin{aligned} \ln(AC) = & B_0 + B_1 CD + B_2 \ln CD + B_3 \ln w_k + \\ & B_4 \ln w_1 + B_5 \ln \left\{ \frac{w_k}{w_1} \right\}^2 \\ & + \alpha A + \zeta S + E, \text{ where} \end{aligned}$$

CD = confined days

w_k = Price of capital (electricity was used as a proxy because no other standardized measure was available)

w_1 = price of labor (institutional staff)

A = vector of variables measuring product quality, including rehabilitative activities and security level

S = vector of variables measuring service conditions, including age, racial composition, sexual composition, occupation, IQ, sentence, crime type, addiction status, prior record, marital status, incidents, racial balance, and auxiliary facilities.

E = random disturbance.

This generalized form was selected because it permits discovery of a wide set of relationships between average costs and output.¹⁴

The authors identified, as before, a shallow, U-shaped asymmetrical LRAC, with the following relevant variables: confined days and factor prices, rehabilitation services, security level, race, alcoholism, sentence length, racial balance, and crowding. Essentially, costs will be lower for correctional institutions which:

- are large
- have lower wage rates
- offer significant levels of rehabilitative services
- have very little or very significant overcrowding
- have larger proportions of short-term whites in their populations
- have low alcohol-abuse populations¹⁵

An interesting extension of McGuire's analysis was the quantification of a close relationship between the extent of rehabilitative services provided and optimally-sized institutions. Costs are minimized in a large institution offering more than the average rehabilitation services. With successively lesser amounts of these services, minimum LRAC occurs in smaller institutions. (Table 5-2) Since the ultimate cost-minimizing institution is well beyond the data set (two-thirds of the sample have capacities under 500 persons), care is necessary in interpreting the results.¹⁶ The interesting finding, however, in addition to supporting earlier work on scale, is that the presence of rehabilitation services may permit accommodation of more inmates, at lower cost, than their absence. They also found that increased physical space per inmate is associated with lower costs and translated this into lower costs due to a positive increase in morale which requires fewer security-related resources. More research is necessary to determine whether the author's claim that "(h)appier inmates are cheaper to incarcerate" is an accurate characterization.¹⁷

5.2.3. Penitentiaries

A limited analysis of Federal penitentiaries has been conducted by McGuire.¹⁸ The analysis was limited both by sample size and the fact that "penitentiaries largely represent an obsolete technology in corrections."¹⁹ Using the estimation techniques of the earlier data set, an asymmetric, U-shaped LRAC curve was derived, with cost per confined day minimized at 1,667 inmates. Costs increase faster as smaller, rather than larger institutions are utilized. Rehabilitation services do not produce the cost-minimizing effects observed in

Table 5-2
LONG-RUN AVERAGE COSTS, BY
INSTITUTION SIZE AND REHABILITATION ACTIVITIES^{a/}

<u>Average Daily Population</u>	<u>R = 0</u>	<u>$R = \bar{R} - \hat{\sigma}$</u> ^{b/}	<u>R = \bar{R}</u>	<u>$R = \bar{R} + \hat{\sigma}$</u> ^{b/}
200	\$41.87	\$42.74	\$46.01	\$54.13
300	31.49	31.48	33.47	38.76
400	26.56	26.05	27.36	31.18
500	23.90	22.98	23.84	26.74
600	22.39	21.10	21.62	23.87
700	21.57	19.23	20.16	21.91
800	21.20	19.20	19.19	20.53
900	21.17	18.80	18.55	19.53
1,000	21.40	18.63	18.16	18.82
1,100	21.85	18.64	17.95	18.31
1,200	22.50	18.81	17.89	17.96
1,300	23.32	19.11	17.95	17.74
1,400	24.31	19.53	18.21	17.63
1,500	25.48	20.07	18.39	17.60
2,000	34.07	24.29	20.92	18.50

^{a/} Source: Ann D. Witte, et al., "Empirical Investigations of Correctional Cost Functions" Draft Final Report to the National Institute of Law Enforcement and Criminal Justice, 1979, Table 8-3.

^{b/} \bar{R} is the mean observed rehabilitative activities in the sample and $\hat{\sigma}$ is the standard deviation of observed rehabilitative services.

Federal Correctional Institutions and in any case are more likely to be prison-industry work than the programs of the FCI's (McGuire characterizes programs as "active" rehabilitation and industry work as "passive" rehabilitation).²⁰

5.2.4. Jails

The work on jails is more limited than that on prisons; but when one contemplates the nearly 4,000 jails in the nation and the fact that jails are much more likely to be built, or rebuilt, optimum scale of plant becomes more than of academic interest. The first work was done by Block in conjunction with the prison analysis, using jail data from California. The data set included 128 jails with capacities ranging from six to 3,200, although non-comparable data created smaller sets for the various analyses. The results suggest nondecreasing marginal costs and constant returns to scale when a square footage measure is introduced. An investment function was estimated which indicated these costs were minimized at a jail with a rated capacity of 26 inmates.²¹

Mikesell analyzed long run costs for jails in Indiana.²² The data set was limited to 51 county jails in jurisdictions with 25,000 or less population, a more comparable data set than Block's. The model used in the estimation was

$$AVCST = a + bCAP + cCAPSQ + dWAGE + eDT + fDEM$$

where

AVCST = average cost at capacity

CAP = capacity

CAPSQ = CAP²

Wage = average monthly wage, jail personnel

DT = 2-year death rate

DEM = jail population ÷ county population.²³

The DT term is a quality indicator and a high DEM figure would indicate special pressures on the jail. Mikesell recognized that LRAC depends on service quality and quantity in addition to input costs and requirements, but observed that there was no way to immediately solve this analytical problem, other than to control as in the analysis. The results, with an R^2 of .42 indicate a U-shaped curve with average costs uniquely minimized at \$297 and a capacity of 49 inmates. He recommended that the 45 jails whose capacities fell below this figure consider consolidation with one or more of their neighbors.

Again formative, these jail studies support the intuition that the very small jail is costly to operate. A jail with a capacity of, say, less than 20, may be expected to exhibit higher average costs than a larger facility. From a planning perspective, more research on optimum scale of plant, with some attention to jail function, might help inform a local decision about, e.g., consolidation.

The research to date on optimal scale of plant has served to illustrate the feasibility of analysis and indicates the work ahead. Issues of similarity of production units and controlling for quality, as well as the translation of findings for use by decisionmakers are not insignificant and will be addressed in the conclusion of this chapter.

5.3. Short-Run Responses to Population Changes

This section addresses the impact of changes in institutional populations which occur when plant size does not significantly vary. In addition to secular increases in prison populations, stringent approaches such as determinate sentencing, decreased use of parole and restrictions of good-time accrual are expected to compound these increases in many states.²⁴ Whatever these (increases) turn out to be, the correctional decisionmaker is interested in the marginal costs for a particular institution for short-term planning. Occasionally an institution experiences decreases in population, e.g., with the opening of a new facility, and knowledge of the averted costs is also of interest. Usually, however, the interest is in how much "crowding" an institution can undergo before marginal costs exceed average costs.²⁵

Block developed short-run cost functions for Folsom and San Quentin prisons, over a period when the design capacities for these prisons remained relatively constant.²⁶ In effect, the fixed design capacity was the equivalent of holding a factor of production (capital) constant. Expenditure data included salaries, purchases of goods and services, and minor equipment purchases, and were deflated to 1967 dollars. For Folsom prison, the highest R^2 was produced using the functional form:

$$RFTC = B_0 + B_1 ADIPF$$

where

RFTC = deflated total costs, Folsom; and

ADIPF = average daily inmate population, Folsom.

Marginal costs are constant over the relevant range and the total

cost function is

$$\text{RFTC} = 2,499,932 + 296 \text{ ADIPF.}$$

Explanatory power was low, however, at $R^2 = .20$ so these results must be viewed with care. In addition, the marginal costs appear to be very low, suggesting either extremely low quality hotel services or some incorrect data.²⁷ The analysis was then refined by including a variable to reflect the violence history of the population (a factor often cited by managers in explaining higher costs). This raised the explanatory power to .53 and produced

$$\text{RFTC} = 1,849,466 + 268 \text{ ADIPF} + 2,154,884 \text{ FVC}$$

where

$$\text{FVC} = \text{index for percentage of annual population sentenced for violent crimes.}$$

Marginal costs remain close to the first estimate. Examining for a time trend produced an indication of a secular effect, partially due to the increasing proportion of inmates with a history of violence.

This estimated equation was

$$\text{RFTC} = 2,547,580 + 207 \text{ ADIPF} + 20,177 \text{ T.}$$

Inclusion of these variables increased the value of R^2 to .69.²⁸

Average cost functions were estimated for San Quentin prison and the results indicated that average costs per inmate are declining; although no single best equation was found (all had close, high R^2 's), it appears that San Quentin could experience decreasing average costs for a population up to 5,700 inmates. In other words, marginal costs remained below average costs for all populations examined and the data suggest this relationship may continue to very high confinement levels. At the very least, the work suggests that existing data on inmate costs tend to overestimate the incremental costs.²⁹

A slightly different policy approach (the technical analysis was identical) was taken in a study which estimated marginal costs for correctional facilities in Maine. Faced with known changes in populations, the study examined the relationship between planning figures for inmate costs and those suggested by analysis.³⁰ Again, while not directly usable outside Maine, the analysis revealed marginal costs substantially below average costs. The analysis was constrained to a relevant range and indicated marginal costs of \$750 (AC = \$6,955) for the prison, \$1,106 for the Correctional Center (AC = \$13,821), and \$1,777 for the Youth Center (AC = \$19,489).³¹

The interesting policy issue associated with this work was that prison authorities had requested new funds to support population increases. In the case of the prison, the per capita request was \$760, very close to the estimated marginal costs; at the correctional center, the per capita increase request was \$948, somewhat below study figures. While the basis for calculation is unknown, in this case administrators came very close to estimating their actual marginal costs.³²

Marginal costs represent useful information to decisionmakers facing short run increases or decreases in populations. The work to date suggests decreasing average costs to be the relevant phenomenon for individual institutions. Marginal costs will lie below average costs in this case so that the incremental cost of adding another inmate is still less than the average. This appears to obtain for populations well beyond current experience so that institutional managers may have a wide range within which to increase their populations before average costs begin to increase (if indeed they do).

However, more research is needed on the range of population within which quality does not appreciably deteriorate.

5.4. Multi-plant Allocation and Cost Minimization

When inmate populations are distributed across a statewide system, some additional findings on cost minimization can be of use. For example, if marginal costs for populations of varying sizes at different prisons are known and increasing, and marginal benefits are assumed to be equal, theoretically, reallocation should take place until marginal costs are equalized. If population characteristics and other factors influencing costs are known, reallocation or a more equal distribution of these factors across institutions may produce lower overall costs. Witte, Block and McGuire have begun to identify factors which are relevant in explaining costs, among them violence, crowding, alcohol abuse, etc. It is not feasible, as one author has suggested, to minimize overall intake of individuals possessing such characteristics, but conceivably a more cost-minimizing distribution across the prison system might be effected.³³ The federal data reported earlier indicated that lower costs are associated with such factors as high rehabilitative services, little or significant overcrowding, low proportion of alcohol abuse, etc. It is theoretically and practically possible to operationalize such findings in population distribution and service provision.

A recent study examined optimal allocation of offenders between treatment modes, or production processes -- in this case, prisons and residential treatment centers.³⁴ The output measure, reduced offenses, is expressed in absolute terms, rather than as a valuation of the

of the benefits of such reductions. Formally,

$$R = \sum_{\tau = \tau_0}^{\tau_1} (O_{\tau} - O^*_{\tau}) + \sum_{\tau = \tau_1}^{\tau_{1+m}} (O_{\tau} - \hat{O}_{\tau})$$

where

R = reduced offenses

O_{τ} = predicted offenses per time period

O^* = actual offenses during treatment period

\hat{O} = actual offenses during post-treatment periods

τ_1 = treatment period

τ_{1+m} = successive post-treatment periods

Given a budget constraint, the production function is simply

$$R_i = R_i (P_i),$$

indicating that, given a budget constraint, a treatment mode can accommodate P_i offenders to achieve output R_i . Costs depend on the treatment population, so

$$C_i = C_i (P_i)$$

and

$$\text{Budget (B)} = C_1 + C_2$$

for the two treatment modes.

Figure 5-1 expresses optimality conditions, following the usual analysis:

$$\text{Slope B} = \frac{\Delta C_1}{\Delta P_1} \div \frac{\Delta C_2}{\Delta P_2}$$

$$\text{Slope R} = \frac{\Delta R_1}{\Delta P_1} \div \frac{\Delta R_2}{\Delta P_2}$$

$$\text{Tangency: } \frac{\Delta C_1}{\Delta P_1} \div \frac{\Delta C_2}{\Delta P_2} = \frac{\Delta R_1}{\Delta P_1} \div \frac{\Delta R_2}{\Delta P_2}$$

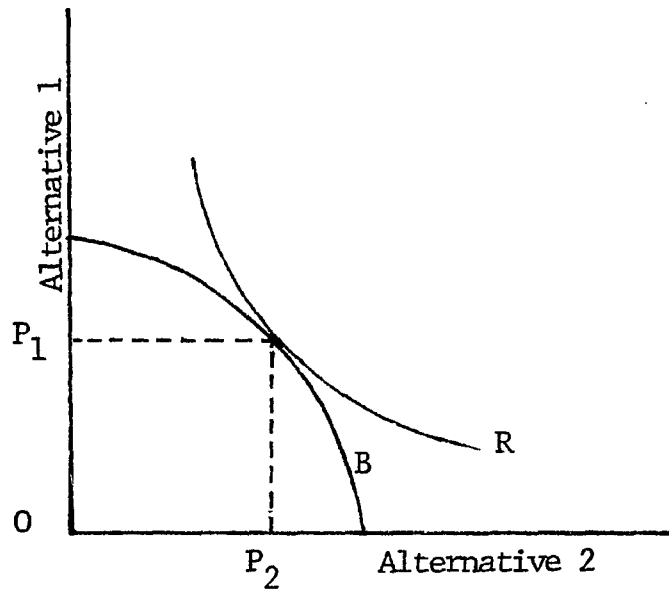
and

$$\frac{\Delta R_1}{\Delta P_1} \div \frac{\Delta C_1}{\Delta P_1} = \frac{\Delta R_2}{\Delta P_2} \div \frac{\Delta C_2}{\Delta P_2} \quad 35$$

or allocate offenders such that $\frac{MP}{MC_1} = \frac{MP}{MC_2}$.

FIGURE 5-1

Optimum Budget Allocation Between
Treatment Alternatives to Maximize R



Source: Timothy M. Hennessey et al., "Choosing Among Corrections Alternatives: A Political Economy Perspective" in Stuart S. Nagel (ed.), Modeling the Criminal Justice System. (Beverly Hills, CA: 1977), Figure 3.

In this example, since the authors assumed increasing costs, the allocation of offenders between prisons and residential treatment centers should be such that the ratios of marginal product (i.e.,

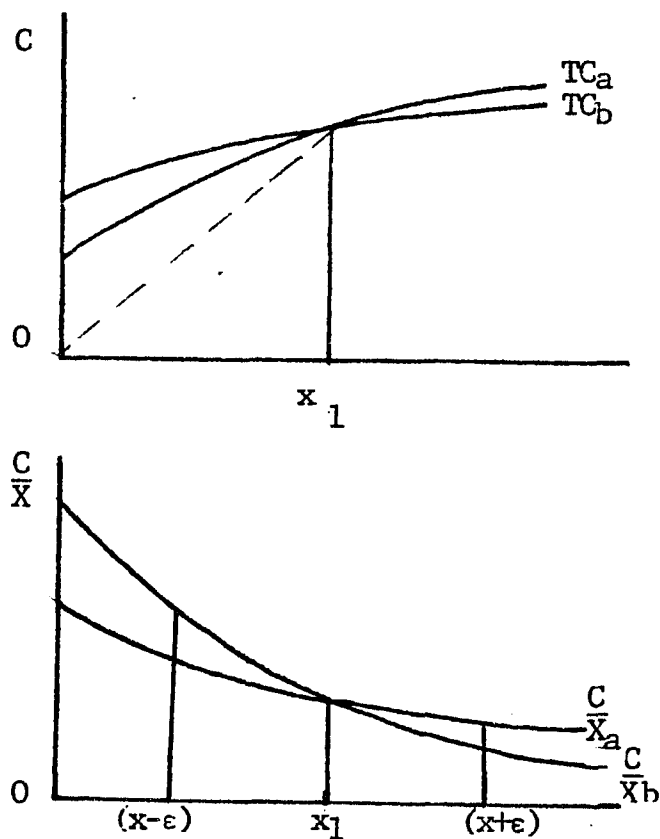
reduction in recidivism) to marginal costs are the same for both treatments.

However, the empirical evidence derived to date indicates that individual prisons appear to be operating in the declining region of the average cost curve. These findings seem to hold for increases in inmate population beyond the actual operating experience of the institutions. If this in fact is the case, there are some interesting implications for multi-plant allocation.³⁶

Let Figure 5-1 depict the total and average cost functions for two prisons a and b, where x is the number of inmates.

FIGURE 5-2

Alternative Total and Average Cost Curves



There exists only one point on the total cost curves at which a ray from the origin strikes both curves at equivalent costs and outputs. Observing, then, the lower diagram, we see that average costs are equal in both prisons at population x_1 ; for populations less than x_1 , (i.e., $x_1 - \epsilon$), prison "a" exhibits lower average costs; for populations greater than x_1 , (i.e., $x_1 + \epsilon$), prison "b" exhibits lower average costs.

In other words, each prison may have an average cost function of the form:

$$\begin{aligned} \frac{c}{x} &= \frac{b}{x} + ax^{-\alpha}, \quad 0 < \alpha < 1 \\ &= bx^{-1} + ax^{-\alpha} \end{aligned}$$

Average costs are at a minimum when the first derivative,

$$\frac{d \left\{ \frac{c}{x} \right\}}{dx} = 0 \text{ (first-order condition -- necessary);}$$

and the second derivative, $\frac{d^2 \left\{ \frac{c}{x} \right\}}{dx^2}, > 0$

(second-order condition -- sufficient, if first order conditions hold).

$$\text{But, } \frac{d \left\{ \frac{c}{x} \right\}}{dx} = -bx^{-2} - \alpha ax^{-(1+\alpha)} < 0,$$

so our necessary condition is not met and we cannot proceed to verify a minimum.

There are several policy implications which are suggested by this example. First, in the single-plant case, a producer theoretically has no observable limit to the size of the inmate population capable of being accommodated in a particular institution. Practically, there may be such a limit which is not reflected by cost analysis; however, within some range, the producer may increase inmate populations and

in any case will not experience increasing average costs.

However, for multi-plant allocation decisions, we consult Figure 5-2 again and observe that while average costs are indeed decreasing for prisons "a" and "b," that allocating prisoners between facilities may produce some unexpected results. For populations in excess of x_1 , placing them in prison "a" will produce higher average costs than if they had been placed in prison "b," and total system costs will be higher. The reverse obtains for populations less than x_1 .

Summarizing, if no general cost-minimization is possible, a producer should select the process with the lowest cost. However, this "rule" cannot be used as an overall selector of capacity, since the lower cost observed for one process beyond a certain capacity may cost more than another process below that capacity level. In effect, with varying usage of prisons, the entire cost range for each institution must be considered. Theoretically, a multi-plant producer needs information on the shape of the average cost curve for all alternatives before allocations between institutions can be made.

5.5. Prison Industries

The development of prison industries, as was seen in earlier chapters, has been a patchwork of conflicting purposes and organizational arrangements. Work was very central to initial penitentiary reform philosophy, fueled by the idea that prisoners should contribute to their support. Various contractual and leasing systems of the nineteenth century gave way to state-use arrangements in the twentieth. Prisoner work began to take on various tones of meaningfulness, from the rehabilitative focus to reintegration.³⁷ Industries today

represent a curious paradox of economic theory and correctional philosophy, and there is some hope on the part of corrections' officials that correctional industries can be made self-supporting and eventually provide some offset to total institutional costs.³⁷

An operating objective in a large prison is the minimization of inmate idleness, but an objective of the rehabilitationists and reintegrationists is meaningful work, reflective of conditions prevailing in the outside world. In a world of scarce resources (one of them inmate skills), these objectives came into conflict. In the ongoing denouement, inmates rarely work in the traditional low-skill, labor intensive trades (e.g., bindertwine) and the absolute numbers of inmates employed in correctional industries is less today than a hundred years ago, or before seven years ago.³⁸

There has not been any comprehensive writing on prison industries since 1931. A recent study of a federally-sponsored effort to promote self-sustaining and profitmaking prison industries had an economic evaluation as a principal component. Major findings include:

- profit maximization may be a legitimate goal for prison industries but is constrained by:
 - lack of performance incentives from legislative or correctional authorities;
 - procurement policies which increase raw materials costs;
 - lack of timely accounting procedures;
 - the treatment of profit as a residual.
- implicit subsidies distort the true operating structure of prison industries and lead to suboptimal pricing. They include:

- inmate wages (generally \$.25-.50/hour);
- provision of support services which do not appear in overhead calculations;
- industry debt³⁹ and capital charges carried by other departments.

In addition to these considerations, however, more thought needs to be given to the appropriate framework in which to evaluate prison industries. Corrections' agencies incur a substantial "fixed cost" for inmates, whether or not they are employed in industries, including food, housing, clothing, programs and so forth. There are also non-accounting or opportunity costs in the nature of the foregone productivity of incarcerated inmates, which may approach \$10,000/inmate annually. The tendency in correctional agencies has been to keep accounting for prison industries separate from the outlays for general prison functions, so that revenues in excess of costs are not used to defray inmate maintenance costs (nor are losses similarly charged). Room and board charges are generally assessed against inmates only when the industries population is coexistent with the inmate population. Correctional authorities are reluctant to charge room and board to industries'-employed inmates when they experience living conditions identical to inmates who are not employed. In addition, in many states, any profit demonstrated by industries is diverted to the general revenues and not made available to industries for capital investment.

Any holistic framework must consider what goals an industries' operation is intended to accomplish. In the nineteenth century, inmate work was expected to support the entire prison and contracting

arrangements were developed to accomplish this. In the first part of this century, the relevant goal was the minimization of inmate idleness, and labor-intensive industries flourished. The current goals of rehabilitation and reintegration suggest industries that reflect the capital-intensive nature of much of our nation's production. What remains unclear is the relationship of prison industries to the prison itself. To what degree, if any, should industries' operations be expected to defray the cost of prisoner maintenance? Should corrections generally, or industries specifically, be responsible for reducing the cost of foregone inmate productivity? Is there a rehabilitation benefit produced by industries which should be reflected in accounting procedures?

Human resource accounting may be a promising framework for evaluating prison industries. Its focus on the development and measurement of human capital permits the combination of business (e.g., profit) as well as non-business objectives (e.g., rehabilitation). Its potential utility for correctional industries is based on the premise that inmate labor includes a value that is not being accounted for and part of this value is represented by the rehabilitation and reintegration capacities of industries. Such an approach might also incorporate measures of foregone productivity and the portion of prison outlays for which industries should be responsible.

5.6. Some New Directions

In addition to the central corrections issues discussed above, there is preliminary research on a variety of topics which warrants brief reference.

5.6.1. The Output Side

Much of the research and ensuing policy recommendations have been constrained by the lack of definition and valuation of correctional outputs. Tabasz derived estimates of net social benefits for inmates in the federal prison system, using linear programming techniques.⁴⁰ The model calculated net benefits (confinement, rehabilitation services and post release benefits) and "distributed" prisoners according to the net social benefit produced by their confinement. Tabasz valued and estimated averted crimes while in prison and post-prison, controlling for age, crime type and drug or alcohol history. A sample result, in 1973 dollars, is as follows:

<u>Inmate Age</u>	<u>Crime Type</u>	<u>Addiction or Alcoholism</u>	<u>Priors</u>	<u>Net Value of Confinement</u>
15-25	Violent	No	None	\$40,158
40+	Violent	No	None	\$ 7,836

The range of net social benefits to the FBOP, if reallocation of populations takes place (i.e., confining, in "order" those whose captivity produces the greatest net benefit) is estimated at \$982 million in the case in which no reform of the individual takes place, to \$1.2 billion in the high-reform case.⁴¹ The data used to estimate FBOP costs as well as those used for valuing averted crimes are imperfect and the analysis must be regarded as preliminary, albeit an interesting direction.⁴²

McGuire estimated incapacitation (crimes avoided due to incarceration) benefits for federal correctional institutions

during 1976, using FBI and victimization data and also included inmate opportunity costs.⁴³ As did Tabasz, he estimated the costs and frequency (weighted by age) of different crimes for which offenders were incarcerated, but excluded post-release benefits. Tabasz' figures are not incorporated into the model.⁴⁴ McGuire found that, on average, the incarceration services of a typical federal correctional institution prevented 237 arrests per year for assaults, burglary, robbery, larceny and motor vehicle theft, with an estimated social cost of \$163,000. The use of victimization figures would increase this social cost to \$1.3 million.⁴⁵ But the production (i.e., prison outlays) cost necessary to preclude this social cost is \$1.9 million, excluding inmate opportunity costs. Estimates of general deterrence benefits are not available, nor are data on displacement effects, and McGuire, while recognizing the need for further research, tentatively concludes: ". . .The costs incurred by society in producing incapacitation benefits are so substantial that an economic justification for correctional institutions must likely lie in their provision of other social benefits."⁴⁶

5.6.2. Production Functions and Efficiency

The research is extremely tentative in this area but some preliminary results are briefly discussed to indicate the state-of-the-art.

Witte, et al, estimated production functions for federal institutions.⁴⁷ They hypothesize a long run, homothetic CES function with the elasticity of substitution nearly equal to one and increasing returns to scale. At this point the findings do not

seem implausible, with the exception of the elasticity term.⁴⁸ The proxy (electricity) for capital charges was unsatisfactory, however, so these results should be viewed as highly preliminary.

Similar caveats apply to an attempt at frontier analysis in the same work, whereby in a set of higher similar activities, the plant exhibiting the lowest costs may be used as a model for the other members of the set. The analysis should only be undertaken in cases where the production units use similar technologies to produce equivalent outputs. The authors suggest that the FBOP confines fewer inmates than is technically possible and that a re-allocation between labor and capital (toward capital) would reduce costs.⁴⁹

5.6.3. Quality

A continuing problem in analysis has been controlling for quality, either cross-sectionally or in time series. Without a standardized definition or method of control it is difficult to assume that what is "produced" at one institution or at one point in time is comparable to another institution or another time. What may appear to be cost minimization, *ceteris paribus*, may in fact be an artifact of subtle decreases in the quality of confinement. Overcrowding is an example of where it would be important to have quality indicators. In addition, standardized definitions would permit comparisons of research findings.

A single attempt has been made to develop quality measures which would be applicable nationwide. While it is not argued that measures are definitive, they do represent a beginning. Rather than

using standards, which are certainly one set of quality indicators, this analysis uses an environmental approach and the experience of all 559 state institutions to develop national means and standard deviations.⁵⁰ Five quality categories and nine total measures were derived. Table 5-3 illustrates the findings. The measures can then be used to evaluate a state system, or individual prison unit. Since definitions and usage of the various factors may differ (e.g., cost disparities, different criteria for placing inmates in segregated custody, different security definitions), these results should be viewed as preliminary. What makes them interesting is the fact that they introduce a degree of standardization heretofore missing from the research and incorporate some proxies for assessing the atmosphere of an institution, and not mistakenly treating "outputs of different quality as if they were the same."⁵¹

5.7. Summary

This chapter examined economic contributions arrayed by issues of interest in institutional management and allocation. Included were discussions of optimal scale of plant for prisons and jails, short-term population changes, multi-plant allocation, prison industries and some emerging areas of work. The overall theoretical framework was that of a multi-plant firm producing confinement and rehabilitative outputs. It remains to briefly review and assess issues of data, assumptions and policy recommendations.

5.7.1. Data

Data issues remain problematical. Because of differences in accounting practices both within and between systems and different

Table 5-3

QUALITY MEASURES, STATE PRISONS^a

(n=559)

<u>Category</u>	\bar{x}	<u>Standard Deviation</u>
1. <u>Density & Occupancy</u>		
A. % less than 60 square feet of living space/inmate	65	11.4
B. % Multiple housed	55	18.3
2. <u>Level of Deviance</u>		
A. % in disciplinary segregation	3.0	.80
B. % in protective segregation	2.3	.95
3. <u>Freedom of Movement</u>		
A. No. hours confined	9.6	.7
B. % Maximum Security	52	15.3
4. <u>Access to Services (Programs)</u>		
A. % Service Providers	16.3	2.8
B. Ratio: Inmates/Svc Providers	19.4	6.4
5. <u>Expenditures Per Inmate</u>		
A. Direct Cost per Inmate per year	\$6500	\$4200

a/ Source: Lawrence A. Greenfield, "Assessing Prison Environments: A Comparative Approach" (unpublished), National Institute of Justice, 1980, pg. 8.

definitions and proxies used in analysis, little comparison is yet possible and most study findings should be regarded as suggestive, rather than definitive. A bright spot on the horizon, however, has been the recognition by practicing economists that such problems exist; hence the resultant allocation of research resources to derive more reliable data sets. Most of the studies reviewed here illustrated substantial exertion to derive a reliable data set for the analysis. To date, the Federal Bureau of Prisons has been the most appealing system to examine because its facilities operate under similar procedures and accounting practices. But systems for collecting and standardizing state and local data are sorely needed. A recommendation in this area then is that standardized definitions of costs, outputs, quality and valuation be developed. Admittedly no small exercise, it would permit better evaluation of methodologies and findings and allow comparisons between different studies. In the interim, data sets and definitions should constitute a primary portion of new research and be displayed along with findings for evaluation.

5.7.2. Assumptions and Definitions

A related concern is the variety and level of assumptions utilized in present analysis. Often it is not clear exactly what assumptions are in force; sometimes they represent a serious lack of touch with the correctional phenomena to which they are applied. For example, Block controlled for differences in confinement outputs by stratifying by security level. Definitions of security levels are difficult; what is medium security in South Carolina may be maximum

security in Minnesota, and in-state differences may exist as well. The cost structure may vary by the way security levels are maintained.⁵² Wider use of statistical procedures and standardized definitions would help to assure that cross-sectional as well as time series data are reliable.

Research practices ordinarily assume no slack resources in the production unit under analysis, yet resource levels and allocations may be arbitrary or at least unplanned. The present (albeit necessary) focus on the input side may produce cost functions which, e.g., reflect legislative parsimony more than cost minimization behavior in the theoretical sense. A related concern is the effect of crowding in the context of increasing prisoner populations in the short run. It is widely believed that personal crowding creates frustrations which produce behavioral changes; however, unless resources are expended to address such behavioral change, its impact will not be captured in the analysis. Because the consequences of study recommendations have significance in human terms, these effects are important.

Finally, assumptions about the substitutability of labor and capital need to be examined in the light of actual correctional operations. It is not at all clear that assumptions of an elasticity of substitution at or near unity are correct; yet this has been used in policy recommendations.

5.7.3. Policy Recommendations

The overriding consideration when evaluating correctional policy recommendations is the appropriate use of economic-based

information in this relatively new area of economic inquiry. For recommendations to be feasible, rather than just theoretically interesting, they must be grounded in a familiarity of the operational milieu. In addition, recommendations need to be qualified on the basis of the data and study techniques utilized.⁵³ Extrapolation beyond data sets or generalizations that improved morale creates lower costs may be interesting but hardly grounded in empiricism.

Findings on population composition, services and staffing characteristics may prove useful for planning. Development of quality and output measures should improve information in decisions to reallocate populations.

Research on cost functions should be designed to improve on these early findings. As discussed above, a statement that violence may occur with crowding but not affect costs needs to be empirically verified. So, too, does the issue of managerial resources; it may be that very large institutions may be theoretically possible but operationally infeasible because of administration and management problems.

The policy recommendations emanating from the economic analysis of institutions fall into two major categories:

- short-run operations, including allocation of prisoners within and between institutions; and projection of cost changes effected by variations in population types and levels;
- long-run planning, including optimum prison size, types and level of programs, reallocation between prisons and community.

In sum, the findings and policy recommendations of the various studies are useful in telling more about factors which

influence costs, in providing viable examples of economic applications and in the investigation of appropriate analytical techniques to further illuminate the field. Better specification and evaluation of outputs should produce better analysis and more usable policy recommendations.

FOOTNOTES

1. Ann D. Witte, et al., "Empirical Investigations of Correctional Functions," Draft Final Report to the National Institute of Justice (L.E.A.A. Grant No. 78-NI-AX-0059, 1989), p. 5-8.
2. While there are techniques for analyzing production unit similarities and pooling time-series and cross-sectional data, they are just beginning to be used in analysis of corrections. The resultant data set may be too small to permit rigorous analysis or may be untrustworthy. See, for example, William N. Trumbull and Ann D. Witte, "The Effect of Correctional Standards on Long-Run Prison Costs" Working Paper Series, Department of Economics, University of North Carolina at Chapel Hill, 1980, and P. Randall Gynes, "Analysis of Prison Costs" (unpublished critique), IEPS, 5/2/80.
3. Ordinary Least Squares (OLS) has been the prevalent technique utilized to date, but other techniques need to be examined more rigorously, since OLS may not produce completely reliable information. See Gynes, op. cit., for a criticism of Trumbull and Witte, op. cit., on attempting to derive Cobb-Douglas production functions with OLS techniques.
4. No totally satisfactory method for determining or proxying the price of capital has been developed. Trumbull and Witte, op. cit., used electricity charges as a proxy but admitted that this measure was largely useless. (Ann D. Witte, et al., op. cit.). Techniques for allocating inputs have tended to follow job classification codes, i.e., an officer is "incarceration," a teacher is "rehabilitative."
5. Michael K. Block, Cost, Scale Economies and Other Economic Concepts. (Washington, D.C.: American Bar Association, 1976), p. 4; reprinted as "Cost Functions for Correctional Institutions" with Thomas S. Ulen, in Charles M. Gray (ed.) The Costs of Crime (Beverly Hills, CA: Sage, 1979). An ironical compliment is in order. The idea for this analysis came not from one trained in economics, but philosophy. Billy L. Wayson conceived of this and many other concepts which have resulted in published, policy-relevant studies.
6. The data base had to be terminated at 1964 because California implemented a program budget approach which, within the time and resource constraints of the study, prohibited extracting further comparable data.
7. Block, op. cit., p. 12.

8. Ibid., pp. 28-30.
9. William J. McGuire, "An Economic Model of Criminal Correctional Institutions: Empirical Cost Analysis and Cost-Benefit Measures" unpublished dissertation, University of North Carolina at Chapel Hill, 1978, and "Cost Relations Characterizing Correctional Institutions: Conceptual and Empirical Analyses", unpublished, 1980. Detail is taken from the dissertation; the subsequent article refined coefficients but arrived at similar conclusions.
10. OLS has been the predominant technique used to date.
11. McGuire, op. cit., p. 80.
12. It is always problematical to extrapolate beyond the range of the data set, particularly when so many unknown factors as there are in correctional activities and management still exist.
13. Witte et al., "Empirical Investigations of Correctional Cost Functions," op. cit.
14. Ibid., p. 8-3.
15. Ibid.
16. Guynes, op. cit. worries about this in the context of the techniques necessary to achieve a comparable data base (i.e., production units), and the potential presence of outlier effects.
17. Trumbull and Witte, op. cit., p. 35.
18. McGuire, "Cost Relations Characterizing Correctional Institutions," op. cit.
19. Ibid., p. 29.
20. Ibid., pp. 30-33.
21. Block, op. cit., pp. 31-34.
22. John L. Mikesell, "Local Jail Operating Cost and Economic Analysis: Scale Economies in Local Jail Operation," Paper presented at the Southern Economic Association, Atlanta, GA, 1974..
23. Ibid., pp. 5-6.
24. The weak link in these "predictions" is the fact that population projection models are numerous, varied and usually unreliable. They range from age-specific studies, to extrapolation to more sophisticated techniques but ordinarily

- require too many assumptions (e.g., no change in judicial or prosecutorial behavior) to be highly reliable. Definite sentencing legislation itself is not known for its clarity.
25. Social costs of overcrowding are not being ignored but will be addressed subsequently.
 26. Design capacity does not quite have a private sector counterpart as it represents plant size but not potential prisoner capacity. Although calculated on the basis of cell and other housing facilities, "(c)apacity figures are a physical count . . . and (do) not reflect administrative management practices that might reduce or increase available capacities." Thomas L. Smithson, Chief of Facilities Planning, California Adult Authority, in Block, op. cit., p. 10.
 27. Block, op. cit., pp. 19-20. Significance levels are not reported.
 28. Ibid., pp. 21-22.
 29. Ibid., pp. 23-26. At this writing San Quentin faced a court suit on overcrowding and conditions. Huff v. Commissioner C803931 (N.D. Cal.). Thirty-five states, the District of Columbia, Puerto Rico and the Virgin Islands are facing court suits because of overcrowding and prison conditions.
 30. Richard Spellman, et al., "Fixed and Variable Cost Analysis of Main Correctional Institutions" (unpublished) Correctional Economics Project, B.A.S.I.C.S. Program, American Bar Association, 1976.
 31. Extrapolating well below or above the data set produces a unique problem in analysis of correctional institutions because many inputs which would be considered continuously variable in other production modalities are fixed for rather large increments in the inmate population.
 32. Spellman, op. cit., pp. 2-2a.
 33. This recommendation appeared in Witte, op. cit., and is representative of the class of recommendations which may logically follow from the analysis but would be infeasible.
 34. Timothy M. Hennessey, Charles M. Gray and C. Johnston Conover, "Choosing Among Corrections Alternatives: A Political Economy Perspective," In Stuart S. Nagel (ed.) Modeling the Criminal Justice System (Beverly Hills, CA: Sage, 1977).
 35. Ibid., pp. 271-4.
 36. Professor Herbert Geyer suggested this exposition as a way of illustrating the policy implications arising from varying cost

structures, all of which may not permit a minimum average cost to be obtained.

37. Under rehabilitation, the positive work skills and experience of industries presumably overcome criminal pathology and reduce recidivism; under reintegration, the philosophy is more one of promoting economic survival skills in a complex society.
38. In 1885, 90 percent of the inmate population of 41,877 was employed -- 37,690 inmates; in 1972 this proportion was 15 percent and 28,070 inmates; in 1978-79 it was ten percent and about 27,700 inmates were working in prison industries. Gail S. Funke, Billy L. Wayson, Neal Miller and David Smith, Assets and Liabilities of Correctional Industries (forthcoming) (Lexington, MA: Lexington Books, 1981), Table 2-10.
39. Law Enforcement Assistance Administration, The Free Venture Model Project, 1975-78, and Evaluation of the Free Venture Model, 1979-80, and Gail S. Funke, Billy L. Wayson, Neal Miller, and David Smith, Assets and Liabilities of Correctional Industries, op. cit.
40. Thomas F. Tabasz, Toward an Economics of Prisons. (Lexington, MA: Lexington Books, 1975).
41. Ibid., pp. 5-7. The high reform case assumes post-release crime reduction of 14 to 27 percent.
42. Excluded items included welfare costs, reduced employability of ex-offenders, costs of negative behavior in prison; data on cost per crime were somewhat poor.
43. William S. McGuire, "An Economic Model of Criminal Correctional Institutions," op. cit., pp. 131-148.
44. McGuire found Tabasz' results did not permit of testing over a range of assumed values and were not reliable on empirical grounds, Ibid., p. 133.
45. Victimization statistics are derived from survey data and exhibit substantially higher crime levels (e.g., 3-4x) than do the Uniform Crime Reports, which record crime reported to Law Enforcement Agencies.
46. William J. McGuire, "Benefit Flows and Costs Characterizing Federal Correctional Institutions," paper presented at the Southern Economic Association, Washington, D.C., 1978, p. i.
47. Witte, et al., op. cit.
48. Specifically, an interactive term between labor and capital was omitted, but this may result in an inappropriate determination of the elasticity of substitution. Intuitively, the derived term does not appear sensible.

49. Witte, et al., op. cit.
50. Lawrence A. Greenfeld, "Assessing Prison Environments: A Comparative Approach" (National Institute of Justice, 1980) (unpublished).
51. Mikesell, op. cit., p. 4.
For example, a large percentge of inmates in protective custody indicates an institution in which inmates are not safe from each other. Walpole (Massachusetts) has 12 percent in such status while Stillwater (Minnesota) has 3 percent. The difference in institutional atmosphere is apparent to even a casual observer.
52. An older, fortress-style institution has its (e.g., maximum) perimeter security "built in" by the thick walls of the institution itself. A newer institution utilizing electric fences, dogs and roving armed guards will display different costs and conceivably produce a different atmosphere.
53. An obvious recommendation, but occasionally findings declared untrustworthy in a technical report find their way into the literature. Witte, et al., derived an inverted cost curve for California prisons and determined that their analysis inappropriately controlled for institutional similarities and the model could not be trusted. The summary, however, included policy recommendations and production functions based on the findings. The L.I.F.E. project discussed in the next chapter is a similar example.

Chapter Six

ECONOMIC ANALYSIS OF CORRECTIONS: COMMUNITY ISSUES

6.1 Introduction

Economic principles as they relate to issues surrounding institutions were addressed in the preceding chapter. This chapter addresses the sphere in which the balance of correctional activities take place -- the community. While many community activities may be viewed as alternatives to incarceration, and analyzed from that perspective, there are a host of considerations characterizing correctional community service provision which warrant separate examination.

Correctional services essentially are a public good, but this does not preclude involving the private sector, nor does it preclude one jurisdiction (e.g., state) from encouraging more provision by another (e.g., local). In fact, there are a variety of means available to correctional agencies to accomplish social objectives, including: direct provision of community services; contractual and financial arrangements with private organizations to provide community services; providing transitional aid to released offenders; tax or subsidy programs to foster additional service provision; and, direct involvement of the offender in the reparations for criminal behavior.

This chapter will focus on three major areas of community service provision:

- private sector provision of correctional services;

- restitution and income maintenance programs;
- taxation and subsidy incentives to encourage community service provision.

These three areas are reasonably representative of corrections' issues and provide ample latitude for economic analysis. They generally represent areas where policymaking has lacked an economic perspective.

6.2. Private Sector Service Provision

The provision of correctional services in the community dates back to the nineteenth century (see Chapter Two), but only in recent years have these services become widespread. As late as 1967, a task force was moved to state,

In the main, however, private programs for offenders are very rudimentary . . . (I)n view of its great potential, this area has been barely touched.¹

The view then was still of the private sector as a complement, rather than substitute, for public agency provision. A few years later this outlook began to change and the Joint Commission on Correctional Manpower and Training more unequivocally endorsed the private sector:

Correctional agencies should utilize more fully the resources of private industry. In areas such as management development, research, basic education and job training for offenders, the private sector may be able to provide considerable assistance to corrections. Federal and state funding should be made available to correctional agencies to facilitate contracting for these₂ services which might be better performed by private industry.

The National Advisory Commission on Criminal Justice Standards and Goals in 1973 further endorsed the move to the community, regarding every step in the corrections process as a potential opportunity for community and private involvement.³ These developments,

coupled with substantial federal largesse, ushered in the private sector provision which prevails today.

6.2.1. Rationale for Involvement

Besides the philosophical and financial thrusts reported above, there is presumably a cost-effectiveness rationale (alluded to by the Joint Commission) for private sector involvement. The smaller (relative to a corrections agency) private firm may offer unique capabilities, convenient, less costly administrative arrangements, and greater flexibility in adjusting to small client populations and changing client needs. The typical corrections agency cannot easily produce the specialized services available in the private sector. This has become more true as new treatment modalities are introduced.

In any case, private provision of correctional services in the community has become prevalent enough that a national accreditation body has issued standards for performance, and some research has been conducted on its organization and management. There are two basic service provision formats: residential (where the client lives in and receives treatment, although may be free to work or study in the community during the day); and nonresidential (where services are provided on an outpatient basis). Residential programs often have a fixed length-of-stay, while for nonresidentials, the service provision is more casual. Services offered by both types of organizations include counseling, drug and alcohol treatment, job training and placement, education and legal services, housing and other assistance.

6.2.2. Theoretical Framework

It is possible to examine community providers in a traditional economic framework, focusing on issues of demand, supply, and market structure. Emerging work has begun to identify, for example, the various consumers of community corrections activities and how their responses may be justified or measured. There is much information on the firm (i.e., the community provider) as well -- its size and managerial practices -- and it is also possible to draw some preliminary conclusions about the competitive structure of the market in which services are provided. Such information is relevant to a corrections agency contemplating initiation or continuance of involvement with the private sector.

There is ample research on community corrections. However, much of it has been conducted on one or a few providers; this was discussed in the chapter on cost analysis. In order to discuss concepts of demand, or market structure, aggregated analysis is more useful and there are a few comprehensive analyses which will permit this perspective. In 1975 the Law Enforcement Assistance Administration funded a nationwide study to evaluate the level and type of service provision, funding and contractual arrangements, and market characteristics of correctional services provided in the community. In 1980, Minnesota conducted an evaluation of its Community Corrections Act; and another statewide study of private providers was completed.⁴ These studies provide much of the background for the analysis which follows. The approach taken in the following section is an analysis of economic phenomena, rather than a presentation of each study,

since taken as a whole, these studies provide insight on the overall conduct of community service provision.

6.2.2.1. Demand. There exist three parties which can be viewed as consumers of community correctional services -- the correctional agency, the public as a whole, and the offender/client.⁵ Related consumers are of course the courts, the legislature and the executive but it is assumed their preferences are reflected by the agency or the public. Each may be expected to have a different preference structure and an optimal case prevails only if all preferences are satisfied.

The traditional demand function

$$Q_d = f(P, Y, t\&p, P_s, P_c)$$

is quite suitable for analyzing the first two groups. The relevant variables are:

P = the cost of the community program;

Y = overall funds available for correctional treatment;

$t\&p$ = attitudes about service provision in the community and associated risk;

P_s = the cost of alternatives, such as incarceration;

P_c = the cost of ancillary services necessary to maintain services in the community, such as administration, evaluation, and so forth.

A demand function for the offender is a little more contrived; let it suffice to say that "satisfaction" is derived in at least two ways:

- receipt of services which meet expressed needs; and
- imposition of the least drastic sanction (i.e., offenders are not sentenced to a more restrictive environment than necessary).

The price of community services is of interest to agencies and the public but limited knowledge of an "appropriate" price (particularly given the dearth of outcome and cost-effectiveness information) relegates it to less than principal status. The income level (appropriations and grants) of a correctional agency will affect its demand for additional services. The increase in federal criminal justice subsidies under the Safe Streets Act (from \$60 million in 1969 to \$800 million in 1975) undoubtedly added pressure to absorb these funds by contracting with existing service capabilities. The 1973 Part E amendments to the act with first priority on community-based corrections increased the movement to non-justice providers. Since the funding was federal, a state or local citizen may have been unaware of these events.

Tastes and preferences about community provision relate to issues of risk, but also, for the corrections agency, to attitudes about the suitability of rendering services through non-corrections providers. The movement toward the private sector was accomplished in part by the various task forces and federal funding; but the question of risk is still widely debated. In many cases, considerations of risk produce a "widening of the net" insofar as community placement is not an alternative to incarceration but a method of increasing the supervision of offenders who otherwise might have been fined or set free. Methods for assessing risk include collecting data on incidents of clients' criminal behavior while under supervision and survey research on community attitudes.⁶ Substitutes may range from alternative provision mechanisms in the community to incarceration

in prisons and jails. The latter are probably not widely viewed as substitutes for community services. The comparison remains imperfect because outputs have not been defined or measured such that one could speculate on the substitutability of prisons and halfway houses.

Finally, complementary services or arrangements may be necessary to the provision of services in the community. Conceptually, these might include additional administrative mechanisms, public education campaigns and so forth. In a cost-benefit analysis, these would appear as costs beyond those suggested by program operations.

The fact that the offender/client has no choice about the services or provision structure suggests the need to infer attributes that maximize the offender's satisfaction given a constrained situation. These attributes fall into two major areas -- criminal justice system dispositions and program content. Assuming that no sanction at all is the most desirable disposition from the client's perspective, more satisfaction will obtain if the sanction imposed in the presence of, e.g., a residential community program, is less harsh than in its absence. If an offender otherwise would have been committed to prison, then residential community placement is a more satisfactory option; if probation would have been imposed, then the more restrictive residential placement is a less satisfactory alternative.⁷ Recent attempts to measure this appear promising.⁸

An offender may be said to realize satisfaction from services provided if, given forced participation, the services provided to clients relate to the needs of those clients.⁹ Evidence as to whether services meet needs is sketchy both because of data and

because of the location and timing of the needs assessment function.¹⁰

6.2.2.2. Monopsony. Monopsony is the buyer's counterpart of monopoly -- a single purchaser for an industry's output or a sole employer of a factor of production. This arrangement gives the buyer more control over the terms of trade than in a competitive setting. In the context of community services provision, this control is exercised more subtly than directly. The public agency may provide only a portion of client costs and cover only a part of the organizations's fixed costs. This phenomenon has not been closely examined for its effects on providers, but recent research suggests an effort might be fruitful. A 1975 study found that 119 private sector organizations derived two-thirds of their revenues from public funding sources, and averaged only two referral sources.¹¹ Provider organizations attempt to counter this situation by diversifying services and seeking unrestricted funds.¹²

6.2.2.3. The Firm. The typical community service-providing firm tends to be small, new, and to offer counseling as its primary therapeutic mode. An average budget for a residential organization is under \$200,000, while for nonresidential it is under \$150,000.¹³

(Chapter Four presented sample budgets for halfway houses illustrating the distribution of costs.) Generally, personnel expenditures consume about two-thirds of a residential budget, about three-quarters for a nonresidential organization. The usual staff complement includes an executive director/administrator, specialized program personnel, and

support staff. Because of factor indivisibilities (and in residential facilities the need for five employees to staff one position twenty-four hours a day, seven days a week), the staff complement is fairly constant for wide ranges of clients, and fixed even for very small client populations. Client populations tend to the low side, averaging twenty or less for a typical residential facility.¹⁵

But certain staff resources, such as an administrator or a counseling supervisor, will be underutilized in such facilities, as the number of persons they can manage (staff and client) is in excess of the lower program staff required for small populations. The Kassebaum study found the ratio of program to administrative staff to be 1.9 in small programs (≤ 5 staff) but 7.25 in larger programs (≥ 30 staff). Thus, average client costs will tend to be higher in the smaller facilities.

Output measures for community providers have been difficult to develop. They may be time-related, e.g., a 90-day stay; program-related, e.g., client obtains job or is drug-free; or something in between. Few studies utilizing rigorous test protocol have been performed to determine changes in criminal behavior which would permit cross-program and institutional comparisons.

6.2.2.4. Market Structure. Available data has permitted some hypothesizing about the market in which community services are provided. As in the American economy generally, it appears that monopolistic competition is the best definition. Monopolistic competition rests between pure competition and oligopoly and is characterized by relatively easy entry and numerous sellers, each producing a product or service

similar to its neighbor but differentiated enough so that buyers do not regard the products as perfect substitutes. The result is that each firm tends to operate suboptimally, i.e., not at minimum average cost, and the consumer pays a higher price than would obtain under perfect competition.

Community correctional services provision is characterized by many small firms and product differentiation occurs through the way "producers" name themselves and "advertise" their services. In the 1975 study by Kassebaum, Funke and Wayson, forty programs were analyzed in detail. What initially appeared to be major program distinctions proved to be slight variations in essentially residential or non-residential settings. A 1980 analysis of 28 organizations revealed no significant difference other than residence arrangement.¹⁶

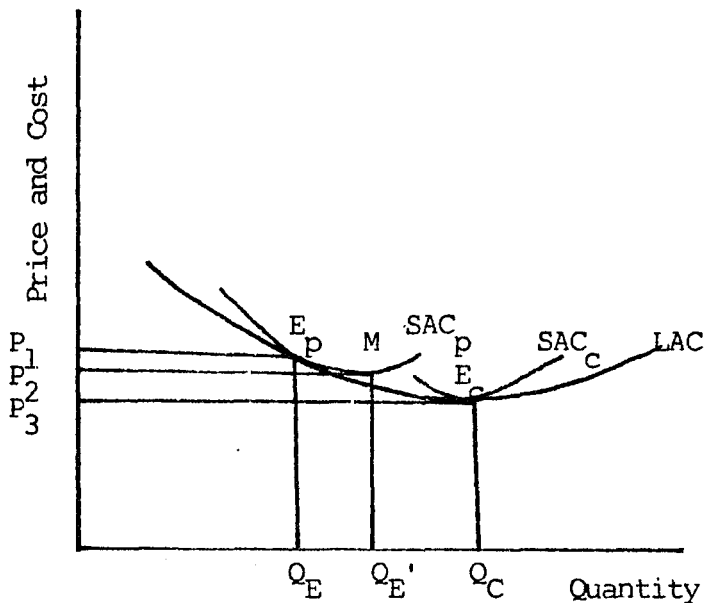
Programs differentiate themselves in two general ways -- type of service (drug, alcohol, employment) and type of client (male, female, adult, juvenile) -- but the variations are considerable and creative.¹⁷ Competition is always nonprice. Market entry is relatively easy; physical capital requirements are low and during the 1970s, availability of federal funds virtually guaranteed that a specialized focus would yield referrals and funding. Finally, the typical provider operates as well under capacity, further increasing per diem (product) costs.¹⁸

What prevails then, when one considers both consumers and producers, is production of community services characterized by suboptimal output and price levels. The community and the corrections agency may prefer smaller client populations at a particular facility because

of attitudes about risk; suppliers differentiate their products in order to attract and maintain funding sources. The result may be characterized along the dimensions developed by Cassels in differentiating departures from "ideal" output.¹⁹

FIGURE 6-1

Ideal Outputs and Excess Capacity



In Figure 1, ideal output is given at Q_C , corresponding to the minimum point on the long-run average cost curve. The firm will observe SAC_p as its long-run curve and operates at E_p , producing Q_E rather than the socially optimal Q_E' ; deviation between Q_E' and Q_C arises because of differences between social and individual optimal sizes. Thus, the phenomena of monopolistic competition and consumer preferences about smaller community facilities cause divergence from an optimum.

There are some policy recommendations which evolve from this analysis. Public agencies need more information on community providers to determine whether differentiated services are a necessity or a construct. If the latter obtains, then it is appropriate from an economic perspective to more fully utilize a few providers and permit others to exit the market. Over the longer term, research on optimal scale of plant combined with public information strategies to develop community acceptance of larger-scale facilities could help reduce average costs.

6.3. Financing in the Community

6.3.1. Background

Overcrowded prisons and concerns about humane treatment have led some states to encourage more provision of correctional services by local jurisdictions. This section examines the state-of-the-art in such programs, discusses the outcomes of some programs which have been evaluated and examines the theoretical purpose of subsidies within the correctional policy context.

There is considerable latitude on the part of courts to sentence offenders to state or local incarceration or community treatment.²⁰ A state wishing to shift some of its commitments to the local level may accomplish this by providing a payment to localities for retaining offenders or by charging localities for sending offenders to state facilities. Correctional jargon characterizes these approaches as "subsidies" or "chargebacks." Until the mid-1960s, only five states provided subsidies to local corrections; by 1977, 23 states had enacted

authorizations for funding corrections at the local level and 41 programs were in effect. In fiscal 1975 state appropriations for local corrections' subsidies were \$120 million.²¹

In theoretical terms, a subsidy is offered to one entity (jurisdiction) by another in order to reduce the cost or increase the production of some desirable output. In criminal justice, this may involve state underwriting of part of the service at the local level to make local alternatives more feasible to produce. Finally, a "tax" or chargeback may be imposed on undesirable behavior (such as increasing state commitments by local jurisdictions) to make local alternatives appear less costly. Many correctional subsidy programs incorporate both tax and subsidy features. Stated in terms of objectives articulated by state agencies, the purposes of a subsidy are:

- to shift more of the responsibility for correctional service provision from the state to the local level;
- to reduce or control commitments to state correctional facilities;
- to foster development of community-based correctional alternatives;
- to encourage minimum standards for improvement of local programs;
- to stimulate regional coordination and cooperation.²²

Subsidy programs typically constrain the types of expenditures which can be made. Commonly, operating, maintenance, personnel and personnel-related costs, such as travel, education, training and fringe benefits are allowable expenses. Usually, expenses to support private vendors are not allowed nor are construction and renovation. Criteria for determination of shares range from a percentage support

formula, to compliance with performance standards, to a competitive process.²³

Essentially there are two output goals associated with local subsidies: to increase the quantity and/or quality of local service provision to adult and juvenile clients. Some states have a related goal of reducing local commitments to state facilities or supervision. Appendix B presents a summary of forty-one subsidy programs in twenty-three states, including the purpose of the subsidy, allocation formulas and target expenditure categories. Qualitative changes in service provision are often fostered by salary subsidies to personnel with bachelor's degrees or a partial reimbursement to local residential facilities. Quantitative changes are achieved through subsidization of construction or funding needed personnel. Seven states have reduced-commitment goals, four of which impose reduced-commitment quotas for reimbursement eligibility.

6.3.2. Selected Programs

This next section will examine analyses of two well-known subsidy programs -- California's probation subsidy and Minnesota's Community Corrections Act. A general evaluation of state subsidy programs and the relationship between goals and strategies will appear at the end of this section.

6.3.2.1. Probation Subsidy. Probation subsidies are state grants to localities which may be used for salaries, operating expenses and service improvement for local probation. Often a full-time officer position will be funded for small, rural counties. A variant on this

approach, which will be discussed here, is the use of performance incentives -- payments to counties for achieving reductions in their commitments to state institutions. Of the seven states with reduced-commitment goals built into their financing structure, the most widely known and evaluated has been the California probation subsidy program. Begun in FY 1966-67 as a response to substandard local service and increasing adult and juvenile institutional commitments, the program has expanded from 31 participating counties with awards of \$5.6 million to 43 counties (95 percent of the state population) and 1975 awards of \$120 million.²⁴ The detailed research on the program made possible its evaluation along two economic dimensions: output changes (in this case, the shift of service provision from the state to the local level); and valuation of net social benefits (the difference between costs in the program's absence and in its presence, measured by averted state costs less program disbursements).

Under early evaluative procedures, the program was deemed a success as measured along these two dimensions. Subsequent discussion centered around the absolute amount of the state savings generated by the program and over the years these savings have been adjusted downward. The important policy concept here is that early analysis seriously overstated the averted costs attributable to probation subsidy; thus expansion of the program within and among states could fail to produce the desired effects, at least in their initially conceived magnitude.

The award procedure is fairly straightforward: a county's expected annual commitment rate is derived by using historical

commitments weighted by county and state populations. Subsidy is received if actual commitments over a particular year are less than expected commitments. The amount of the subsidy ranges from \$2,080 to \$4,000 with larger amounts awarded as the percentage of reduction in commitments increases. As of 1974, use of funds is no longer limited to probation services; expenditures for local detention facilities and programs are also permitted. Caseload and other standards are used to mitigate deterioration of services.²⁵

Early benefit estimates were derived by estimating the career cost (the average cost of an average institutional stay plus parole and capital costs) times the reduced commitments.²⁶ By 1973, the state savings were calculated by summing the costs of cancelled construction, closed institutions, new institutions not opened and construction savings, and positing net benefits of \$124 million compared to subsidy payments of \$60 million.²⁷

At this time, new analysis of population projections indicated that there was a leveling trend in institutional commitments and that the reduction attributable to subsidy was smaller than originally estimated. A subsequent analysis used revised commitment figures and career costs to produce a range of savings of \$19 to \$111 million depending on the commitment rate selected.²⁸

Subsequent consideration of these early evaluations has not necessarily produced a definitive net benefit figure. However, several additional qualifications to the analysis are noted here as examples of what must be undertaken before cost-benefit estimates can be used as program justification:

- commitment rates were not weighted by the probability of an offender actually serving the average term, rather than being paroled, etc. (a shorter than expected sentence would result in overstatement of the averted prison costs);
- local career costs in excess of the subsidy were not estimated (i.e., for some offenders, the supervision cost may exceed the subsidy);
- recidivism costs were not estimated either during or post-program;
- administrative costs of the subsidy program are generally not included in the analysis;
- differences in quality of care of state and local providers are not estimated.²⁹

In addition, research quoted earlier in this paper (Chapter Five) indicates that using average costs will tend to overstate the savings of a reduced commitment.³⁰

The most that can definitively be argued for probation subsidy is that some state commitments were diverted to local jurisdictions, and that producing or estimating a net social benefit is an elusive process. The earlier estimates doubtless encouraged other states to institute the program (the usual problem being that understating costs leads to production at levels that may be non-optimal from a social perspective). It may be better to argue that there are some positive factors arguing for service provision at the local, rather than state level; but these relate more to the intangible benefits of neighborhood service provision rather than realized averted costs.

6.3.2.2. Community Corrections. Minnesota's Community Corrections Act (1973) had an impetus similar to California's probation subsidy, i.e., to decrease state commitments and encourage expansion and

development of correctional services at the local level. A related concern was the fostering of more "organizational coherence" and coordinated interjurisdictional planning. The Act provided for charge-backs to counties for state institutional commitments of certain categories of offenders, combined with subsidies to improve local services. Seventy percent of the state's population is represented by the 27 counties participating in the Act, with an annual subsidy eligibility of \$13 million.³¹

An extensive evaluation of the Act, conducted after the Act was in effect, was undertaken to determine changes along the following dimensions/goals of the Act:

- planning and administration;
- local correctional programming;
- retaining offenders in the community;
- appropriateness of sanctions;
- public protection;
- social justice;
- economy;
- efficiency.³²

In many ways this evaluation is a formal examination of the unresolved issues surrounding probation subsidy. Its comprehensiveness provides better policy tools than analysis of averted costs. An elaborate conceptual framework hypothesized the linkages between the evaluation areas above and the research summarized verifiable linkages and direction of change. Selected results are briefly summarized here.

More offenders are retained in the community under the Act, but absolute numbers are small and the authors conclude that ". . .there is little evidence that the chargeback provision is an effective disincentive."³³ A second goal, economy, or the realization of net savings through consolidation of administrative services, reduction in state institutional costs, and better resource allocation, was not met. Essentially, the administrative costs not only did not decline, but increased, and the savings attributable to reduced institutional commitments were insufficient to offset the costs.³⁴ Administrative costs rose by over 500 percent for two reasons: overhead costs rose as each area established individual administrative units and, perhaps more importantly from a policy perspective, the state did not "wither away" but rather acquired and maintained an additional layer of personnel even though services were decentralized.³⁵ A new, less efficient "technology" replaced the old. Finally, efficiency was evaluated in terms of cost per public protection success. There was no significant change in recidivism before and after the Act, so public protection was maintained; however, costs rose, so the efficiency measure exhibited a decrease.

The Minnesota subsidy was evaluated more comprehensively than California's probation subsidy; but generally, the available information suggests that multiple evaluation measures are necessary; and there may be no real savings associated with the promotion of local corrections activity. Admittedly scant data on chargebacks for state commitments indicate that localities may have a relatively inelastic demand for state commitments and that substantial inducements may be necessary

to produce a significant effect. Whether these inducements would approach or exceed state costs is an open question.

The Minnesota experience suggests that planning to control administrative costs is necessary if effectiveness is to be maximized, and that evaluations need to incorporate measures of this phenomenon. More accurate information on criminal activity and its costs would also improve the evaluation process. Generally, the evidence suggests that earmarked expenditures and performance measures improve the potential for goal attainment. Yet most of the programs listed in the appendix provide only general funding requirements; there is no way to identify or measure qualitative change or to link it directly with different reimbursement schema. The formulas used for funding vary widely as do the purposes they are designed to accomplish. From an economic perspective, while it appears that some changes in the quantity and quality of output do in fact occur as a result of state aid to local corrections, the general lack of performance criteria and output specifications probably result in suboptimal solutions. The assumptions underlying the Minnesota Community Corrections Act suggested that effective resource utilization is maximized when the decisionmaking is vested in the unit of government directly responsible for production; yet the evidence suggests some structural problems in effectuating this.

In the last analysis, subsidies may not be "paid for" by averted state costs, but may be desirable as a way of providing broad-based correctional services, since it may be ". . .questionable that local governmental units would shift an increasing amount of

of declining property tax dollars to corrections if a (state) policy did not exist."³⁶

6.4. Taxes and Subsidies for Offenders

The analysis thus far has focused on correctional service provision and financing, with consideration of offender programs a more tangential issue except as it affected costs or otherwise contributed to economic analysis. Ordinarily, correctional programming has a rehabilitative focus and is evaluated in terms of whether criminal behavior is altered as a result of the various services offered. However, three program approaches -- restitution, fee-for-service, and financial aid to released offenders -- introduce a financial component (payment by the offender in two cases and payment to the offender in one case) and will be discussed briefly.

6.4.1. Restitution

Restitution is defined as a financial or service reparation by an offender for a criminal act. It is generally imposed as a supplementary sanction to probation or parole and usually for crimes against property. It differs from victim compensation programs in which the state agency uses tax monies to compensate victims of (violent) crimes against the person. In 1978, forty restitution programs nationwide were identified, primarily involving adult offenders and provided in a nonresidential setting. A second survey also found 86 percent of a sample of juvenile courts using restitution, but an absence of formal programs.³⁷

There is no general agreement on the purpose of restitution, whether it be deterrence, retribution, or rehabilitation. It has been suggested, for example, that rehabilitation is accomplished by making the payment an "(e)xtra effort, a sacrifice of time or convenience," while assuring the public that the offender is indeed being "punished" by this approach.³⁸

Most (90-95 percent) restitution programs are financial; nationwide data are not yet available, but a small 1977 survey found an average loss per victim of \$214, with an average restitution payment of \$167. Judges appeared to be sensitive to the offender's ability-to-pay and most clients were middle class whites with no prior record.³⁹ Other studies indicate some deviance from the above figures, with average payments ranging from \$89 in South Dakota to \$144 in Oklahoma, \$272 in Oregon, and \$137 in Georgia. (In this latter case, the average restitution payment assessed was \$519).⁴⁰

The majority of the evaluations have focused on the behavioral features of restitution -- the positive aspects of a personal reparation from offender to victim -- or recidivism, in much the same way that any program is addressed; or on the monies returned to victims.

What has not appeared in any evaluation to date, yet would appear important given the nature of the situation, is a consideration of restitution as a tax on legal income. Incarceration, restitution, and other rehabilitative activities are designed to increase the opportunity cost of illegal activities by making legal options more attractive; but a tax on legal income, in the form of restitution,

may in fact reduce again the opportunity cost of illegal income sources.⁴¹

Limited data on offenders in restitution programs suggests that this issue may be worth investigating. It is often argued that restitution payments are small, yet in one program of twelve hundred clients, the average income was between \$4 - \$8,000/per year.⁴² In another, during a one year period, 31 percent of 400 clients had no reported income, and 61 percent had average earnings of \$4,700. In this latter group, 31 percent were rearrested within six months after program release, 59 percent after twelve months, and 87 percent after eighteen months.⁴³

Presently there is little information on in-program recidivism but the low income of participants and (limited) data on high post-release recidivism suggests that the tax perspective is not illogical.⁴⁴ If there is an unemployment-low income-crime link, and the opportunity cost theory has credence, then the additional burden of restitution may be a critical factor in determining subsequent behavior. Further, if the program focus suggests that reparation should be a sacrifice, i.e., not an option for the (relatively) wealthy, then restitution may indeed be viewed as a tax on legal income, and programming is necessary to address this eventuality. Programs which provide offenders with jobs only represent one option. Research on any relationship between disposable income levels and economic crime would help to identify what, if any, level of restitution payment would not contribute to future criminal behavior.

6.4.2. Correctional Service Fees

A related area, which may be evaluated from the perspective just introduced above, involves the payment by offenders for correctional services. Occasionally this is a component of a work-release or prison industries program in which offender earnings are set high enough to permit the "experience" of paying taxes and room and board; i.e., it is part of the treatment modality.

In addition, nearly every state charges offenders who reside in its release programs and many charge for specialized services such as drug or alcohol treatment, medical service, vocational training, and so forth. Florida, for example, in 1978 collected \$5.10 per day from 1,722 community center participants.

However, in response to rising costs, twelve states have current or pending legislation permitting fee charges for probation or parole supervision. Fees are mandatory in four states. In addition to revenue generation, proponents argue that fees "promote responsibility in offenders, have a deterrent effect and provide taxpayers with a form of symbolic restitution."⁴⁶

Of the nine states presently charging fees, rates range from \$2/month (1), to a \$10/month average (6), with annual upper bounds of \$200 (1), \$600 (1) and \$730 (1). Colorado collected \$139,000 in 1977 while Texas collected \$6 million.⁴⁷ Ability-to-pay criteria are strict: in Florida and Alabama, offenders with annual incomes exceeding \$3,900 are eligible for fees; other states have medical, handicap and other hardship waivers, but these seem to be a matter of court discretion. Court costs may be charged in addition to supervision fees.

Opponents or evaluators of fees-for-service, as with restitution have yet to use an economic-crime approach in their arguments. They do charge that the arrangement creates a financial burden on the offender, may be questionable because freedom is contingent upon ability-to-pay, acts as a double tax, and forces the offender to pay for her/his own punishment. Some argument has also been made about the use of collected funds; one state did not increase supervision services but instead directed the money to the prison system.⁴⁸

What represents, in most states, minimal additional revenue may pose a substantial burden for offenders. Here as with restitution, the tax effects could potentially create more crime with a social burden far in excess of the actual payments made.⁴⁹ It would seem that additional research on clients and in-program behavior is necessary before programs which represent a tax on legal income sources are widely adopted. The prior suggestion that more research be conducted on the relationship between income levels, relative burdens of fees, and potential economic crime holds in this context as well.

6.4.3. Financial Assistance to Offenders

Widespread belief that unemployment and crime are causally related has fostered programs to provide financial aid to released offenders on the premise that a source of funds eases community adjustment and precludes criminal behavior. Observations of researchers in the 1960s supported the linkage between economic self-sufficiency and nonrecidivating behavior.⁵⁰

Persons released from prison ordinarily exit with some "gate money," clothing, or transportation assistance provided by corrections authorities, plus any savings accumulated during incarceration. Some states provide no assistance whatsoever but the gate money range is between \$10 and \$60 (3 states provide more than \$60) and the modal amount is between \$20 - \$29; in some cases if the inmate has savings, gate money is not provided.⁵¹ Given prison wage scales, it is unlikely that the inmate will have amassed a stock of wealth, although outside resources may be available.⁵²

Because of these considerations, programs to provide transitional financial assistance to released prisoners were undertaken. The conceptual framework is as discussed earlier in this thesis: the presence of transitional aid raises the opportunity cost of illegal behavior and presumably deters crime long enough for the offender to obtain a job and become relatively settled. The funding provided usually is comparable to unemployment insurance, administered through parole offices, and extends over a number of weeks. The projects undertaken thus far have generally used the experimental-control group design, with random assignment of individuals screened for particular characteristics. Various evaluation schema have been utilized to demonstrate the success of providing financial aid to released offenders. In actuality, results are at best ambiguous and in some cases, negative.

One of the first programs was conducted in the state of Washington and evaluated during 1972-73.⁵³ Parolees were granted a stipend of \$55/week for six weeks (special instructions by the

parole office were necessary to extend coverage beyond this to the normal 26-week period for unemployment benefits). Under the program terms, persons engaging in part-time work had their earnings deducted from the stipend. The program was labeled a "qualified" success, because while the group receiving financial aid recidivated more, they had more crime-free days than the controls.⁵⁴ Recommendations included extension of the program for 26 weeks and the provision of employment aid.

Another project in California also produced somewhat ambiguous results, with an 8 percent difference in recidivism between the experimentals and controls.⁵⁵ The evaluator took a then-new tack, and produced a rough cost-benefit analysis, which showed a substantial savings due to the financial aid program. Unfortunately, the authors used average costs for estimating "saved" prison expenditures, assumed a probability of 1.0 that arrest would lead to a 19-month incarceration, and did not include costs of program administration since these were provided in-kind by the department of corrections. They conclude that ". . . it is probably safe to assume (the program) would fall among the top money-returners in the field."⁵⁶ The assumptions used to reach these conclusions should speak for themselves.

The most well-known transitional aid program was the L.I.F.E. (Living Insurance for Ex-Prisoners) Project, conducted in Baltimore from 1971 to 1974 under the auspices of the U.S. Department of Labor. This program followed the compensation patterns of other efforts -- \$60/week for 13 weeks, but with a difference: instead of the usual

dichotomous aid/no aid design, some variations were added. Four groups were created: a control group receiving nothing, a group receiving financial aid, a group receiving job placement services and a group receiving job placement and financial aid services. A high-risk population with high chances of rearrest was selected. In another variation on earlier projects, the weekly stipend was only reduced if a participant had earnings in excess of \$40 and then on a 2/1 basis (\$10 earnings resulted in a \$5 stipend reduction).⁵⁷ Overall recidivism was virtually the same for the groups receiving financial aid alone and aid plus job placement, and higher, but comparable for the controls and persons receiving placement services only. When only theft crimes are considered, the financial-aid-only group did the best; finally, the inclusion of unauthorized auto use results in equivalent rearrest rates for the group receiving financial aid and job placement and the controls.⁵⁸ In other words, the group in which the most (financial aid and job placement assistance) was invested compared equally with the group in which no investment was made. Table 6-1 illustrates the several results and suggests that some sensitivity analysis might have been appropriate; in addition, in subsequent analyses (later papers), the results of the four groups never again appear. Groups I and II are referred to only as the "financial-aid group," III and IV as the "non-financial aid group" and all conclusions are based on these collapsed groups, an unfortunate turn of events both for researchers and the subsequent efforts in Texas and Georgia.⁵⁹

On the basis of the results of the L.I.F.E. experiment, the program was replicated in the mid-1970s in Texas and Georgia, as

Table 6-1

RESULTS OF THE LIFE PROJECT^a

	<u>Group I</u> <u>Financial Aid &</u> <u>Job Placement</u>		<u>Group II</u> <u>Financial Aid</u>		<u>Group III</u> <u>Job</u> <u>Placement</u>		<u>Group IV</u> <u>Neither</u>	
	#	%	#	%	#	%	#	%
Rearrests								
Total, all crimes	54	50	53	49	63	58	60	56
Theft crimes	27	25	21	19	35	32	31	29
Non-theft crimes	27	26	32	30	28	26	29	27
Theft crimes including unauthorized use of auto	31	29	21	19	37	34	31	29

a Source: Kenneth J. Lenihan, When Money Counts: An Experimental Study of Providing Financial Aid and Job Placement Services to Released Prisoners. Washington, D.C.: Bureau of Social Science Research, Inc., 1976, p. 50, Table 7 (adaptation).

T.A.R.P. (Transitional Aid to Released Prisoners), again under Department of Labor auspices.⁶⁰ Both states used essentially the same design, providing varying amounts of financial assistance to four groups, employment assistance to a fifth, and nothing to the sixth, strict control group. The findings were similar for the two states: financial aid made no positive difference; the groups receiving financial aid had the highest rearrest rates. In Georgia, the group with the largest stipend had the worst rearrest rate, and both research teams concluded that financial assistance programs are a disincentive to job search activity. Implied in the findings is the conclusion that the disincentives of financial aid may have combined with the availability of extra time to permit clients to engage in criminal behavior. The best results were obtained by clients who secured a job on their own, and worked steadily through the study period.⁶¹

The program results are disappointing but, from an economic perspective, not surprising. A typical concern with income maintenance programs is the effect on incentive; combining this with proclivities toward illegal income sources would be expected to produce the results observed in Texas and Georgia.⁶² It appears from these results that financial aid alone is not a sufficient deterrent to criminal behavior.

6.5. Summary

This chapter has reviewed community correctional issues: service provision and financing arrangements, and taxes and subsidies for offenders. Economic principles were found to be relevant in all cases: the community corrections market appears

to be characterized by monopolistic competition -- the presence of numerous vendors selling products which are differentiated more by assertion than substance. The combination of this phenomenon with small production units in part occasioned by public attitudes toward risk results in suboptimal production levels and higher prices for the individual firm and an inefficient provision structure. An unintended consequence of this is the resultant inability of community providers to compete on the basis of price with more traditional correctional institutions. Program outcomes may be insufficient to compensate for the differences. While complete comparability of outputs may not be necessary because of different valuations placed on the provision of services in the community vs. the institution (or, conversely, technically a method should be found to compensate for this), it is advantageous from a social viewpoint to perform programmatic and cost adjustments such that the differences in the evaluation of costs and benefits at the margin are minimized for the two sets of alternatives. From the perspective of the contracting, e.g., corrections agency, then, two distinct kinds of policy recommendations follow: downward pressure on price can be exerted encouraging somewhat larger provision scales and by treating providers as if they produced similar services (which preliminary evidence indicates that they do). Over the longer term, research on real differences in treatment provision and its relationship to client outcome should be conducted to increase whatever benefits flow from community provision.

Restitution and fees-for-service were discussed in the economic context of taxation effects. The retribution goal suggests

that such arrangements will be visited on the offenders least able to make reparation. If in fact financial restitution and supervision fees are viewed as symbolic rather than substantive, there is a question as to the social efficacy of using scarce public resources, i.e., administrative costs, to produce a symbolic effect. It is dubious that, under the current system, an offender would observe a benefit in making reparation that would result in a feeling that the reparation or fee was justified.

An ability-to-pay approach, however, will not satisfy the retribution goal; in fact, the opposite result will obtain. Furthermore, one unintended consequence of restitution and fees includes the very real possibility of economic crime to compensate for the tax (an increase in illegal work effort). Again, little is known on offender response patterns to such "taxes," although the presence of both low legally-earned income levels and client experience with illegal activities suggests that present programs may be producing social costs in substantial excess of observed benefits. As with other policy choices, economic arguments may not be the only decision criterion but they can provide additional information about the consequences of a particular set of choices. Too little is known about the effects of restitution and fees to conclude that they represent appropriate policy choices. There may be a level of payment sufficient to meet public goals, which will not produce unwanted behavior on the part of the offender. Research on offender preferences and gains from illegal income sources would be a start toward identifying this level.

Such research would also have utility in the examination of programs which provide financial assistance to offenders. The abject failure of such programs to date suggests that different provision mechanisms may be necessary to assure appropriate behavior during the post-release transitional period. The expected presence of disincentives to work does not necessarily argue for abandoning the notion of assistance but rather to develop alternative delivery strategies. If the earlier experiments had been appropriately evaluated, it is possible that the later programs could have been more successfully tailored. Too, it was not necessary to reinvent the wheel and discover that ex-offenders, as many other people, when given the choice of equal earned and unearned incomes, will choose the unearned. Thus, the portion of the experiment which reduced assistance nearly dollar-for-dollar might have been replaced by an employer incentive or similar program feature. There is some evidence which indicates that many employers are reluctant to hire ex-offenders without additional inducements. Thus, information available from the economic and corrections literature could have been brought to bear in the program design. Unfortunately, the federal resources and interested administrators will probably not again be available in the magnitude necessary to examine the concept on a broad basis. Hopefully, smaller efforts will be undertaken so that the idea is not lost before it is appropriately evaluated.

FOOTNOTES

1. U.S. President's Commission on Law Enforcement and the Administration of Justice, Task Force Report: Corrections. (Washington, D.C., 1967), p. 112.
2. Joint Commission on Correctional Manpower and Training, A Time to Act. (Lebanon, PA: Sowers Printing Co., 1969), pp. 61-62.
3. National Advisory Commission on Criminal Justice Standards and Goals, Corrections. (Washington, D.C., 1973).
4. See Gene Kassebaum et al., Contracting for Correctional Services in the Community. (Washington, D.C.: Law Enforcement Assistance Administration, 1977), Billy L. Wayson and Gail S. Funke, "The Economics of Subcontracting for Correctional Treatment Services" (Subcontract to Kassebaum, unpublished, 1976), Minnesota Department of Corrections and Minnesota Crime Control Planning Board, Minnesota Community Corrections Act Evaluation: General Report, January 1981; and Abbe Vilinsky, Gail S. Funke and Billy L. Wayson, Cost-Effectiveness of Community Programs in Connecticut, Report to the Criminal Justice Education Center (Alexandria, VA: Institute for Economic and Policy Studies, Inc., 1980.)
5. It may be argued whether the corrections agency is really a quasi-consumer or a subcontracting supplier.
6. Problems arise when attempting to measure criminal behavior. Ordinarily, arrest is used as an indicator, but this only captures some (unknown) fraction of actual criminal incidents.
7. The latter cost often is referred to as "widening the net" as overall supervision increases and "alternatives" are really additional mechanisms by which courts can minimize risk.
8. Minnesota Department of Corrections and Minnesota Crime Control Planning Board, op. cit. While the intent of this study was to measure the effects of changes in the administrative structure of community services provision, the methodology involves examining phenomena such as sanction severity and could be applied in other contexts.
9. There are of course other possible criteria but this one has the appeal of being measurable.
10. A recent study found no significant relationship between client needs and community services provided. Vilinsky, et al.,

op. cit. However, the needs assessment was performed by the state department of corrections prior to placing releasees in community programs. It may be that a reassessment of needs took place at the program level which was not picked up by the management information system. More research is obviously needed.

11. Wayson and Funke, op. cit., pp. 22-24.

Conversations between the author and community corrections providers in Connecticut indicated monopsonistic elements, expressed by the providers as relative helplessness in dealing with the department of correction.

12. Unrestricted funds are those unearmarked monies over which organizations have considerable expenditure discretion. They ordinarily occur as donations or contributions from charitably-oriented individuals or organizations.
13. See for example, Wayson and Funke., op. cit., in which the median residential budget was \$150,000 (1975 dollars), non-residential median was \$100,000 (n=83), or Donald J. Thalheimer, Cost Analysis of Correctional Standards: Halfway Houses, Washington, D.C.: 1975) for a cost range of \$108,000 (1974 dollars) to \$145,000 (n=30), depending on services offered.
14. In part this phenomenon is politically determined since a "small" corrections facility is considered to be more amenable to community preferences.
15. Thalheimer, op. cit., found 18 clients as an average; the contracting study (Kassebaum, op. cit.), found 19, with a range between 4 and 54 clients for residential facilities.
16. Vilinsky, et al., op. cit.
17. In the contracting study we encountered one program accommodating only non-pregnant women check forgers with no drug abuse history, another taking only female clients who exhibited the opposite characteristics. The two staff structures were essentially the same and both operated at less than one-half of capacity.
- Another alcoholism organization separated its programs by physical handicap -- deaf alcoholic, blind alcoholic, etc. -- with accompanying full staff complements for each.
18. In the contracting study, 30 percent of forty programs analyzed were operating at 90 percent of capacity or above.
19. See C. E. Ferguson, Microeconomic Theory. (Homewood, IL: Richard D. Irwin, Inc., 1972), pp. 328-330.

20. For example, a sentence of one year for a misdemeanor will usually be served at the local jail; a sentence of a year and one day will automatically remand the offender to state custody. Similarly, an offender may receive a prison sentence (state) or probation (local).
21. Jack D. Foster, Michael Kannensohn, et. al., State Subsidies to Local Corrections: A Summary of Programs. Lexington, KY: The Council of State Governments 1977), p. 2.
22. Ibid., p. 3.
23. Ibid., pp. 4-5.
24. California Youth Authority, California Probation Subsidy Program: A Progress Report to the Legislature (Sacramento, CA: 1974) and Foster and Kannensohn, op. cit., p. 15.
25. Foster and Kannensohn, op. cit., p. 15.
26. California Board of Corrections, Probation Study, 1964, in Janice Holve, An Evaluation of the California Probation Subsidy Program, Vol. III, University of California at Davis, 1975, p. 7.
27. These figures became popular and appeared without qualification in several publications. See, for example, Robert Smith: A Quiet Revolution, U.S. Department of Health, Education and Welfare. (Washington, D.C. 1973).
28. Richard T. Soderberg and Frank Torkelson, A Management Review of the States' Probation Subsidy Program, Sacramento: California Department of Finance, 1972.
29. Holve, op. cit.
30. See Chapter Five. An analysis of California data, for the same time period that probation subsidy was taking effect, indicated much lower marginal than average costs for maximum-security prisons (admittedly not a major source of potential probation commitments, although jail commitments are a possibility); lower marginal than average costs for one medium-security institution and lower average costs for two others.
31. Minnesota Department of Corrections, op. cit., p. 1.
32. Ibid.
33. Ibid., p. 76.
34. This relationship held even when average costs were used to estimate savings, and worsened when a per diem figure was used.

35. Minnesota Department of Corrections, op. cit., p. 68.
36. Ibid., p. 67.
37. Burt Galaway and Joe Hudson, Offender Restitution in Theory and Action. (Lexington, MA: Lexington Books, 1981), pp. 3-5.
38. Paul W. Keve, "The Therapeutic Uses of Restitution," in Galaway and Hudson, op. cit., p. 60.
39. Joe Hudson and Steven Chesney, "Research on Restitution: A Review and Assessment." Galaway and Hudson, op. cit., pp. 135-136.
40. Ibid., pp. 144-145; and Camden H. Raue, "Victims' Assistance Program", op. cit., p. 174 (S. Dakota), Mike Patterson, "The Oklahoma Restitution Program", op. cit., p. 180, and Ted Nelson, "Postincarceration Restitution," op. cit., p. 189.
41. Even recent proposed cost-benefit approaches have not taken this perspective, but rather focus on crime only within the deterrence and general recidivism framework. See, for example, Ronald H. Parker, "Cost-Benefit Analysis," paper presented at the Fourth Symposium on Restitution and Community Service Sentencing, Minneapolis, Minnesota, September, 1980.
42. Patterson, op. cit.
43. Hudson and Chesney, op. cit.
44. The author, while examining offender case jackets in an unrelated project, discovered one in which a second offender claimed he had committed the second crime (burglary) in order to make restitution payments for the first.
45. Joseph H. Sasfy, Fees for Correctional Services: A Survey. (Washington, D.C.: 1980), pp. 22-25. Average monthly participant earnings were \$481, of which \$70 was deducted for taxes, \$194 for subsistence, court costs, restitution, debts and dependents, \$116 was for personal expenses and savings averaged \$100/month.
46. Ibid., pp. vi-vii.
47. Ibid., p. 4.
48. Ibid., p. 31.
49. Assuming no personal injury, the practices of disposing of stolen goods (e.g., fencing) automatically assure that the loss to the victim will exceed the gain to the offender, or in this case, to the state.

50. See, for example, George A. Pownall, Employment Problems of Released Prisoners. (Washington, D.C.: U.S. Department of Labor, 1969) and Daniel Glaser, The Effectiveness of a Prison and Parole System. (New York: Bobbs-Merrill, 1969).
51. Kenneth J. Lenihan, "The Financial Resources of Released Prisoners," Washington, D.C.: Bureau of Social Science Research, Inc., 1974, pp. 6-7.
52. Ibid., p. 10 (Table 4). In 1971, 80 percent of institutions were paying \$1.00/day; several states pay nothing at all, and the only way to acquire funds is through blood donation or sales from crafts activities.
53. Cameron R. Dightman and Donald R. Johns, "The Adult Correction Release Stipend Program in Washington" State Government, Winter, 1974.
54. Ibid., p. 36. The average first arrest for the experimentals occurred 204 days into the community while for the controls it occurred after 185 days, hardly a significant difference. It appears that the program made little difference.
55. Scientific Analysis Corporation, Direct Financial Assistance to Parolees Project, Research Evaluation (San Francisco, CA: Scientific Analysis Corporation 1973). It should be noted that the author, nor the various persons or groups preparing the evaluations, is referring to the studies as ambiguous or otherwise flawed. It is only when one comes to the last two such evaluations that it is publicly admitted that the concept failed.
56. Ibid., p. 79, 79a.
57. Kenneth J. Lenihan, When Money Counts: An Experimental Study of Providing Financial Aid and Job Placement Services to Released Prisoners. (Washington, D.C.: Bureau of Social Science Research, Inc., 1976).
58. It has been argued that this category was inappropriately excluded because "unauthorized use of an auto" represents a bargained plea from a charge of auto theft. It is included here in part to illustrate the sensitivity of the results.
59. See, for example, U.S. Department of Labor, Unlocking the Second Gate: The Role of Financial Assistance in Reducing Recidivism Among Ex-Prisoners, R & D Monograph 45. (Washington, D.C.: U.S. Department of Labor, Employment and Training Administration, 1977); and, Charles D. Mallar and Craig V.D. Thornton, A Comparative Evaluation of the Benefits and Costs from the Life Program. (Washington, D.C.: American Bar Association, 1978) and _____, "Transitional Aid for Released Prisoners: Evidence from the Life Experiment." (Washington, D.C.: American Bar Association, 1978).

60. Charles L. Smith, Pablo Martinez, and Daniel Harrison, An Assessment: The Impact of Providing Financial or Job Placement Assistance to Ex-Prisoners, under U.S. Department of Labor, R & D Grant No. A20-48-75-44. (Huntsville, Texas: Texas Department of Corrections, 1978), and Jack L. Stephens and Lois W. Sanders, Transitional Aid for Ex-Offenders: An Experimental Study in Georgia, under U.S. Department of Labor, R & D Grant No. A-20-13-75-46 (Atlanta, GA: Georgia Department of Offender Rehabilitation, 1978).
61. Smith, et al., op. cit., p. 73 and Stephenson and Sanders, op. cit., pp. 97-99.
62. Indeed, it was suggested by more than one economist during the planning phase that attempts to justify the program on an economic - cost-benefit basis would be inappropriate. Rather, it might be better to view compensation for releasees as a humanitarian device and not try to justify it on other grounds.

Chapter Seven

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Having toured the history, expenditures and contemporary applications of economics to corrections, we now turn to a summary and organization of the knowledge thus gained and offer some recommendations for future endeavors. This chapter will focus on summarizing the various findings, consideration of the issues within the economic framework and providing some research guidelines both for economist and correctional practitioner.

7.1. Summary

The overall focus of this paper has been the utility of the economic approach to the analysis of correctional activities; more precisely, an integration of economic thinking and correctional decision-making. The approach has included a synthesis of knowledge in the field, the bringing to bear of the economic perspective, and finally, conclusions and recommendations. It was suggested that while economics is no stranger to corrections, that the applications have been limited as well as somewhat preliminary. Corrections in part has contributed to this as has the criminal justice setting generally; nationwide, there are varying definitions of crime, multiple sanctions not applied uniformly, differing supervisory and administrative structures, different goals and variation in service provision. Corrections itself is characterized by shifting, sometimes conflicting, always multiple goals.

There is much variation both between and within states in the types and levels of services provided. The concept of multiple consumers and elusive notions of output are further barriers to analysis.

In spite of, or because of these difficulties, it is argued that the economic framework is critical to complete analysis and understanding of corrections. Economics has been recognized as having utility in the analysis of criminal behavior and sanctions. Gary Becker was largely responsible for the transformation, essentially arguing that a little economic thinking about crime and punishment removed the apparent uniqueness of the subject matter and made it susceptible of non-extraordinary analysis. (Perhaps the absence of such a spiritual godfather specifically for corrections has contributed to the later kindling of interest.) In any case, there now exist economic analyses of corrections on a wide variety of topics. What is necessary, however, is a holistic approach wherein economic thinking permeates the analysis of correctional issues both from the perspective of individual cases and systemwide applications.

The framework for the paper was policy analysis -- the use of scientifically derived information in the public decision setting. This focus was chosen because there are really two users, or audiences for economic analysis. One is economists, searching for new applications, refinement of techniques, etc.; but the other is the corrections decision-maker -- the person or group endeavoring to make more informed policy decisions. Ultimately the utility of the economic approach lies in its explanatory and predictive power. The application of economics in a setting where the users are non-economists requires that special attention be given to the development of viable policy recommendations.

In short, the practitioners of each field must occasionally wear the hat of the other. Because correctional managers are non-economists, the economic implications of their choices are not always apparent. So too for economists, the need for analysis and feasible policy recommendations may not be obvious or easily attainable.

Policy analysis unites these perspectives and, it is argued here, provides the setting for major economic contributions to corrections. There are areas discussed here in which the economic approach has been overlooked -- by economists unfamiliar with criminal justice -- and by corrections' practitioners unaware that economics is capable of providing far more insight than what things "cost."

That the issue is worthy of analysis is an understatement. The costs of crime are estimated at \$73 billion for 1978. Some two million persons are under correctional supervision, nearly one-fourth of them in secure incarceration. The moment in history at which the punishment of confinement replaced torture and execution created an ever-expanding network of persons under correctional supervision. Prison populations which numbered 58,000 in 1885 are nearly one-half million today and increased by 137,000 persons in the 1970s alone. The largest correctional proprietor is state government with prison populations approaching 300,000. The United States incarcerates 209 persons per 100,000 population, largely due to these burgeoning populations at the state level.

Financially, corrections and criminal justice are also "big business." The early systems of chargebacks and convict lease and contract arrangements permitted substantial self-support for prisons. The twentieth century change to state-use systems and the concomitant

restoration of prison control to prison officials had its tradeoff in the decline of self-support. Community alternatives have never reduced the prison burden, functioning more as alternatives to more unrestricted freedom.

Criminal justice system expenditures consume \$110 per capita, nationwide; of that, \$25 goes to corrections. At the federal level, corrections consumes 11 cents of the criminal justice dollar; for cities and counties the share is 14 cents; and at the state level, nearly one-half (48 cents) of the criminal justice dollar is expended on corrections. Nationwide, an average of \$7,200 is spent on each state inmate but the range is broad and approaches, sometimes exceeds, \$20,000 per inmate in some jurisdictions. Prison expenditures comprise about 70 percent of corrections expenditures, or five times the outlays for probation and parole. Institutional populations, conversely, account for just under one-fourth of all persons under supervision.

The magnitude of correctional populations and expenditures, as well as philosophical problems about treatment of offenders, provides a fruitful atmosphere for analysis. Conflicting or multiple goals of punishment, deterrence and rehabilitation are something of a frustration, however, to a discipline which largely focuses on outputs. As a result, much of the first economic analysis was confined to the input side, itself no small task, given the wide variety in definitions, record-keeping and accounting practices. Chapter Four chronicled the applications of cost analysis to corrections, revealing substantial work on the input side but somewhat fewer efforts to address cost-effectiveness and cost-benefit questions. The latter are confounded by the problems of specifying and measuring output, something to which

corrections has historically been unaccustomed. The analyses themselves range from the generally illuminating to specific works designed to inform a particular policy question. Technical problems such as joint products and factor indivisibilities and the additional opportunity costs of a largely idle inmate population contribute to the analytical challenges. Measuring and valuing criminal behavior -- the reduction of which is usually an explicit or implicit program goal -- were found to be necessary to much of the analysis, yet time-consuming to conduct. Overall, however, the substantial work on the input side and the promising work on the output side suggested that the foundation for economic analysis was well in place. Information on the limitations of analysis, its use in policy decisions, and the interpretation of results was also reviewed.

Chapter Five revealed the extent of economic analysis on issues concerned with institutional populations and management. First begun in 1974, research on cost functions is beginning to illuminate the variables which affect institutional costs. The analyses are still preliminary, or formative, but mark a significant beginning on collecting data and utilizing statistical techniques and should provide inspiration for future efforts in this area. Very tentatively it appears that marginal costs fall well below average costs for wide ranges of inmate populations and that optimal, cost-minimizing scales of plant may exceed those in current use. Some very preliminary analysis suggests that prisons are not a worthwhile investment in terms of the social benefits now measurable and that other justifications for confinement need to be explored.

But generally, the contribution of the work to date is the beginning of the establishment of the analytical framework through which to examine institutional choices. More work is necessary to establish comparability within and between data sets and to introduce agreed-upon quality measures. Additionally, some effort needs to be devoted to the development of feasible policy recommendations -- not just findings from the analysis but an understanding and translation into suggestions which are understandable and capable of implementation by decision-makers. Presumably as correctional administrators and economists talk to each other or occasionally become one and the same, this issue will be favorably resolved.

Chapter Six, in addressing economic contributions to community issues, took a slightly different tack than its predecessors. In this chapter, it was hypothesized that economics could be highly useful in analyzing community service provision, financing structures and offender programs. Despite the apparent presence of enough information to conduct preliminary analysis, or structure programs based on economic theory, the economic perspective had been somewhat neglected. The potential phenomenon of monopolistic markets in service provision, the possibility of restitution and fee programs acting as a tax on legal behavior, the misadvised experimental design of income maintenance programs -- all of these issues could benefit from an economic approach. While program failures per se are few, solutions presently appear suboptimal and it is hoped that the entry of economics will provide information and incentive for modification and improvement.

The review and critique in this paper indicates that although the utility of the economic approach to corrections has indeed been

demonstrated, much remains to be done. The range of contributions is substantial, yet understates the potential. In the following section the contributions are reviewed; the concluding section provides research recommendations.

7.2. An Economic Framework

Economics can provide new and relevant information for program decisions. The use of the economic approach generates information but also structures the decision-making context. The contributions reviewed in this paper have illustrated the general utility of economics in informing decisions and widening knowledge about particular correctional activities, functions or programs. The knowledge thus produced ranges from halfway house costs to a cost-benefit analysis of a diversion program to development of statistical cost functions for correctional institutions.

The current characterization of corrections is that of an industry comprising cost-minimizing, multi-plant, multi-product, firms. The firm produces intermediate outputs such as confinement, rehabilitative services, employment assistance, etc.; ideally, there is a desired final product of altered criminal behavior, but no general consensus about the mix and level of intermediate outputs which will "produce" this final output.

The research conducted over the last few years allows an assessment of what economic concepts have been found relevant to corrections and what information has been produced. Generally, the input side is well within reach; Chapter Four reviewed the wide range of research on costs of prisons, jails, halfway houses, diversion programs, and

probation. Chapter Three provided an overview of aggregate expenditures for corrections at the federal, state and local level. The output side -- both in definition, measure, and valuation -- remains more elusive, yet critical if decision-making is to be assisted by information at the margin. The work on cost-effectiveness has begun to explore output measures but at present generally is forced to express outputs in input terms. Cost-benefit analysis in its limited applications indicates promising direction in measuring program outcomes and expressing them in financial terms.

7.2.1. Marginal Costs

The utility of this concept is no less to corrections than other endeavors. Marginal cost analysis is critical to determining optimal scale of plant, which in the short run indicates the effects of increasing or decreasing inmate populations within a particular facility; and in the long run indicates the institution size which will minimize long-run average costs. Most of the research has been conducted on correctional institutions and the available evidence indicates that marginal costs lie substantially below average costs and may be constant or decreasing for wide ranges of inmate populations. It also appears that average costs may not reach a minimum except at, perhaps, impracticably large populations. Factors which affect costs have begun to be identified but are as yet inconclusive. One study found, for example, that a violence-prone inmate population tended to exert an influence on costs, while another found no such effect. Some research indicates that the presence of substantial rehabilitative services tends to result in lower long-run average costs than their

absence. Very tentative results suggested that increased inmate space may produce a similar cost-minimizing effect. Preliminary jail research indicates that for small jails, marginal costs approach average costs in considerably larger facilities than usually found in rural jurisdictions. No rigorous research has been conducted on community programs but informal observation suggests that at least for residential facilities, firms do not operate at the minimum point on their short-run average cost curve, i.e., marginal costs lie well below average costs.

7.2.2. Externalities

Several analyses have begun to examine this important criminal justice phenomenon. Most frequently, cost-benefit analysis incorporates an examination of externalities in its research design. These ordinarily include analysis of effects of community programs on public attitudes, education and other program utilization external to the program, and increased client opportunities for criminal behavior in a community setting. The concept has been applied in more limited fashion in institutions. The "happier inmate" notion, for example, suggests that rehabilitative activities and increased inmate space produce a feeling of well-being beyond the direct attributes of the service provision, which is reflected in a reduced need for security-related resources. Research on overcrowding (however measured) suggests that oppressive conditions may result in inmate frustrations which are expressed in post-release criminal behavior. The possibility of economic crime induced by restitution payments or fees may be an unintended consequence of such programs.

Still tentative, the research generally indicates that

unplanned consequences or "third party" effects are an important phenomenon, capable of measurement and necessarily a component of the economic analysis of correctional programs.

7.2.3. Opportunity Costs

The above discussion of externalities, coupled with recent cost-benefit analysis, promises the provision of more complete information on the opportunity cost of correctional undertakings. Work on the value of inmate manpower indicates that the opportunity cost associated with foregone productivity may be substantial. However, at present the work is usually viewed as an isolated exercise and is rarely incorporated into other work where it might produce more complete information. One author who did include estimates for foregone productivity suggested that incorporating inmate opportunity costs so affected benefits and costs of incarceration that unless additional benefits could be found, prison sanctions constituted an extremely poor social investment. It is unlikely that prisons will be abolished because of their high opportunity costs, but additional work on the foregone earnings associated with providing incarceration would be useful in illustrating that the investment may be more costly than is otherwise believed. Such work also should include better estimates of deterrence effects, although it is granted that they are difficult to measure. Further analysis of the costs of constructing new facilities as well as information on the costs of withdrawing land and other resources from other productive purposes may be useful in at least helping to advise decisions on whether to add secure facilities or consider alternatives.

7.2.4. The Firm

The usual treatment here has been that of a firm producing multiple outputs which may be characterized as short and long-run or intermediate and final. During correctional supervision, confinement, punishment and rehabilitative services are provided with the ostensible goal of producing long-term or post-release changes in criminal behavior. For institutions, the link between intermediate and final goods is unclear, particularly since there is conflict in a production process which generates negative (punishment) and positive (rehabilitation) outputs. For general purposes in the analysis the manager was assumed to cost-minimize (although this in fact may not be the case) and some tentative work on correctional production functions has been produced, of a homothetic, CES form. As indicated earlier, production units (prisons, community facilities) appear to operate in the range of decreasing average costs. It may be that there is no feasible point at which average costs are uniquely minimized; in addition, the possibility of multiple, decreasing average cost functions suggests that allocations between plants (prisons) should be made only when knowledge of each cost function is available.

In the community, it appears that monopolistic competition may characterize the market of correctional service providers (Funke and Wayson, Chapter Six) and that considerations of risk compound this effect, resulting in non-optimal price and output levels.

7.2.5. Outputs

As discussed above, correctional outputs presently are less than adequately defined and measured, but the use of cost-effectiveness

and cost-benefit analysis has provided some direction. For decisions at the margin, whether among or between alternatives, valuation of final output is critical. Community programs, moreso than institutions, are evaluated on their final outputs -- reduction in recidivism (often measured in a variety of ways), and earnings benefits due to program participation. As a result, there are some good data on the savings associated with averted crimes (e.g., see Holohan's work in Chapter Four) as well as the lifetime earnings benefit associated with program participation. Perhaps in the future it will be possible to determine more exactly the amount of investment in rehabilitation required to raise the opportunity cost of illegal behavior sufficient to substantially reduce it. As matters stand presently, the output of some correctional activities has been measured, valued and compared with costs. Diversion and supported work may produce outputs which justify their cost; there is some indication, (Bloom and Singer, Chapter Four) that increasing lengths of institutional stay do not produce an incapacitation effect sufficient to justify their cost.

Many economic concepts are subsumed within this and the preceding discussions. Theories of demand need to be used carefully since the primary consumer -- the general public -- exhibits conflicting notions about what correctional allocations "buy" and probably has little idea of supply prices. Attitudes about risk and the difficulty of placing a value on it, combined with the fragmented provision of correctional services suggest that evaluation at the margin of all correctional alternatives is some distance away.

7.3. Recommendations

It remains to collect and categorize a set of recommendations which are intended to improve the quality and utility of future economic research on corrections.

The major recommendation is of course the use of the economic approach in addressing correctional issues. It is, however, useful to articulate specific areas of endeavor or mechanisms by which this might be accomplished and the benefits to be derived. Greater collaboration between the two fields is required, but also necessary among economists conducting correctional research. This approach would be beneficial because the universe of correctional activities and questions which can be informed by economic analysis is probably considerably larger than the existing research would indicate. It was suggested in Chapter Six that local incentives and offender fees and assistance represented areas which rather obviously could benefit from the principles of economics. The possibility that the market of private community providers may be characterized as monopolistically competitive is another untapped example of potential illumination.

It may be that there are correctional activities which represent a good social investment but without economic evidence have been dismissed on other grounds. Prison industries are not expected to operate at a profit or to even meet their costs in most states; usually this is ascribed to low inmate skills. However, the economic perspective suggests that viability be judged in light of what is being produced; prison industries presumably produce more than manufactured goods, and the use of human resource accounting, valuation of true marginal productivity, and identification of constraints peculiar to the

the correctional setting might reveal industries to be more "productive" than is commonly believed.

It was observed earlier that some of the findings and policy recommendations flowing from current economic research may be inappropriate or infeasible in a corrections setting; these include suggestions that the elasticity of substitution between inputs is near unity or that prison administrators seeking to cost-minimize should reduce their intake of violent offenders, or that violent populations do not affect costs. The latter two not only are in conflict, but indicate some lack of familiarity with correctional practices. (Corrections has little discretion at intake, occasionally more at release, depending on how parole is administered; also, if resources are not used to address violent behavior, an estimated cost function will not pick up "costs" of violence. The universe of prisons analyzed to date is far too small to yield conclusive results.) In addition, it is not at all clear that there exists substantial flexibility of substitution between inputs; even were this theoretically the case, there are many constraints imposed by physical plant, unions, budgeting practices and other factors which may mitigate against broad substitution in a particular correctional facility. The derivation of smooth cost curves may understate what appear to be substantial fixed labor resources over wide population ranges, or "lumpy" combinations of labor and capital. Failure to consider the corrections milieu may result in less questioning and re-examination of theoretical findings than would be the suitable to resolve the issue or may lead to policy recommendations so infeasible that they obscure the benefits of economic analysis to correctional decision-makers. Collaboration between

economists and correctional administrators would help sort out invalid research findings, provide reliability check on others, and produce policy recommendations which are capable of implementation.

More research is needed to determine the most suitable techniques for analyzing correctional activities. These include statistical techniques for estimating correctional cost functions as well as methods for ascertaining similarity of production units. Ordinary least squares has been the predominant technique utilized for cost functions but there has been little discussion in the literature about other techniques which might produce better results. Techniques utilized should be specified in the analysis to assist in the dialogue. The use of terms such as "standard cost-benefit analysis" belies the possibilities for arbitrariness and does little to advance the research on better techniques. Cost-benefit analysis can be quite frail because of the many opportunities for discretion throughout the process. Appropriate measures for valuing earnings, education and system benefits, and assumptions about future productivity and the choice of a discount rate are but a few of the problematical areas. There is probably no existing set of techniques which can be uniquely applied to any correctional phenomena; properly the field is engaged in a search for such techniques. What would help, however, is clarification of techniques, data and assumptions utilized in the analysis and some movement toward agreement on such valuation measures as discount rates (or at the least, the use of sensitivity analysis) and estimated changes in productivity. Generally, when methodologies heretofore foreign to corrections are employed, the rationale and assumptions required should be clearly articulated.

A related concern is the lack of standardized definitions and measures in existing analysis. While ideally, a single set of definitions would appear in all analyses, permitting pooling and comparison, at the least, two suggestions are offered which might improve matters. First, research should more explicitly identify the data sources and measurement procedures used in the analysis; secondly, definitions and assumptions which are likely to confuse or otherwise affect the interpretation of results should be made explicit as well. There are numerous areas where definitions, assumptions and measurement may vary, including: categorization of inputs, derivations of direct, indirect, and external costs, and treatment of capital; definitions of outputs, whether final (e.g., reduced recidivism) or intermediate (e.g., provision of rehabilitative or confinement services), units of measurement (e.g., crime-free days, rearrest, reconviction); output measures and valuation procedures; and the costs of crime or the benefits of averted crime. The major consumer of correctional services -- the offender -- is often ignored in analysis. It was suggested earlier that foregone inmate productivity -- an opportunity cost of incarceration and certain other program options -- approaches \$10,000 per person annually. This cost is often absent in analysis and while speculation about its magnitude may be appropriate, it is a substantial cost associated with correctional choices. Decisions at the margin which ignore this cost are suboptimal from an economic perspective because they will operate on distorted comparisons of costs and benefits. At present, data utilization is often dictated by availability and definitions and measures vary with the research.

There are other research directions which may be capable of shedding additional light on correctional issues and increasing economic understanding. One such direction involves the concept of offender choice. In the chapter addressing community service provision, it was suggested that the offender's demand for correctional services might be characterized in terms of situations which increase satisfaction or leave it unchanged under constrained choice. Thus, in the presence of a community residential program, an offender sentenced to this new alternative who would have otherwise received probation is worse off with the option than without. While there is an assumption that offenders surrender certain rights, this does not preclude attempting to minimize inappropriate dissatisfaction in an attempt to maximize positive outcomes. Adopting a (constrained) choice perspective may help to better inform decisions about programs which ostensibly lie within the offender's discretion. To say that an offender "chose" to pay restitution or service fees rather than serve a prison term indicates a lack of understanding of the concept of choice. Similarly, substantial medical experimentation has been performed on inmates who presumably chose to enter the program -- when the alternative was lower pay, poorer living conditions and more monotony.¹ To the extent that offender attitudes are important to post-release behavior, it may be appropriate to study the choice setting and to incorporate real preferences into the decision framework. To date, little has been done on this subject.

More research should also be conducted to determine what system adjustments are required to produce successful outcomes. Analytical frameworks to assess, for example, the impact of state incentives on

local corrections have usually taken a cost-benefit perspective but have not attempted to analyze program failures. It was suggested earlier that the failure of localities to retain offenders in the face of subsidies and chargebacks may indicate a somewhat inelastic demand for state services -- the reasons for which are not presently known. If this is in fact the case, more research on this phenomena might produce more favorable incentive arrangements. Generally, more analysis of what does or does not "work" would increase the probability of future program success by identifying the areas of adjustment.

Issues of equity have been little discussed in the economics-corrections literature. Perhaps equity "is not within the purview of economics but should be left to philosophers, poets and politicians."² Nevertheless, it seems appropriate to suggest that concepts of equity may be relevant for evaluating correctional activities. The range of applications is potentially quite broad.

However, problems arise because of the possible divergence of economic and social equity. Equalizing "economic punishment" may create social inequities and equalizing social punishment can lead to economic inequity. A crime punishable by a prison term of one year deprives all offenders equally of freedom but if their opportunity costs vary, then there is a disparity in economic punishment.³ Similarly, restitution programs which require equal payments for "like" crimes may not be imposing an equal economic sacrifice on the offender-clients. If, as some argue, restitution should also represent a sacrifice on the part of the offender, an equal-payment structure will not suffice.

Clearly, the issue is far from resolution; but equity considerations provide yet another arena in which to approach correctional goals and activities.

Another general research effort might be the closer examination of the theories which are currently in use to explain correctional phenomena. The usual production approach, for example, has been the traditional theory of the firm. It may be that other theoretical constructs would be more illuminating. The behavioral theory of the firm represents one such avenue. Using this perspective, interest focuses on the decision-making process within the firm; the producer may not profit maximize or cost minimize, but have other goals.⁴ In the case of corrections this might include maximization of budget share or increasing the size of the agency or division under the producer or manager's control. The decision-problem focus is quite analogous to correctional producers: uncertainty, less than 100 percent rational behavior, and choice between two or more courses of action. The future is uncertain but relevant as "decision-makers realize that present actions may influence conditions which will confront them in the future."⁵

The state-of-the-art is as yet at too preliminary a stage to blithely cast out one theoretical framework in favor of another. However, broader hypothesizing about which approaches may produce valid findings and decision-relevant information would seem to be particularly appropriate at this stage.

Finally, the suggestion that economic criteria and considerations become routine components of the analysis of correctional activities is meant to imply that economics is broadly useful. It may

not always be necessary or possible to utilize a rigorous study framework, but economic theory is rich enough to increase the information brought to bear on many decisions, if only informally. A rigorous framework is not necessary to begin thinking in economic terms.

Ideally, the general objective may be marginal analysis, but within the resource constraints and time limitations of the policy analysis setting, less ambitious efforts can produce usable information and enhance the value of the economic approach. An administrator desirous of knowledge about the impact of short-term increases in inmate populations, the effect of more liberal parole procedures, or the average costs of a community program may be happy to settle for, e.g., engineered rather than statistical cost functions.⁶

Existing research has demonstrated the relevance of economics to corrections. Hopefully future efforts will more firmly cement the economic approach and lead to the more thorough integration of the two fields.

FOOTNOTES

1. Peter B. Meyer, Medical Experimentation on Prisoners. (Lexington, MA: 1977).
2. Richard A. Musgrave and Peggy B. Musgrave, Public Finance in Theory and Practice. (New York: McGraw-Hill, 1980), p. 89.
3. Indeed, some critics argue that our nation's prisons tend to be disproportionately occupied by offenders with low opportunity costs and that we in fact do not "punish" equally for equal crimes, at least in terms of deprivation of liberty.
4. Kalman J. Cohen and Richard M. Cyert, Theory of the Firm: Resource Allocation in a Market Economy. (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1965).
5. Ibid., p. 310.
6. For example, one can produce estimates of marginal costs for a prison by employing some assumptions about what costs might vary with changes in the inmate population and inspecting budget or expenditure reports to derive figures for these costs. This method lacks the analytical force of a more rigorous approach but nevertheless is capable of producing decision-relevant information.

APPENDIX A

COSTS OF CRIME, 1978

APPENDIX A

COSTS OF CRIME, 1978^{a/}
(Dollar Amounts in Thousands)

	<u># Crimes</u>	<u>Total Costs</u>	<u>Percent</u>
Victims - Household		b/	
Violent Crimes			
Homicide	19,555	\$ 858,871	
Assault	558,102	4,450,938	
Rape	67,131	525,151	
Property Crimes		c/	
Burglary	2,017,922	990,800	
Larceny	5,983,401	1,065,045	
Robery	47,125	19,274	
Auto Theft	991,611	1,447,752	
Fraud		7,162,600	
Victims - Business		d/	
Retail		7,485,400	
Wholesale		2,027,300	
Manufacturing		2,807,000	
Services		4,210,500	
Financial Institutions		171,500	
Other		8,218,300	
Privately Purchased Protection		<u>5,146,200</u>	
Total		\$46,586,631	64%
Criminals		e/	
Foregone Productivity		\$ 3,655,300	
(-- Room and Board)		(1,588,400)	
Welfare Benefits - Dependents		<u>130,150</u>	
Total		\$ 2,198,050	3%
Society			
Total Federal CJ Expenditures		\$ 3,122,290	
Total State CJ Expenditures		6,688,192	
Total Local CJ Expenditures		<u>14,321,513</u>	
Total		\$24,131,995	33%
Grand Total		\$72,915,676	

- a/ Sources: Holly Ulbrich and Lowell Nordquist, "The Distribution of the Costs of Crime," Readings in Correctional Economics. (Washington, D.C.: American Bar Association, 1975); U.S. Department of Justice, Federal Bureau of Investigation, Crime in the United States 1978; adaptation by author.
- b/ Includes survivor grant awards for murder @ \$42,900 average and funeral expenses; assault and rape awards @ \$7,400 average and average disfigurement awards of \$975 x .16 (assaults); and unreimbursed medical expenses.
- c/ Average burglary value @ \$491; larceny @ \$178; robbery @ \$409; auto @ \$1,460.
- d/ 1971 figures expressed in 1978 dollars.
- e/ See Chapter Four for calculation of opportunity costs.

APPENDIX B

SUMMARY OF SUBSIDY CHARACTERISTICS

APPENDIX B

SUMMARY OF SUBSIDY CHARACTERISTICS^{a/}

State/Correct. Area	Purpose	Formula	Target	Program
AL J*	● improve service quality	● salary match ● fulltime position in small counties	● personnel expenses	● probation
AZ J	● provide family counseling	● client proportion of total county population	● purchase of service from private agencies	● probation (family counseling)
AZ J	● support foster care	● approved per diem rates of private agencies	● operating and maintenance expenses	● probation (residential care)
CA A/J	● reduce state commitments ● reduce recidivism	● Actual state commitments < Expected commitments ● sliding payment scale based on E-A	● comprehensive	● probation ● residential treatment
CA J	● retain juveniles in community	● 50% maintenance ≤ \$95/child/mo.	● comprehensive	● residential juvenile outpatient
CA A	● reimburse local incarceration costs of parole violators	● Actual costs	● operating and maintenance	● detention services
CO A	● develop community facilities	● per diem costs < \$15.50/day/res ≤ \$51.00/pay/nr	● comprehensive	● residential treatment

* J = Juvenile; A - Adult

APPENDIX B (continued)

State/Correct.		Purpose	Formula	Target	Program
Area					
CO	A	● foster community corrections	● state service contract		● operating and maintenance
GA	J	● assist county detention centers	● base and relative county expenditures	● operating costs	● juvenile detention centers
GA	A	● county correctional institution with state prisoners	● \$3.00/day	● operating maintenance	● county correctional institutions
IL	J	● raise academic requirements (B.A.) for juvenile probation officers	● 50% salary ≤ \$300/mo.	● partial salary reimbursement	● probation
IN	A	● expand probation services	● 50/50 with county	● salaries, operating, maintenance	● not yet funded
IA	J	● community-based juvenile correction (residential)	● open -- location, type of service	● operating maintenance	● shelter and detention
IA	A	● community-based correction	● open -- population, geography, services	● comprehensive	● comprehensive
IA	J	● improve, expand local youth services	● reimbursement of actual costs (50% local, 100% state)	● direct care	● not funded, residential and non-residential care
ME	A	● HWH (re-entry)	● availability of \$ and "merit" of proposals	● operating maintenance	● Halfway House

APPENDIX B (continued)

State/Correct. Area		Purpose	Formula	Target	Program
MD	A	<ul style="list-style-type: none"> ● establish community corrections ● reduce prison population 	<ul style="list-style-type: none"> ● 100% reimbursement if standards met ● 75% Capital ● 50% Capital (jail) 	<ul style="list-style-type: none"> ● comprehensive 	<ul style="list-style-type: none"> ● jails and residential treatment centers
MI	J	<ul style="list-style-type: none"> ● small county service provision 	<ul style="list-style-type: none"> ● < 75,000: \$10,000 ● \$5,000 for joint services 	<ul style="list-style-type: none"> ● costs-of-care public and private 	<ul style="list-style-type: none"> ● residential, non-residential programs
MI	J	<ul style="list-style-type: none"> ● protective care 	<ul style="list-style-type: none"> ● 50% costs 	<ul style="list-style-type: none"> ● personnel direct or purchase of services 	<ul style="list-style-type: none"> ● foster care
MI	J	<ul style="list-style-type: none"> ● provide juvenile officers 	<ul style="list-style-type: none"> ● at least one officer @ \$8,5000 	<ul style="list-style-type: none"> ● personnel costs 	<ul style="list-style-type: none"> ● court services
MI	A	<ul style="list-style-type: none"> ● reduce state commitments 	<ul style="list-style-type: none"> ● \$3,000 per E-A 	<ul style="list-style-type: none"> ● salaries, operative, maintenance, purchase of service 	<ul style="list-style-type: none"> ● supervision, residential, centers, services
MN	J/A	<ul style="list-style-type: none"> ● local alternatives to incarceration ● participate in C C Act 	<ul style="list-style-type: none"> ● open 	<ul style="list-style-type: none"> ● operating, maintenance 	<ul style="list-style-type: none"> ● residential treatment facilities programs
MN	J/A (CCA)	<ul style="list-style-type: none"> ● transfer responsibility ● reduce commitments ● improve coordination/locals ● promote local planning 	<ul style="list-style-type: none"> ● needs and ability-to-pay 	<ul style="list-style-type: none"> ● comprehensive 	<ul style="list-style-type: none"> ● comprehensive jails, residential facilities, group homes, probation, parole

APPENDIX B (continued)

State/Correct.		Purpose	Formula	Target	Program
Area					
MN	J/A	<ul style="list-style-type: none"> discourage local lockups, promote regional jail and detention facilities 	<ul style="list-style-type: none"> ADP x \$450A \$800J (Z-county consolidation required) 	<ul style="list-style-type: none"> operating and maintenance 	<ul style="list-style-type: none"> regional jails
MN	J	<ul style="list-style-type: none"> promote probation services in small counties 	<ul style="list-style-type: none"> 50% probation officer salary and fringe 	<ul style="list-style-type: none"> salaries 	<ul style="list-style-type: none"> probation development
MN	J	<ul style="list-style-type: none"> promote group homes in smaller counties 	<ul style="list-style-type: none"> 50% care \leq \$150/mo/ per/client 	<ul style="list-style-type: none"> cost of care 	<ul style="list-style-type: none"> foster homes
MO	J	<ul style="list-style-type: none"> develop local community-based treatment services 		<ul style="list-style-type: none"> comprehensive 	<ul style="list-style-type: none"> comprehensive
NV	J	<ul style="list-style-type: none"> improve community treatment improve probation reduce state commitments 	<ul style="list-style-type: none"> proportionate to county youth minimum = \$5,000 	<ul style="list-style-type: none"> salaries, operating, maintenance 	<ul style="list-style-type: none"> comprehensive
NY	J	<ul style="list-style-type: none"> provide foster care 	<ul style="list-style-type: none"> up to 50% if no Fed. if Fed. = 50%, state = 25% 	<ul style="list-style-type: none"> operating and maintenance 	<ul style="list-style-type: none"> probation
NY	A	<ul style="list-style-type: none"> provide probation services 	<ul style="list-style-type: none"> up to 50% 	<ul style="list-style-type: none"> salaries, operating, and maintenance 	<ul style="list-style-type: none"> probation
OH	J	<ul style="list-style-type: none"> expand, improve probation services 	<ul style="list-style-type: none"> up to 50% salary and travel 	<ul style="list-style-type: none"> personnel, support staff 	<ul style="list-style-type: none"> probation

APPENDIX B (continued)

State/Correct.		Purpose	Formula	Target	Program
Area					
OH	J	● provide residential treatment	● 50% cost \leq \$5.00/day/child	● direct care	● residential facilities
OH	J	● development of detention facilities	● population > 100,000 ● 50% cost/\$6,000/bed	● construction	● detention
OH	J	● new facilities for adjudicated delinquents	● age, scale ● 50% construction cost/\$6,500/bed ● 50% operating costs/\$200/mo./child	● construction, operating, maintenance	● residential treatment facilities and programs
OR	J	● reduce institutional populations	● 70% cost of approved plans	● salaries, operating, maintenance, direct care	● residential, non-residential treatment programs
PA	J	● maintain, minimum standards for residential care	● 50% daily costs ● 100% construction	● operating, maintenance, construction	● detention and residential facilities
PA	J	● improve probation services	● 25% salary (if B.A.)	● partial salary reimbursements	● probation development
PA	J	● improve probation services	● up to 100% salary (if B.A.)	● salaries	● adult probation
TX	J	● reduce state commitments	● \$4,050 for A-E > 0	● salary, operating, direct care	● community residential care and probation services

APPENDIX B (continued)

State/Correct. Area	Purpose	Formula	Target	Program
UT J	<ul style="list-style-type: none"> ● minimum care standards 	<ul style="list-style-type: none"> ● 50% detention costs 	<ul style="list-style-type: none"> ● operating, main-tenance, salaries 	<ul style="list-style-type: none"> ● detention services
VA J	<ul style="list-style-type: none"> ● develop community-based detention facilities and post care facilities 	<ul style="list-style-type: none"> ● 50% construction, renovation ● 2/3 personnel expenses ● 100% equipment ● 100% operating expenses ● 100% travel 	<ul style="list-style-type: none"> ● comprehensive construction ● personnel, operating, equipment, maintenance, travel 	<ul style="list-style-type: none"> ● pre- and post-dispositional residential care
VA J	<ul style="list-style-type: none"> ● salary supplements to court services personnel 	<ul style="list-style-type: none"> ● 50% salary and travel 	<ul style="list-style-type: none"> ● court service, 	<ul style="list-style-type: none"> ● intake, diversion, probation, parole
VA A	<ul style="list-style-type: none"> ● underwrite local jail costs for state offenders 	<ul style="list-style-type: none"> ● 2/3 personnel costs, up to \$8,000/person (base = \$12,000) ● other reimbursement on per diem ● 50% construction costs < \$100,000 	<ul style="list-style-type: none"> ● salaries, operating, maintain- 	<ul style="list-style-type: none"> ● comprehensive jail services
WA J/A	<ul style="list-style-type: none"> ● promote regional health and social service facilities 	<ul style="list-style-type: none"> ● funds contingent on meeting state priorities (feasibility, need, etc.) 	<ul style="list-style-type: none"> ● construction 	<ul style="list-style-type: none"> ● facilities
WA J	<ul style="list-style-type: none"> ● reduce state commitments ● increase probation services 	<ul style="list-style-type: none"> ● \$4000 x A-E > 0 or one fulltime salary reimbursement 	<ul style="list-style-type: none"> ● salaries, programs, operations 	<ul style="list-style-type: none"> ● special probation services

APPENDIX B (continued)

State/Correct. Area	Purpose	Formula	Target	Program
WA J	<ul style="list-style-type: none"> ● provide probation services @ local level to serious offenders 		<ul style="list-style-type: none"> ● personnel and direct care 	<ul style="list-style-type: none"> ● probation development ● residential treatment ● alternatives to incarceration

a/ Source: Adapted from Jack D. Foster, Michael Kannensohn, et al., State Subsidies to Local Corrections: A Summary of Programs (Lexington, KY: The Council of State Governments, 1977), pp.12-56.

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