A CRITICAL EVALUATION OF RESOURCE ALLOCATION EFFICIENCY IN THE CRIMINAL JUSTICE SYSTEM OF VIRGINIA

by

Arnold B. Baker

Dissertation submitted to the Graduate Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Economics

APPROVED:

Charles Schotta
Charles Schotta

Stanley E. Boyle
Stanley E. Boyle

Frank Falero, Jr.
Frank Falero, Jr.

R.C. Heterick, Jr.
Robert C. Heterick, Jr.

James F. Tucker
James F. Tucker

July 1971

Blacksburg, Virginia

ACKNOWLEDGEMENTS

I would like to thank the Chairman of my dissertation committee, Charles Schotta, for his patience and guidance, and my committee members, Stanley E. Boyle, Frank Falero, Jr., Robert C. Heterick, and James F. Tucker, for their helpful comments and suggestions in preparing this dissertation.

I would like to thank the National Institute for Law Enforcement and Criminal Justice for awarding me the fellowship grant that permitted me to carry out this project, and the Law Enforcement Assistance Administration, whose funds enabled the data base for Virginia to be collected and organized.

Further, I would like to thank the State Division of Justice and Crime Prevention, the local criminal justice officials, and Crime Prevention Systems Corporation; without their excellent cooperation and assistance, this dissertation would not have been possible.

As I end one career and begin another, I would also like to express by indebtedness to Stanley E. Boyle and Frank Falero, Jr., who, having known me since my days as an undergraduate, offered me continued guidance throughout my graduate career, and somehow managed to make me get to work, and to Charles Schotta, who helped convince me that it could be done after all.

I would also like to thank my wife, Elizabeth, whose proofreading assistance was great help in preparing the final draft, and whose patience and understanding during this first year of marriage extended beyond all human endurance.

Finally, I would like to thank my typist, Mrs. Eva McClain, for a most difficult job well done.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

Statement of the Problem

Recent years have witnessed a dramatic increase in crime across the United States. In order to attempt to combat this increase, the federal government, under the terms of the Omnibus Crime Control and Safe Streets Act of 1968, authorized and funded state criminal justice planning agencies. These planning agencies must allocate resources on a state and local basis so as to obtain the maximum amount of deterrent force and criminal justice per dollar spent. Under this criterion, state and local authorities must attempt to allocate given resources efficiently throughout the total criminal justice system. This, however, typically has not been the case. Due to an almost total lack of data on a statewide basis for local law enforcement and criminal justice agencies, state and local planning agencies have been forced to "guess" at much of their resource allocation in this area. As a result, resources may go to that area or areas for which the best data are available, while neglecting the flow effects on the total system.

This approach can be seen best in the recent trends for change in law enforcement agencies. Since these agencies are required to file annual Uniform Crime Reports with the Federal Bureau of Investigation,

at least some data are available. Hence, perhaps, resources have been allocated for computer systems to plan optimal beat patrols, car locators, etc., in order to increase the probability that a criminal can be apprehended and/or that a crime can be effectively deterred. Further expenditures have been stressed in the area of real time computer information systems (for example, the input for the National Crime Information Center) in order that wanted persons and stolen property may be more rapidly identified, and hence, apprehended and/or recovered. Yet, in most of the localities proceeding along these lines, little attention has been given to the court or prosecution branches of the system. Therefore, if any of the police expenditures do result in a proportionately larger apprehension rate, we have not considered nor do we know what will happen to the incremental cost of the total system. It may well be the case that some additional dollars spent on the law enforcement agencies, while perhaps yielding a dollar's worth of deterrence, may cost the system proportionately more to handle the increased input. We do not know.

Nor do we even know the relative effectiveness of city and county criminal justice systems, and of the police and sheriff's organizations within them. With a given amount of resources, if one type is better able to get the job done than the other, perhaps resources presently used can be saved and reallocated where the need is greatest.

Statement of Purpose of the Dissertation

Before an economist or a state or local planning agency can hope to begin along the path of efficient resource allocation, they

must be able to examine and assess at least the objective costs involved in the total criminal justice system. They need to know the objective costs of major crime types throughout the system and some of the efficiency properties of various agencies within the system, in order to allocate better the available resources of the system with respect to objective cost and crime type.

The purpose of this dissertation is to construct a systems analytic econometric model of the criminal justice system of the Commonwealth of Virginia, and to determine relative system cost and efficiency properties of the system and of one of its major components, in various geographic and demographic regions of the Commonwealth for 1968 and 1969.

Specifically, this dissertation will: (1) Examine the effectiveness of Police and Sheriff's organizations, and the influence of certain geographic, demographic, and organizational factors on them; (2) Examine the relative effectiveness of county and city criminal justice systems, and some of the factors that may affect their performance; and (3) Utilizing the criminal justice system model, make a five-year projection, assuming certain conditions, of the total system cost, and also the cost effects on the system of improvement in the law enforcement agencies in the form of increased rates of apprehension.

If this can be accomplished successfully, the Commonwealth may know where its resources for criminal justice are going, and perhaps have a better idea of where they "ought" to go, if efficient resource allocation in this area is to be more successfully approached, and crime deterrence and criminal justice more effectively achieved.

The Literature on Systems Analytic Criminal Justice Systems Models

The Background Literature

There have been several investigations into the economics of crime within a welfare economics framework. Becker, Ehrlich, Tullock, and Stigler, for example, have been concerned with optimum resource allocation models of criminal justice systems and their relation to society.[1] In particular, they have focused on deriving and demonstrating the conditions required of the system so as to maximize social welfare. Others, within this framework, have tended to focus on the criminal and the question of whether or not "crime pays."[2] While these investigations are extremely interesting, their approaches are beyond the focus of this dissertation: That of developing a model of existing resource allocation within the criminal justice system and examining some of the efficiency properties of the agencies involved. Hence, the interested reader is referred to the original sources listed below for in depth discussion of the material involved.

---

[1]See Gary S. Becker, "Crime and Punishment: An Economic Approach," Journal of Political Economy 76 (March/April, 1968): 169-217; Isaac Ehrlich, "The Effect of Deterrence on Crime," (paper presented at the Southern Economic Association meeting, Atlanta, Georgia, November, 1970); Gordon Tullock, The Logic of Law (New York: Basic Books, Inc., forthcoming 1971); and George J. Stigler, "The Optimum Enforcement of Laws," Journal of Political Economy 78 (May/June, 1970): 526-36.

[2]See, for example, William E. Cobb, "The Economics of Theft: A Case Study of Norfolk," (paper presented at the Southern Economic Association meeting, Atlanta, Georgia, November, 1970).

Little has been written in the area of criminal justice system modeling. However, on the following pages, I shall attempt to describe the relevant pieces in this area.

Geoffrey C. Hazard developed a rather fundamental verbal model of a general criminal justice system.[3] His concern was to delineate the processes that are involved in the movement of an accused individual from the issuance of the initial complaint against him through sentencing and punishment, back into society. His system is divided into four main stages: Police, Prosecution, Judiciary, and Corrections. As he pointed out, however, even though these stages share some areas of common administration between them, no consistent administrative supervision exists for the system as a whole.

In Hazard's "Police" stage, crime complaints are divided basically by victimless crimes (prostitution, for example), direct complaints, and direct observation of crimes in progress. Legally, these crime types can be further defined by felonies and misdemeanors. The police may or may not need a warrant to make an arrest, depending on the particular state laws in question, but the decision to arrest usually lies with the police officer on the scene. After arrest, the suspect may be taken to the relevant police station for detention, and, if sufficient evidence merits it, booked. At this point or at his initial appearance before a magistrate, he becomes eligible for release on bail or on his own recognizance.

---

[3]Geoffrey C. Hazard, "The Sequence of Criminal Prosecution," Proceedings of the National Symposium on Science and Criminal Justice, 22-23 June 1966 (Washington, D.C.: Government Printing Office, 1967).

Hazard's "Prosecution" stage begins with the issuance of an arrest warrant and booking. If the prosecution (normally the district attorney) decides that there is sufficient evidence and motivation for a case to be brought against the suspect, he may prepare a complaint requesting a warrant for the suspect's arrest. This request is generally made even when the suspect is already in custody and has been booked. The request and complaint are submitted to a magistrate so that he may determine whether or not the issuance of a warrant is in order. After the suspect is in custody, he is brought before a magistrate for an initial appearance (usually within twelve to forty-eight hours). If he has been arrested for a misdemeanor violation, he is asked to enter a plea. If a plea of guilty is entered, he is sentenced at this point; if a plea of not guilty is entered, he may be tried immediately or within several weeks, depending on whether or not the arresting officer and complainant are present. In the case of a felony violation, the defendant is informed of the charge against him, bail may be set, and a preliminary hearing decision is made. After the preliminary hearing (or after the initial appearance, if the defendant waives the preliminary hearing), the case is sent to a grand jury. If an indictment is returned, the defendant is arraigned and subsequently brought to trial (bench or jury trial). Because of heavy caseloads, plea bargaining frequently takes place at this stage. That is to say, in return for a guilty plea, the charge against the defendant is reduced to one of a lesser crime. Hazard estimated that between 70 to 90 percent of indictments are disposed of at this stage by a guilty plea.

Hazard's "Adjudication" stage encompasses the act of the trial itself. As the courts within a given area have complete administrative control of the court calendars and judge assignments, both the prosecution and the defense attempt to maneuver their cases so as to obtain the "right judge" on the "right day." This is extremely important, as the judiciary has sufficient power to find a defendant innocent or guilty with a suspended sentence, even though evidence supports the offense charged.

Hazard's fourth and final stage, "Sentencing," begins at the point of a guilty verdict returned against the defendant. The sentence is usually determined within some range set out by the relevant legal statute and may be influenced by a pre-sentence report, as in the case of felons. The pre-sentence report, prepared by the probation department, attempts to set out the defendant's possibilities for rehabilitation. The defendant may receive a sentence of detention, or probation, or the sentence may be suspended. The terms of probation vary with the state and crime type. Correctional institutions, varying in the same manner, include conventional high security prisons, work camps, and intermediate facilities. Prison terms may be reduced by "good time credit," in which no additional disciplinary action is required, and by parole. The parole services are similar to probation, except that they are administered by the state rather than local authorities. If the parolee does not violate the terms of his parole, he will leave the system; if he does, he will return to prison to serve the remainder of his sentence, and subsequently leave the system.

A somewhat similar but more detailed approach was provided by Law Enforcement in the Metropolis, a study edited by Donald M. McIntyre.[4] This study set out an in-depth analysis of the criminal justice system of Detroit, Michigan. By focusing on a specific region, the study was able to deal with a myriad of alternatives that occur at each stage of processing through the system. In its simplest form, the McIntyre system can be viewed as consisting of eight broad phases: Detection and Identification; Arrest; Charging; Adjudication; Disposition of Convicted Offenders; Probation, Parole, Pardon, and Commutation of Sentence; and Supervision and Revocation of Parole. The description of each phase is supplanted by the actual case occurrences within the Detroit area and legal codes involved. Although this study is methodologically similar to that of Hazard and its conclusions are essentially the same, it serves to illustrate the great difficulty in construction of accurate models of criminal justice systems, even when one is dealing solely with a single large metropolitan area.

Robert H. Roy developed a model of the criminal justice system that focused on the problem of detention and rehabilitation, and relied heavily upon the "Patuxent Concept" of the state of Maryland.[5] This concept relates to the Patuxent Institution and its handling of "defective delinquents."

---

[4]Donald M. McIntyre, Law Enforcement in the Metropolis (Chicago: American Bar Foundation, 1967).

[5]Robert H. Roy, "An Outline for Research in Penology," Operations Research 12 (1964): 1-12.

According to Maryland law,

> A defective delinquent shall be defined as an individual who, by the demonstration of persistent aggravated antisocial or criminal behavior, evidences a propensity toward criminal activity, and who is found to have either such intellectual deficiency or emotional unbalance, or both, as to clearly demonstrate an actual danger to society so as to require such confinement and treatment, when appropriate, as may make it reasonably safe for society to terminate the confinement and treatment.
>
> A request may be made that a person be examined for possible defective delinquency if he has been convicted and sentenced in a court of this state for a crime or offense . . . coming under one or more of the following categories: (1) a felony; (2) a misdemeanor punishable by imprisonment in the penitentiary; (3) a crime of violence; (4) a sex crime involving: (A) physical force or violence, (B) disparity of age between an adult and a minor, or (C) a sexual act of uncontrolled and/or repetitive nature; (5) two or more convictions for any offenses or crimes punishable by imprisonment, in a criminal court of this state . . .[6]

If a request is made under these circumstances, the person is entitled to examination by a medical physician, psychiatrist, psychologist, and even his own psychiatrist, paid by the state, if he desires. The examination is followed by a court hearing, with or without a jury and/or counsel at the discretion of the individual concerned. If, as a result of the hearing, the individual is found not to be a defective delinquent, he is returned to the custody of the Department of Corrections and serves his determined sentence, with the possibility of parole and time off for good behavior. If, however, he is found to be a defective delinquent, he is returned to confinement, given an indeterminate sentence without any minimum or maximum limits, and his previous sentence is suspended.

---

[6]Ibid., p. 2.

A system of redetermination hearings is provided to guard the rights of the individual and insure that he is not unjustly incarcerated for life. His first hearing is granted after two-thirds of his original sentence has expired, and subsequent hearings are granted every three years thereafter. These hearings take the same form and provide for the same individual rights as the original defective delinquent hearing. He may be retained as a defective delinquent, or, if found not to be so, may be returned to the custody of the Department of Corrections or may be released if his determined sentence has expired.

The Patuxent Institution itself is under the direction of a psychiatrist, as opposed to a warden, and general supervision is provided largely by other psychiatrists, psychologists, and psychiatric social workers. The inmates are thought of as patients, who enter the lowest echelon of privileges upon their arrival, and move gradually to higher ones as their rehabilitation proceeds. In addition, group psychotherapy, individual chemotherapy and occupational therapy is provided. In a patient's final stages of rehabilitation, the institution may serve the same function as a half-way house.

Roy viewed the present penal system as grossly lacking in its duties.

> Individuals commit crimes, are detected, apprehended, tried, and convicted, and are then confined for the duration of the sentence imposed by the judge. They may earn time off for good behavior or win parole but under the worst circumstances (unless they have been sentenced for life, or a very long term, or to be executed) they can look forward to a certain day of release. They are motivated to behave by conforming to prison regulations but not to mend their ways

> when once again outside the prison walls . . . 70 percent of those released after service are back in jail within five years for the commission of other crimes.[7]

Roy's model is based on the fact that there are costs associated with each repetition of an offender, and under the existing system, he argued, the costs are non-minimal. The overall objective, therefore, is to minimize the sum of all the costs associated with the whole system over time. The model first assumes the existence of penetentiaries such that all defective delinquents will be confined as long as there is a sufficiently high probability for recidivation if they are released.[8] Then the expected total cost equation is

$$ETC = C + D + J + F + (I + R)(S - B) - W[U - (S-B)], \qquad (1)$$

where

ETC = Expected total cost, projected for the future, of a single individual;

C = Cost of a crime, reflected by material loss, loss of life, physical or psychological trauma, disability, etc.;

D = Costs of detection and apprehension;

J = Costs of adjudication: Trial, conviction, and sentencing;

F = Costs associated with loss of liberty, social stigma, loss of support for family, etc.; (to criminal)

I = Annual cost of incarceration; (to state)

R = Annual cost of rehabilitation: psychotherapy, parole supervision, social service, etc.;

S = Sentence imposed by the court, expressed in years;

B = Time off for good behavior, expressed in years;

---

[7] Ibid., pp. 6-7. [8] The model is set out as in ibid., p. 8.

W = Value of work done per year after release (this assumes gainful employment of economic value, which may be regarded as a negative cost);

U = Useful life expectancy of the individual expressed in years.

Roy rewrites this equation to represent the lifetime of a recidivist at the moment of the commission of his first crime as

$$\begin{aligned} ETC = {} & C_1 + D_1 + J_1 + F_1 + (I+R)(S_1-B_1) \\ & + P_2[C_2 + D_2 + J_2 + F_2 + (I+R)(S_2-B_2)] \\ & + \ldots P_n[C_n + D_n + J_n + F_n + (I+R)(S_n-B_n)] \\ & - W\{U - [(S_1-B_1)+P_2(S_2-B_2)+ \ldots P_n(S_n-B_n)]\}, \end{aligned} \qquad (2)$$

where P is the probability of committing successive crimes.

In order to arrive at a decision rule at a point near where the individual is to be released (here C_1, D_1, J_1, and F_1 are viewed as sunk costs and are outside of the decision rule), Roy rewrites equation (2) as

$$\begin{aligned} ETC = {} & T(I+R) + P_2[C_2+D_2+J_2+F_2+(I+R)(S_2-B_2)] \\ & - W\{U-[T+P_2(S_2-B_2)]\} \end{aligned} \qquad (3)$$

where T is the expected period of continued confinement.

Using equation (3), Roy is now able to decide how to "best" handle the individual from both the individual and society's point of view. As he suggests, if P_2 (the probability of committing crime 2) is sufficiently high, at the point of possible release, ETC is minimized by not releasing the individual. Although T, I, and R will be positive and gainful employment (W) will be denied, all of the costs

associated with the probability of crime 2 (C_2, D_2, etc.,) occurring will be zero. If, on the other hand, P_2 is very low, ETC is minimized by release. Where rehabilitation of certain individuals is not possible, ETC may be minimized by making R or the I,S product equal to zero, which, for example, could be accomplished by executing the individual. However, further resource allocation toward rehabilitation may lower P_2, increasing the probability of release after initial confinement.

Roy also suggests that strict minimum cost objectives may not be altogether feasible, but rather that medical resources might be more applied to those who appear more easily salvagable and somewhat less to those not as easily rehabilitated.

He carried his model no further because of the difficulty of measuring many of his cost variables. However, he made no attempt to estimate any of these costs or to empirically evaluate the model in any way.

Martin T. Katzman produced an essay which focused on some of the economic trade-offs involved in the deterrence of street crime.[9] The first part of his essay is devoted to the relationship of the criminals, the police, and the public; the second part, to the economic behavior of the police.

He begins by dividing criminals into three types: the organized criminal, the unorganized professional, and the amateur. He then

---

[9]Martin T. Katzman, "The Economics of Defense Against Crime in the Streets," Land Economics 44 (November, 1968): 431-40.

focuses on the amateur as the criminal type responsible for the largest number of crimes and discusses the costs and benefits involved in criminal activity.

The role that the police play in the deterrence of street crime is bound up with the roles of the public and of the court system. Although the police are thought of as being involved in crime detection, they rarely catch a violent crime in progress; and there are many instances where the victims themselves may not report a crime, or where crime has no such outraged victim (as in the cases of prostitution or drugs). In fact, about the only set of crimes which police detect themselves are traffic violations.

If a crime has been detected, the police may then proceed to apprehend the criminal. The speed and success of this process depend heavily on the speed with which they arrive on the scene, the degree of identification of the criminal by the victim, and the willingness of the public to provide the police with information about the crime.

Even if the criminal is apprehended, there is seldom retribution to a victim of a property crime; and about the only retribution for a victim of a crime against person is seeing the police catch the criminal, and perhaps, seeing the criminal punished. Because of this, Katzman argues that society tends to view the primary function of law enforcement and the administration of justice as deterrence; hence, that the police are able to and should make every effort to decrease "crime in the streets."

The police department is faced with a plethora of resource allocation decisions in pursuit of the above goal. Given a working budget, they must view their output in terms of crimes deterred or criminals apprehended per additional dollar expended. Also, these resources must be allocated among neighborhoods so as to make greatest use of minimizing response time. Choices must be made also on the basis of individual crime type (i.e., which offenders should be pursued in which order). For example, should an offender for a minor offense be released if he can supply information to more serious offenses in the present or possibly in the future?

There are overall trade-offs between detective and apprehensive programs. Too much stress placed on the detective side may lessen the probability of catching criminals in the act; too much stress on apprehension may leave many crimes undetected.

Decisions must also be made in regard to the direct cost of items appearing in the budget, such as manpower (patrolmen, investigators, administrators), vehicles (automobiles, helicopters, horses, motorcycles, scooters), and communication networks (alarm boxes, telephone lines, two-way radios); and the benefit in terms of deterrence and/or apprehension, including help from the public and the courts. The courts, here, affect output via laws against wiretapping, random searches without a warrant, extraction of confessions through torture, etc.

The police must finally weigh all of the above decisions against the public's acceptance of their work. That is, the public may prefer

more or less non-criminal police activity (such as transportation to the hospital in an emergency, etc.) and respond to the needs of the police accordingly.

Katzman's model, taking the form of a flow chart diagram, may be viewed most simply in the following manner: Socio-economic composition influences the opportunities for crime (also influenced by land use structure), the supply of criminals, the amount of private resources, crime detection, crime evaluation, the police budget, public inconvenience, and the amount of criminal investigation; the opportunities for crime, the supply of criminals, private resources (which also influence detection) and retribution and restitution, influence the amount of criminal activity; evaluation of crime influences detection, investigation, police behavior and the police budget; the police budget influences the amount of patrolmen, vehicles, communications and investigators, which, together with court proscriptions, influence police behavior; police behavior influences public inconvenience, and investigation influences retribution and restitution together with detection. Katzman's policy variables are police, proscriptions, and private resources; his outputs are in terms of inconvenience to the public, retribution and restitution, and criminal activity.

As he pointed out, very little is known about the quantitative effects of any of these policy variables on any one output. Therefore, he offered a possible list of policy-output trade-offs which were suggested by his model and its preceding analysis, and which he felt ought to be examined. Without such quantitative knowledge of these

trade-offs ". . . it is difficult to evaluate alternative crime deterrent policies or efficiency of police operations."[10]

The Blumstein-Larson Model

The earliest form of the model appeared as Chapter Five of the Task Force Report: Science and Technology.[11] The model divides the criminal justice system into the branches of police, prosecution, courts, and corrections. Each section has "branches" into the next section and "branches" out of the system.

The police stage uses both crimes observed by police and crimes reported to police as input. This input flows through investigation, arrest, and booking substages with branches out of the system for crimes unsolved, or for which no arrest was made, for release of the individual, and for cases referred to juvenile court.

The prosecution stage consists of initial appearance and preliminary hearing substages, with branches out of the system for charges dismissed, and a branch to bypass most of the court stage and proceed directly to sentencing for petty offenses.

The court stage contains separate courts for felonies, misdemeanors, and juvenile offenses. Felons proceed to the arraignment substage through a grand jury or an information, are tried and acquitted

---

[10] Ibid., p. 440.

[11] A. Blumstein, R. Christensen, S. Johnson, and R. Larson, "Analysis of Crime and the Overall Criminal Justice System," Task Force Report: Science and Technology, President's Commission on Crime and Administration of Justice (Washington, D.C.: Government Printing Office, June 1967), Ch. 5.

or sentenced, and flow into the penitentiary via probation or parole revocation or direct assignment. Misdemeanors proceed as an information through arraignment to the trial stage and subsequently are acquitted or sentenced. Sentencing involves a fine, probation, or a jail term. Juveniles have an intake hearing from which they can be released or receive a non-adjudicatory disposition (medical care, etc.). If neither of these alternatives arises, he receives an adjudicatory hearing, and accordingly is released, given probation, or confined to a juvenile institution.

Using a condensed form of this model and rough data, they calculated these interstage "branching ratios," or transitional probabilities, and further, estimated objective costs and flows for F.B.I. Index crimes for the United States in 1965. This condensed form of the model involves a police arrest stage that branches in to juvenile processing, no complaint filed or charge reduced, and formal accusation and detention. The latter stage branches into dismissed, bench trial, guilty pleas, and jury trial. Individuals flowing through the trial stage are acquitted or sentenced. Those sentenced receive an unsupervised sentence (fine, etc.), prison (with or without parole), and probation.

In addition, by estimating rearrest probabilities, an attempt is made to estimate career arrests and career costs for the same Index crime categories, and also, a hypothetical treatment program is suggested as a means of increasing effectiveness and reducing costs of the criminal justice system.

This first version of the model used both data from F.B.I. and California sources to approximate the probabilities, costs, and flows for the United States. The model was general in form and not rigorously defined. It served, however, to demonstrate that such a model could be built and could be of value in evaluating and forecasting the needs and costs of a criminal justice system.

The later, formalized model appeared in Operations Research some two years later.[12] Using the previous two models as background, I shall attempt to describe the specifics of this later version.

There are, as previously, two different models involved: The linear model, and the feedback model. The former is based on an assumed steady-state and is used for calculating transitional probabilities, workloads, and stage/system operating costs. The latter is used for handling the problem of recidivism.

The linear model is similar in form to the earlier version. The flow through the system consists of a seven-component vector of F.B.I. Index crimes. Specifically, these are Willful Homicide, Forcible Rape, Aggravated Assault, Robbery, Burglary, Larceny of fifty dollars or over, and Auto Theft. The input to the system consists of the numbers of crimes reported to the police during one year by crime type.

There exists at each processing stage, vector cost rates (per unit flow) and transitional probabilities. The input to each stage flows out of the stage via a multiplication of input and probability vectors. To use the Blumstein-Larson example,

---

[12] Alfred Blumstein and Richard Larson, "Models of a Total Criminal Justice System," Operations Research 17 (March-April, 1969): 199-232.

$F_{i,n} = F_{i,m}P_{i,mn}$, where

$F_{i,m}$ = number of offenders associated with crime-type i, entering processing stage m during one year;

$F_{i,n}$ = number of offenders associated with crime-type i, following route n out of the processing stage m; and

$P_{i,mn}$ = probability that an offender associated with crime type i input at stage m will exit through route n, where

$$\sum^{n} P_{i,mn} = i \ .$$

Given the flow at each processing stage, total costs are determined by multiplying unit costs by the flow rates. Workloads in terms of trial days, police man-hours, etc., can also be calculated. Blumstein and Larson, however, for this part of the model, tended to focus on the prosecution and the courts.

The linear model is also subjected to sensitivity analysis. They illustrate how it would be possible to calculate an incremental cost per person, and a fractional increase in cost per unit, fractional increase in the number of persons, or cost elasticity. Their analysis of incremental costs for five crime types for California, 1965 (larceny and homicide were omitted for lack of a uniform definition), showed that the total incremental system costs were largest for Robbery, followed by Rape, Assault, Auto Theft and Burglary. If ranked by cost of the correctional system, the same order prevailed except that Burglary exceeded Larceny. For the cost of prosecution and court system, cost of police, and cost of police detectives, the ranking was Rape, Robbery, Assault, Burglary, and Auto Theft.

The linear model also is used to examine trends in arrests per reported violation for Burglary, Grand Theft (Larceny over two hundred

dollars in California), Auto Theft, Robbery, and Assault in California for the period 1961-1966, and to project Index crimes reported to police in California, 1958-1966. Using these projections, and by holding the probability of arrest per reported crime constant, upper and lower limits for arrests by crime type (as a percentage of 1965 arrests) were projected by the year 1970. By averaging the upper and lower limits, a single series of arrest projections is obtained.

These projections are then used to project other criminal justice system variables from 1965 to 1970. These variables include the number of adult felony arrests resulting in felony charges, number of detectives required, number of patrolman man-hours allocated to the projected crimes, number of patrolmen required by these crimes, number of jury and bench trial defendants, number of convicted defendants granted straight probation or probation with jail as a condition, number of convicted defendants sent to state prison, and the total system direct operating costs. Figures showed, for example, that by 1970, 119 additional detectives and 73.9 additional patrolmen would be needed. Further, that the increase in systems cost to California would be 17.3 million dollars, and that property crimes would account for 3 percent more of the total system cost in 1970 than in 1965.

Their second model, the feedback model, centers on the recycling of a criminal's career through the criminal justice system over time. The model is constructed such that given the age and crime of a first offender, the model will predict the number of crimes for which the individual will be arrested, at the ages at which this will take place,

and the average cost to the system for this individual's criminal career. In addition, by adjusting rearrest probabilities, the effects of different system policies on recidivism can be simulated.

Input for the model is distinguished by crime type, but is in the form of the number of "virgin" arrestees per year, by age and crime type. This input is added to recidivists, and the total number of arrests now proceeds through the system as in the linear model. However, a series of conditional rearrest probabilities are specified as a function of an individual's age and prior criminal record, for all dismissal points of the system.

This model aggregates many of the specific functions set out in the linear model. In fact, there are only seven main Branches: Total Arrests (the sum of virgin arrestees and recidivists), Adult and Juvenile breakout (adults separated from juveniles), Formal Charging (separating those adults formally charged from those who are not), Disposition (adults released, incarcerated, or placed on probation), Incarceration, and Parole. For each branch out of the system (including juvenile arrests), there are different time delays established for the commission of the next crime. After flowing through these time delays, the individuals are processed through a crime-switch matrix (a matrix of conditional probabilities such that given that the last crime for which an individual was arrested was, for example, Burglary, it would yield the probability that the next arrest would be for Rape), and then those that recidivate flow into the arrests.

Due to the fact that consistent data of the required level of aggregation were difficult to obtain, some estimates of variables

and parameters had to be obtained from several different sources, including California, Minnesota, Washington, D. C., and the federal government. Also, the following simplifying assumptions were explicitly set out.[13]

1. Future criminal behavior is determined solely by the age of the offender, the crime for which he was arrested, and the disposition of his last arrest.
2. The crime-switch matrix depends only on the crime type of the last arrest, not upon age, disposition, or otherwise upon prior criminal career.
3. CJS branching ratios are not a function of age or prior criminal career.
4. Delay until rearrest is a function only of disposition.

Using these assumptions and the data sources mentioned above, the model is used to calculate the career profiles of one thousand twenty-year-old arrestees, including the systems cost, for two different sets of rearrest crime-switch matrices. Also, the model distributions by crime type for sixteen- and twenty-year-olds is compared to the Uniform Crime Report distributions of fifteen- and twenty-year-olds and shown to be similar. Further, career profiles are re-calculated (for the second rearrest matrix), assuming a one-third reduction in the probability of recidivism. The results show that total career arrests per person are roughly cut in half.

Both of the Blumstein-Larson models provide sound methodological approaches toward understanding, evaluating, and planning criminal

---

[13] Ibid., p. 225.

justice systems. However, due to the lack of consistent data of the level of aggregation required by the models, their empirical results may be open to question.

CHAPTER II

THE CRIMINAL JUSTICE SYSTEM OF VIRGINIA

The Institutional Framework

The Commonwealth of Virginia spans a land area of 40,815 square miles and had a 1969 population of 4,781,175. The 96 counties and 38 cities have been divided, under the Omnibus Crime Control and Safe streets Act of 1968, into 22 planning districts. The planning district lines were drawn so as to include those counties and cities of similar demographic and geographic characteristics. In this manner, the local planning district commissions, who are charged with evaluating local law enforcement and criminal justice activities and submitting annual criminal justice plans, could better examine and understand the problems of their region.

At the state level, there are approximately nine law enforcement agencies: the Department of State Police, the Capitol Police, the Division of Motor Vehicles, the State Corporation Commission (including Fire Marshall and Motor Carrier subdivisions), the Commission of Marine Resources, the Commission of Game and Inland Fisheries, the Alcoholic Beverage Control Board, the Department of Conservation and Economic Development (including Forest Warden and Park Police subdivisions), and the Department of Agriculture and Commerce.[1]

[1] Virginia Council on Criminal Justice State Comprehensive Plan, Fiscal 1971, p. 26.

The Attorney General and the Supreme Court of Appeals constitute the prosecution and court on the state level.

> . . . [T]he Attorney General unless specifically requested by the Governor, has no authority to institute or conduct criminal prosecutions in trial courts, except cases involving Alcoholic Beverage Control Act violations, laws relating to motor vehicles and their operation, handling of funds by a State agency, and cases involving the practice of law without due authorization or license.[2]

He is, however, the state's representative at all criminal appeals to the Supreme Court of Appeals.[3] The Supreme Court of Appeals does have some special first instance power, but in general functions as a court of general appellate review.[4]

Agencies of the state penal system include, for adults, the Virginia Penitentiary, the State Industrial Farm for Women, the Bureau of Correctional Field Units (containing 30 field units performing labor for the State Department of Highways), and the Bland Correctional Farm (for adult and juvenile male misdemeanants);[5] for male juveniles, they include the Juvenile Vocational Institute, the Hanover School for Boys, the Beaumont School for Boys, the Natural Bridge Forest Camp for Boys, and the Pinecrest Center;[6] for female juveniles, they include the Bon Air School for Girls, and the Janie Porter Barret School for Girls.[7]

At the other extreme, at the town level, there may be town police, a town attorney, and a town municipal and/or police court, depending on the local ordinances. The courts may have general civil

---

[2]Ibid., p. 76. [3]Ibid. [4]Ibid., p. 65. [5]Ibid., pp. 83-91. [6]Ibid., pp. 100-40. [7]Ibid., pp. 140-53.

and criminal misdemeanor jurisdiction, or it may have a jurisdiction limited to the enforcement of town ordinances.[8]

In addition, scattered throughout the state, there are approximately 800 Justices of the Peace.[9] There is no requirement that the Justice have any legal training, and he may be either elected or appointed, within each jurisdiction.[10] Basically, they may issue arrest and search warrants and commit to jail or admit to bail, again depending on the local laws.[11]

Between the state and the town level, lie the counties and cities, the focal points of this dissertation. In Virginia, cities constitute separate jurisdictions from counties, with towns of under 5,000 population usually coming under the county jurisdiction.[12] I shall discuss these two areas by the type of functional agency involved.

Law enforcement activities, at this level, are usually handled by the police in the cities and the sheriff in the counties. The primary difference in these is that the sheriff is an elected, constitutional officer,[13] and the police chief is appointed. One-third of the sheriff's budget is locally funded,[14] while all of the police budget is locally funded.[15]

There are certain regions of the state where the functions of these two agencies become somewhat blurred. There are a total of 38 independent cities, consisting of 29 cities of the first class (having a population greater than 10,000) and 9 cities of the second class.[16]

---

[8]Ibid., p. 72. [9]Ibid., p. 75. [10]Ibid. [11]Ibid.
[12]Ibid., p. 41. [13]Ibid. [14]Ibid. [15]Ibid., p. 42.
[16]Virginia Council on Criminal Justice State Comprehensive Plan, Fiscal 1970, p. 32.

In cities of the first class, there is a city sergeant who functions as a jailor and process server, and rarely is involved in law enforcement.[17] In the counties, the sheriff is responsible for the jail (if there is one in his jurisdiction) and for serving processes.[18] In the 9 cities of the second class, there is no city sergeant, but the sheriff of the surrounding county performs these duties for the city.[19] In addition, in Arlington, Chesterfield, Fairfax, Henrico, Prince George, Prince William, Roanoke, and York counties, police and sheriff's departments exist side by side.[20] In the latter 5, the sheriff takes on the duties similar to the city sergeant, and the police assume primary responsibility for enforcement of criminal law.[21]

> In addition to the county law enforcement officers above discussed, there are an undetermined number of town officers who are engaged full or part time in police activities. Generally speaking, however, these officers are concerned primarily with the enforcement of local ordinances and keeping the peace within their jurisdiction in case of minor crimes. Town being a part of the county in which they are located, the primary responsibility for law enforcement in the case of serious crime rests upon the sheriff and his deputies or, in certain counties, on the county police force.[22]

Prosecution in the counties and cities is handled by the Commonwealth's Attorney, an elected official, who has a four year term of office, and is responsible for instituting and processing

---

[17] Ibid., p. 32. [18] State Plan 1971, p. 41.

[19] State Plan 1970, p. 32. [20] Ibid. [21] Ibid.

[22] Police Functions in Virginia, Report of the Virginia Commission to Study Coordination of Police Functions in Virginia to the Governor and the General Assembly of Virginia (Richmond: Division of Purchase and Printing, 1950).

the necessary proceedings for persons charged with crimes.[23] A county Commonwealth's Attorney may also prosecute in town courts, where there is no town attorney.[24] Because of budget limitations, misdemeanors and traffic offenses may be tried without the Commonwealth Attorney present.[25]

The court system in the counties and cities consists of courts of record and courts not of record.[26] Courts of record include circuit courts, corporation courts and husting courts.[27] These courts generally have original jurisdiction over felonies and appellate jurisdiction over misdemeanors, although it is possible, in some instances, for them to have original jurisdiction over misdemeanors.[28] The cities of Norfolk, Portsmouth, Richmond, Newport News, Roanoke, Alexandria, Hampton, Chesapeake, Lynchburg, Petersburg, and Bristol have both a circuit and a separate city court of record.[29] Other cities either have a separate circuit court or a combined circuit court with the surrounding county.[30]

Courts not of record include county courts, municipal courts, and traffic courts.[31] County courts have criminal jurisdiction over all offenses against county ordinances and generally all misdemeanors

---

[23] State Plan 1970, p. 77a. [24] State Plan 1971, p. 82.

[25] Ibid. [26] Ibid., p. 65. [27] State Plan 1970, p. 68

[28] Ibid. [29] State Plan 1971, p. 65.

[30] See Appendix 1 for a complete listing or circuit, corporation, and hustings courts in Virginia.

[31] State Plan 1971, p. 65.

within the county.[32] They may also have jurisdiction over cities that do not have a municipal court.[33] Municipal courts have similar jurisdiction for cities and for one mile beyond the city limits.[34] Traffic courts have original jurisdiction over offenses of the Virginia motor vehicle laws, offenses for drunk driving, offenses for motor fuel tax laws, and offenses for municipal traffic ordinances.[35]

Also included in courts not of record are juvenile and domestic relations courts.[36] These courts may take the form of independent courts or regional courts,[37] or may be part of the county court not of record, convening in the same room with the same judge, but only during certain hours or days of the week. The court has general criminal jurisdiction

> over any person less than 18 who has violated any state, federal, municipal, or county law or ordinance or who is habitually disobedient, incorrigible, or truant from school. If he is over 14, there is then, at the election of the prosecutor, concurrent jurisdiction with the court of record under Code Section 16.1-176.[38]

The Criminal Justice System Process

In the preceeding section I have presented the institutional framework of the criminal justice system of Virginia. In this

---

[32] Ibid., p. 67. [33] Ibid. [34] Ibid., p. 68.

[35] Ibid. [36] Ibid., p. 74.

[37] A juvenile and domestic relations court may cover more than one county and/or city. See Appendix 2 for a listing of the regional juvenile and domestic relations courts in Virginia.

[38] State Plan 1971, p. 74.

section, I should like to deal with the process itself--that is, the movement of individuals through the system. The description of the process is based primarily on a general interpretation of the Virginia Statutes, supplemented by discussions with several law enforcement officials and practicing attorneys. Where it is possible, individual statutes will be cited.

To begin the process, and in fairness to the system, a crime must be committed; and once it has been committed, a crime must be noticed. If it goes unnoticed, it is still a crime, of course, but it will not enter the system.

Once a crime is noticed, it may enter the system via the law enforcement branch in one of three ways: by personal complaint, by direct observation, or by indirect complaint (as in the case of victimless crime).

If a personal complaint is made, as in the case of a reported burglary, it is investigated; if found to be a true complaint, it may require further investigation in order to obtain one or more suspects. If a suspect can be named, the police (or sheriff) can proceed to a judge, clerk of the court, police justice or a justice of the peace of relevant jurisdiction to obtain an arrest warrant,[39] and subsequently take the suspect into custody. It may be necessary also, in attempting to identify the suspect, to obtain a search warrant. Here a written complaint, including the specific area to be searched, suspect, and suspected offense, must be presented to a proper judge

---

[39] Virginia Codes 19.1-90 and 19.1-21.

or justice of the peace for him to issue the warrant.[40] If the police (sheriff) apprehend the suspect, they will take him to the relevant station house to be "booked" (official written record of the suspect in custody).

If, however, the police (sheriff) observe a crime in progress, they are authorized to arrest the suspect without first having to obtain an arrest warrant.[41] In this case, the suspect is taken to a proper legal official to secure the arrest warrant.[42] If just cause for arrest cannot be shown, the suspect is released.[43] If a warrant is issued, the suspect is taken to the relevant station house to be "booked," as in the instance already cited above.

An "indirect complaint" is intended to cover the so-called "victimless crimes." These crimes, for example, prostitution, gambling, and possession of illegal drugs, if reported, are generally reported by someone other than the perpetrators and participants of the violations of the law.[44] Once this type of crime has been reported, the police (sheriff) will act in conjunction with the Commonwealth's Attorney to establish a case. To do this may require several days or several months

---

[40] Virginia Codes 19.1-21 and 19.1-85. See also Virginia Codes 19.1-83, 19.1-84, and 19.1-86.

[41] Virginia Code 19.1-100. [42] Virginia Code 19.1-100.1

[43] Ibid.

[44] If, of course, the participant is victimized in some manner--robbed by a prostitute, for example--he may report the subsequent crime of robbery. Typically, however, neither the prostitution nor the robbery violation would be reported.

of intensive investigation, in some cases, aided by police (sheriff's) posing as "customers," or perhaps aided by some type of electronic surveillance device. Necessary search warrants are obtained in the same manner as previously discussed. Once a case is established to the satisfaction of the Commonwealth's Attorney, a written complaint can be presented to the proper authority, and the necessary arrest can be made,[45] and the suspect can be "booked."

At the booking stage, the suspect may be released (if, for example, it can be discerned that the wrong man is in custody), or he may be placed temporarily in local detention facilities. He then may be brought before a judge or justice of the peace. If "good cause" is not given for his arrest, he may be dismissed.[46] If "good cause" is established, he may be returned to the detention facilities, or released on bail, on his own recognizance, or in the custody of someone else.[47] The person making this determination varies with the locality and the offense charged. In general, the arresting officer may set bail for certain misdemeanors;[48] a justice of the peace may set bail for misdemeanors and for felonies "if a light suspicion of guilt falls on him [the suspect]"[49]; and a judge or clerk of a court

---

[45] Virginia Codes 19.1-21 and 19.1-90.

[46] Virginia Codes 19.1-22 and 19.1-106.

[47] Virginia Codes 19.1-106. See also Virginia Codes 19.1-125 and 19.1-128.

[48] Virginia Code 19.1-109.

[49] Virginia Code 19.1-110.

not of record may set bail, but only if a court of record neither has the decision pending nor refused to grant bail.[50] In addition, in certain regions, bail may be set by bail commissioners,[51] who are appointed by the circuit court of that jurisdiction for that specific purpose.[52]

Following the determination of bail, the case may be referred to the prosecution.[53] All felonies and certain misdemeanors (where, for example, a private citizen, who may prosecute, does not prosecute) are referred to his office. He may make a decision whether to dismiss the case (if, for example, he feels that there is insufficient evidence) or whether to prosecute it. If there is a deliberate decision to prosecute or if the decision is implied (as in the case of misdemeanors bypassing his office), a date for appearance in a court not of record is set on the court calendar.[54]

At this appearance in a general court not of record of the jurisdiction where the offense occurred, the defendant may receive a preliminary hearing (if arrested for a felony),[55] be referred to a juvenile and domestic relations court,[56] or, if neither alternative

---

[50] Virginia Code 19.1-111. See also Virginia Code 19.1-112.

[51] Virginia Code 19.1-116. [52] Virginia Code 19.1-114.

[53] Virginia Code 19.1-156. Of course, the case may have been referred to him at an earlier point as previously discussed.

[54] Virginia Codes 19.1-188 and 19.1-189.

[55] A defendant accused of a felony may waive his preliminary hearing in writing. Otherwise, he must have a preliminary hearing. Virginia Code 19.1-163.1.

[56] If he is less than 14 years old, Virginia Code 16.1-177.1; if he is between the ages of 15 and 18 at the time of the commission of the

applies, and he is accused of a misdemeanor violation, he may receive a trial. If he pleads guilty, he will receive an immediate trial without a jury (a summary hearing of evidence),[57] unless good cause for continuance can be shown,[58] and he will be sentenced in accordance with the law. If he pleads not guilty, he will receive a trial without a jury (bench trial) only with his consent.[59] Typically, trials for misdemeanor offenses are in fact non-jury trials, but the defendant is entitled to some choice in the matter. If he does desire a jury trial, another trial date must be set, with sufficient time for a jury to be empaneled. If he does not desire a jury trial, he may be immediately tried and acquitted, or found guilty and sentenced for the offense charged or for a lesser offense, accordingly.

It is not necessary, however, for the defendant to enter a plea; if he does not, the trial proceeds as if a plea of not guilty were entered.[60] If the defendant does not appear before the court within 10 days of the trial date, either a capias will be issued for him to be physically brought to trial, or the trial may proceed as if the defendant appeared and pleaded not guilty.[61]

Should the defendant be accused of a felony and have a preliminary hearing, the court may either terminate the case, or send it to a

---

crime, and less than 21 at the time of the trial, he may be tried as an adult. Exceptions exist for murder and manslaughter violations. See also Virginia Code 16.1-158.

[57] Virginia Code 19.1-193. [58] Virginia Code 19.1-184.

[59] Virginia Code 19.1-193. [60] Virginia Code 19.1-184.

[61] Ibid.

grand jury. Should he waive the preliminary hearing, his case would be sent directly to a grand jury. The grand jury may regularly sit at one term of the court of record, or it may be specifically convened, when ordered by a judge or the court of record.[62] Its duty is to examine the evidence and decide whether to proceed with the case in court or to dismiss it.[63]

In order to proceed, an indictment or presentment must be returned by the concurrence of four of the grand jury members.[64] If an indictment or presentment is returned, the defendant can proceed to trial; but no trial, for a felony, can proceed without an indictment or presentment, unless, by his signed statement, the defendant waives his right to them.[65] In the latter case, he may be tried on a warrant or an information.[66] To assure the defendant the right to a speedy trial, an indictment, presentment, or information must be found and used by the second term of the court.[67] In addition, if the

---

[62] Virginia Codes 19.1-147 and 19.1-149. [63] Virginia Code 19.1-155.

[64] Virginia Code 19.1-157. A grand jury may have 5 to 7 members, according to Virginia Code 19.1-150. The legal difference between an indictment and a presentment is that the latter must be endorsed "A True Bill" and signed by the jury foreman; the former must be signed by all of the jurors, and hence does not have to be so designated.

[65] Virginia Code 19.1-162.

[66] Ibid. An information is a type of warrant which differs from an indictment only in that it is presented by the Commonwealth's Attorney, on his oath of office, instead of a grand jury, on their oaths.

[67] Virginia Code 19.1-163.

defendant is not yet in custody officially (as may be the case, for example, in an information), a process will be issued by the judge or court to make the proper arrest.[68]

The trial for a felony will take place in the court of record having jurisdiction over the area where the offense was committed.[69] This could be a circuit court for counties and cities that have neither a hustings nor a corporation court.[70] However, under certain circumstances, a change of venue may be requested by the defense and granted by the court of record.[71] This could be granted to insure a safe and impartial trial, and in general, if "good cause" can be shown to do so.[72]

A person accused of a felony must be present for trial, and at such time, is asked to enter a plea. If he does not do so, he receives a plea of not guilty, and the trial proceeds.[73] If he does not have defense counsel, the court will appoint one prior to his entering a plea.[74] If he enters a plea of guilty, he receives a trial without jury (bench trial); if he enters a plea of not guilty, he will receive a trial without jury only with his consent.[75]

The defendant may be acquitted, referred to a juvenile and domestic relations court, or found guilty on all or part of the indictment against him, or of a lesser offense. He may not, however, be tried in a new trial for any higher offense than that for which he was

---

[68] Virginia Code 19.1-178. [69] Virginia Code 19.1-187.

[70] Ibid. [71] Virginia Code 19.1-224. [72] Ibid.

[73] Virginia Code 19.1-240. [74] Virginia Code 19.1-241.

[75] Virginia Code 19.1-192.

previously acquitted;[76] generally, acquittal by a jury bars further prosecution for the same offense.[77] Further, if the defendant is accused of violating two or more ordinances in the commission of the offense for which he is being tried, a guilty verdict on one ordinance violation bars prosecution on the others.[78] In addition, if the defendant is shown to be insane, he cannot be tried while such a condition exists.[79] In any event, the defendant must be tried (with certain exceptions, including the keeping out of court of certain witnesses) within three regular terms of the circuit court or within four terms of the corporation or hustings court; otherwise, he will be discharged from prosecution for the offense.[80]

In general, persons tried in the jurisdiction of the juvenile and domestic relations court will follow the same process as misdemeanant adults in courts not of record. They will receive a hearing and will either be acquitted, found guilty and sentenced, or referred to a court of record.

Sentencing in a court of record or a court not of record is carried out either by the jury or by the judge, depending on the type of trial.[81] For felony cases, the jury or court of record, may fix the sentence if not specifically fixed by law.[82] The defendant, in general, in either court, may receive a fine, suspended sentence,

[76] Virginia Code 19.1-249. [77] Virginia Code 19.1-257.

[78] Virginia Code 19.1-259. [79] Virginia Code 19.1-227.

[80] Virginia Code 19.1-191. [81] Virginia Code 19.1-291.

[82] Virginia Code 19.1-292.

commitment to a mental institution, probation or confinement. In the first three instances, he will exit the criminal justice system. In the fourth, he will exit the system unless he violates the terms of his probation. Confinement may take place in county or city jails, the state penitentiary, or other part of the state correctional system, depending on the crime type and verdict returned. Unless otherwise prohibited, the confined individual may become eligible for parole after either one quarter of his sentence or twelve years, whichever occurs first, has elapsed.[83] He may be reviewed for parole annually after he becomes eligible, until he is paroled.[84] If he does not violate the terms of his parole, he may be said to exit the system (although he may still report periodically to his parole board); however, if he does violate them, he will be returned to confinement.[85] When the term of confinement ends, whether with or without parole, parole violation, and subsequent return to confinement, the individual will exit the system.

The sentencing options for the juvenile and domestic relations courts, however, are somewhat different than those discussed above. If the defendant is found guilty, the court may take custody of the juvenile and place him on probation; leave the juvenile in his own home, under court supervision, with or without taking custody; take custody and place the juvenile in a suitable home; take custody and commit the juvenile to the local board of welfare, or to the State Board of Welfare and Institutions; take custody and commit him to a

[83] Virginia Code 53-251. [84] Virginia Code 53-252, see also 53-253.

[85] Virginia Code 53-258.

person or persons, giving preference to next of kin; take custody and commit the juvenile to a private, state licensed agency, or foster home; commit the juvenile to a mental institution; refer the juvenile, if he is at least fourteen years old, to a court of record; fine the juvenile up to $100, if he is of working age; or, order support, care, and treatment as the court deems in his best interests.[86] In situations other than referral to a court of record or commitment to a correctional institution, the juvenile will exit the system. In the instance of such a referral, he will flow into the court system as, essentially, a new case and be disposed of accordingly. Following his term of commitment, unless the terms are violated, he will exit the system.

Even if the defendant is found guilty and sentenced, regardless of the court in which the action occurs, he may not serve the sentence because of his right of appeal. If he is tried in a court not of record, he may petition the court of record of his jurisdiction for a Writ of Error;[87] if he is tried in a court of record, he may petition the Supreme Court of Appeals.[88] While the Writ of Error is being applied for, his sentence may be temporarily suspended, and he may be released on bail or on his own recognizance.[89]

If the Writ of Error is denied, his original judgment stands affirmed.[90] On the other hand, if the Writ of Error is granted, the original judgment may be reversed in whole or in part, and he may be

---

[86] Virginia Code 16.1-178. [87] Virginia Code 19.1-282.

[88] Ibid. [89] Virginia Code 19.1-281.

[90] Virginia Code 19.1-288.

acquitted or dismissed.[91] Or, he may receive a new trial,[92] in which instance he would be reprocessed through the court system and essentially be treated as a new case that would remain in or exit the system in the manner previously discussed.

---

[91] Ibid. [92] Ibid.

CHAPTER III

METHODOLOGY

As stated in Chapter I, this dissertation is intended to focus on the relative efficiency properties of criminal justice systems of the cities and counties in Virginia. In this chapter, the specific means of conducting the examinations will be set forth. Police and sheriff analysis will be discussed, followed by the development and analysis of the models of the total criminal justice system, to the sentencing stage. The third section will present a modified form of the model to be used to make system projections; and the final section will present a concise summary of each of the above models.

The Relative Efficiency of Police and Sheriff Organizations

As pointed out in earlier discussions, the city and county criminal justice systems in Virginia contain relatively the same basic elements. However, there is one basic difference in the structure of law enforcement agencies. The police, in cities for the most part,[1] are appointed officers. By and large, the operation of jail detention facilities and process serving is carried out by city sergeants.[2]

[1]Although, as discussed in Chapter II, nine counties do have police departments.

[2]State Plan 1971, p. 42.

Sheriffs, on the other hand, are elected officials. In general, they are responsible for operating jail facilities and process serving within their county.[3] In addition, they face somewhat different demographic and geographic problems. Counties generally offer a much larger territory that must be covered; but the possibility of a lower population density may increase the opportunity for personal contact. Cities, on the other hand, tend to face the opposite sort of problems.

In some type of perfect world, one might expect both types of organizations to perform equally well; but, not having such a world, we shall proceed to see if, in fact, this is the case. We shall begin by assuming that each agency is using the best technology it can, and given this assumption, proceed to develop a testable measure of performance.

The primary duty of law enforcement agencies, with respect to the criminal justice system, may be viewed as deterrence; for if crime is successfully deterred, why indeed, in the ultimate sense, would a law enforcement agency be necessary? But deterrence is not absolute, and at best has been somewhat less than successful.

What tools, then, are at the disposal of these agencies to affect successful deterrence? Primarily, these are detection and apprehension.[4] In some sense, I suppose it could be argued that in fact

[3]Ibid., p. 41.

[4]Detection or the lack of it, in the sense of preventative patrols, may constitute a significant tool of deterrence for law enforcement agencies. Yet, because its impact is at present not possible to measure adequately, it is assumed to be part of the public duty.

there is a third tool: moral suasion; but, as this could as easily come from other sources (for example, parents and ministers), the value of this tool for these agencies appears negligible.

Detection may be an important tool, for undetected crimes cannot flow into the system; and crimes that remain undetected would hardly seem to have a positive influence on deterrence. But although law enforcement agencies can influence detection, the primary influence comes from the public. Quick reporting and gathering of details on the public's part, as they are in a sense "everywhere at all times," should have a much greater impact on deterrence than the patrolling officers of the law, who find it difficult indeed to be everywhere at once.

We are left, then, with apprehension. This is one tool which, although it could be used by the public, remains almost exclusively in the hands of law enforcement agencies. Given a detected crime, the more successfully the perpetrator of that crime is apprehended, the greater should be the effect on overall deterrence.[5]

If we can view successful deterrence as the overall goal of law enforcement agencies and apprehension as the primary tool at their disposal to achieve this goal, we may then proceed to examine the degree of performance with which these agencies utilize this tool. If one type of agency is more successful than another, it may be said to be subject to "better performance."

---

[5]The argument is that if everyone knew that he would be arrested for committing a crime, the costs to him would be higher; and although crime could exist, the number of instances would be strongly reduced. This is, of course, within certain limits. There may be some point where everyone breaks the law because it is unpopular. At these extremes, the system would explode.

The first task, then, is to examine and compare successful apprehension in both the police and sheriff type of organization. This can be done by use of the "clearance rate," the number of successful apprehensions per true complaint. As some crime types may be more difficult to "clear" than others, this examination should proceed on a crime type by crime type basis.

For every crime type (i), then

$$PA_i = A_i/V_i \text{ , for } V_i \neq 0, \tag{1}$$

where

PA_i = clearance rate for the ith crime type;[6]

A_i = number of arrests for the ith crime type; and

V_i = number of true complaints for the ith crime type.

For (c) sheriff and (d) police departments, a mean value of these clearance rates ($\overline{PA}_{i,c}$ and $\overline{PA}_{i,d}$, respectively) may be calculated by crime type. That is,

$$\overline{PA}_{i,c} = \sum_{1}^{c} PA_{i,c}/c - j_i \text{ ,} \tag{2}$$

and

$$\overline{PA}_{i,d} = \sum_{1}^{d} PA_{i,d}/d - k_i \tag{3}$$

---

[6]Ideally, one would like to have a one-to-one correspondence between arrest and reported complaint; however, in the real world, one person may commit several crimes prior to his arrest, and/or several persons may be arrested for one criminal complaint. Due to data constraints, the resultant clearance rates shown here will only approximate the ideal ones. If, however, one can assume that these types of occurrences happen with equal probability in both kinds of organizations, the comparisons should not be affected.

where

j = the number of c for which $V_i = 0$; and

k = the number of d for which $V_i = 0$.

If it can be shown that for any or all (i),

$$\overline{PA}_{i,c} \neq \overline{PA}_{i,d} , \tag{4}$$

then, in the sense previously discussed, one organization may be said to perform better than the other by any or all crime types.[7]

This performance test is only a test of end products of these organizations. One type may perform better because it better utilizes its manpower or perform no better because it utilizes its manpower to the point of scale diseconomies. In order to examine these possibilities, we will assume that for (c) sheriff and (d) police agencies, the clearance rate is a linear function of its manpower:

$$PA_{i,c} = a_{1,i} + b_{1,i} L_c , \tag{5}$$

and

$$PA_{i,d} = a_{2,i} + b_{2,i} L_d , \tag{6}$$

where

i = crime type;

L_c = number of employees of the cth sheriff department;

L_d = number of employees of the dth police department;

[7]This is not to say that there is no variation within police and sheriff departments. See, for example, James Q. Wilson, Varieties of Police Behavior (Cambridge, Mass.: Harvard University Press, 1968), for a discussion of variation in police departments in eight New York communities. See also, John A. Gardner, Traffic and the Police, Variations in Law Enforcement Policy (Cambridge, Mass.: Harvard University Press, 1969), for a similar type of discussion relating to the handling of traffic matters in Massachusetts communities.

b_1 = coefficient of sheriff labor;

b_2 = coefficient of police labor;

a_1 = constant; and

a_2 = constant.

A positive b_1 and b_2 would tend to indicate a positive relationship between clearance rates and labor; negative values, would tend to imply just the opposite.

Other factors may exert some influence on the clearance rate. Population (U), land area (M), population density (Q), and family buying income (Y) may in some manner affect the ease or difficulty in apprehending the criminal. Assuming linear relationships between the clearance rates of law enforcement agencies and these variables, let

n = the total number of law enforcement agencies; that is,

n = c + d.

Then,

$$PA_{i,n} = a_{3,i} + b_{3,i} U_n ; \tag{7}$$

$$PA_{i,n} = a_{4,i} + b_{4,i} M_n ; \tag{8}$$

$$PA_{i,n} = a_{5,i} + b_{5,i} Q_n ; \tag{9}$$

$$PA_{i,n} = a_{6,i} + b_{6,i} Y_n ; \tag{10}$$

and

$$PA_{i,n} = a_{7,i} + b_{7,i} Q_n + b_{8,i} Y_n ; \tag{11}$$

where

b_3 = coefficient of population;

b_4 = coefficient of land area;

b_5 = coefficient of population density;

b_6 = coefficient of average family buying income;

b_7 = coefficient of population density when family income is considered;

b_8 = coefficient of family income when population density is considered;

and a_3, a_4, a_5, a_6, and a_7 are positive or negative constants.

In addition, in order to attempt to determine differences that might be due to a difference of organization between the two agencies, the clearance rate is assumed to be a linear function of a zero-one dummy variable (Z).

$$PA_{i,n} = a_{9,i} + b_{9,i} Z_n \; ; \tag{12}$$

and

$$PA_{i,n} = a_{10,i} + b_{10,i} Q_n + b_{11,i} Y_n + b_{12,i} Z_n \tag{13}$$

where

Z_n = 0, for sheriffs;

Z_n = 1 for police; and

b_9 = coefficient of the organizational dummy;

b_{10} = coefficient of population density when family buying income and organizational variables are considered;

b_{11} = coefficient of family buying income when population density and organizational variables are considered;

b_{12} = coefficient of the organizational dummy when population density and family buying income are considered;

and a_9, and a_{10} are positive or negative constants.

These clearance rates, however, also may be subject to economies and diseconomies of absolute size; that is, in a sense, it may be "easier" or "more difficult" to clear an arrest in areas where more crimes or fewer crimes occur. In order to examine this possibility, the number of true complaints per ith crime type and clearance rates both can be ranked by areas for n areas, and a rank correlation can be performed. If a significant relationship exists, a positive rank correlation coefficient could indicate nondecreasing returns to size class, and a negative sign, the opposite.

Thus far we have attempted to examine relative performance properties via clearance rates, and further, we have made some attempt to explain these rates. We need now to examine the pattern of resources that are allocated by the state, city, and county, and reallocated by the police and sheriff's departments.

Each police and sheriff's organization has an annual operating budget. For police, as explained in Chapter II, this budget is funded locally; for sheriffs, only one-third is funded locally, and the remaining two-thirds is funded by the state. At any rate, this operating budget, which, for the most part, does not include rental expenditures on the building facilities, represents the dollar resources available to the departments for the performance of civil, traffic, and criminal duties. Depending on the involvement of a particular agency, certain portions of this budget are then allocated to the handling of criminal matters, the primary focus of this dissertation. Given this budget allocation, regardless of the number of occurrences of criminal matters,

generally no other variable resource allocation is made. Hence, it is possible to let this amount represent the variable objective cost of criminal matters for the law enforcement agency. Further, this variable cost can be broken down into crime types, and an average variable cost per true complaint can be estimated for each of these types.[8] We shall proceed as follows.

Let

$Dl_{i,n}$ = variable cost of the nth law enforcement agency for the ith type of criminal activity;

$Cl_{i,n}$ = average variable cost per true complaint for the nth law enforcement agency and ith type of criminal activity;

then

$$Cl_{i,n} = Dl_{i,n}/V_{i,n} \cdot \tag{15}$$

In order to adjust for wage-price differentials between regions and hence, facilitate comparisons, the average variable cost may be weighted by an index of wage rates (W_n). This yields an adjusted allocation figure $Cl^*_{i,n}$. That is,

$$Cl^*_{i,n} = Cl_{i,n}\ (W_n) \cdot \tag{16}$$

The mean values for (c) sheriffs and (d) police can be calculated in a manner similar to that used in equations (2) and (3).

$$\overline{Cl}^*_{i,c} = \sum_{1}^{c} Cl_{i,c}/c - j_i \tag{17}$$

[8]Here, of course, we are implicitly assuming that the agencies are operating within the flat portion of their cost curves.

$$\overline{Cl}^*_{i,d} = \sum_{1}^{d} Cl_{i,d}/d - k_i \tag{18}$$

Further, $\overline{Cl}^*_i$ can be evaluated to determine if

$$\overline{Cl}^*_{i,c} \neq \overline{Cl}^*_{i,d} \tag{19}$$

From equations (2), (3), (17), and (18), we have four variables, $\overline{PA}_{i,c}$, $\overline{PA}_{i,d}$, $\overline{Cl}^*_{i,c}$, and $\overline{Cl}^*_{i,d}$, and the equalities or inequalities involved. For a given (i),

$$\overline{PA}_{i,c} \quad \overline{PA}_{i,d} \tag{20}$$

and

$$\overline{Cl}^*_{i,c} \quad \overline{Cl}^*_{i,d} \cdot \tag{21}$$

We have, then, nine possible combinations of clearance rates and average variable cost per true complaint for each (i).

Case	$\overline{PA}_{i,c}$	$\overline{PA}_{i,d}$	$\overline{Cl}^*_{i,c}$	$\overline{Cl}^*_{i,d}$
1		=		=
2		<		=
3		>		=
4		=		<
5		=		>
6		>		>
7		<		<
8		>		<
9		<		>

If case 1 occurs, the clearance rates are the same and the average variable costs per true complaint are the same; hence, there may be no essential difference between the two agencies. If cases 2 or 3 occur, one type performs better than the other, while the same resources are expended per true complaint; hence, one type of organization may be more, in a sense, "efficient" than the other.

If cases 4 or 5 occur, both organizations perform equally as well, but different amounts of resources are expended per true complanit; hence, one may be, again, more "efficient" than the other.

If cases 6 or 7 occur, one agency may perform better than the other, but requires more resources to do so; hence, the relative "efficiency" of the two types of agencies cannot be ascertained by this test.

If cases 8 or 9 occur, one agency performs better than the other, and at the same time, expends fewer resources per true complaint; hence, one agency may be considered more "efficient" than the other as in cases 2 and 3.[9]

The Relative Efficiency of County and City Criminal Justice Systems

In order to examine the relative efficiency of county and city criminal justice systems in Virginia, we must first develop a general, systems analytic model of the system. As there are many

[9]One should be most cautious in interpreting the term "efficient" as used above, as both community valuation and law enforcement agency allocation decisions are embodied in the variable cost per true complaint estimates.

problems in separating the objective costs of correctional institutions into the necessary level of aggregation at the county and city level, the model will terminate at the sentencing part of the process.[10]

The model will treat all cases within one year as separate instances. Recidivist cases will simply be considered another case. Appeals and referrals will be treated in a similar manner. That is, a case brought to trial in one court and brought to trial on an appeal in another will be considered two separate cases.

We assume that the criminal justice system of Virginia can be divided into three main parts or stages: (1) law enforcement, (2) prosecution, and (3) adjudication.[11] Each stage deals only with criminal matters (non-civil, non-traffic).

At the law enforcement stage, input (V_i) enters as an ith dimensional vector of true criminal complaints for (i) crime types. Unfounded complaints (i.e., false alarms) are assumed to be uniformly distributed between counties and cities and sorted out before the complaint arrives at the local law enforcement agency.

As in the previous section, it is assumed that the primary avenue for successful deterrence is successful arrest. Then, PA_i, the

[10]Many juvenile misdemeanants and felons, most adult felons and some misdemeanants are processed through the state system. Many cities and counties do have local detention facilities, but some share them with one or two other political jurisdictions. The model, admittedly, will neglect these costs and hence, understate system costs by detention and correction costs; however, for comparative purposes, the model will be consistent.

[11]The model will be similar in methodology to that of Blumstein and Larson, Models of Criminal Justice System.

probability of clearing the crime by arrest, is equal to arrests (A_i) divided by true complaints (V_i), as in equation (1). For n regions,

$$PA_{i,n} = A_{i,n}/V_{i,n} \cdot \tag{22}$$

The probability of non-arrest for a true complaint can then be written as

$$NPA_{i,n} = 1 - PA_{i,n} \cdot \tag{23}$$

We now assume that after an arrest has been made, it proceeds to the prosecution stage (2). This step omits time considerations for justices of the peace and police justices for issuing warrants and making bail determination.

Misdemeanors at this stage may not be prosecuted by the Commonwealth's Attorney as discussed in Chapter II. There is, then, a probability that an arrest will go to stage 2 ($PS_{i,n}$) for a prosecution decision; the probability that the stage will be bypassed and be prosecuted without the Commonwealth's Attorney present,

$$NPS_{i,n} = 1 - PS_{i,n} , \tag{24}$$

for crime type (i) and region (n).[12]

The calculation of $PS_{i,n}$ will be put off for several steps as it will be necessary to use information discussed in the court stage. There is another probability to be determined at this stage, however; the probability that if a case goes to the Commonwealth's Attorney

[12]For felonies, $PS_{i,n} = 1$, and therefore, $NPS_{i,n} = 0$.

it will be prosecuted ($PP_{i,n}$). The Commonwealth's Attorney may dismiss cases, prosecute them, or have decisions pending. Only if a case has verdicts returned will it be considered prosecuted. If we let

$N_{i,n}$ = Commonwealth's Attorney cases dismissed prior to trial, crime type (i), region (n);

$O_{i,n}$ = Commonwealth's Attorney cases pending, crime type (i), region (n);

$BV_{i,n}$ = Commonwealth's Attorney cases in which a verdict was returned, crime type (i), region (n); and

$TCA_{i,n}$ = total Commonwealth's Attorney cases, crime type (i), region (n);

then

$$TCA_{i,n} = N_{i,n} + O_{i,n} + BV_{i,n} ; \tag{25}$$

and

$$PP_{i,n} = BV_{i,n}/TCA_{i,n} \cdot \tag{26}$$

Cases that either have gone to the Commonwealth's Attorney to be prosecuted or that have bypassed his office to be tried without his presence, will be lumped into an intermediate stage called, "cases to court." From "cases to court," cases flow into the relevant court for the trial and subsequent sentencing.

As discussed in Chapter II, juvenile and domestic relations courts are courts not of record. Counties and cities may either have their own juvenile and domestic relations court, belong to a regional court, or have the same judge, court employees, and building serve both the juvenile and domestic relations court and the local general court

not of record, but at different times of the day or week. For this reason, in this model the juvenile and domestic relations court will be considered a part of the local court not of record whether or not separate physical courts exist. Court data will be summed accordingly to yield one court not of record per locality.

Cases flowing out of "cases to court" will flow either to a court of record or a court not of record. We will assume that these cases actually go to trial, and, that if a dismissal occurs, it will occur at the prosecution stage, prior to arrival at this point. Let

$TCC_{i,n}$ = total cases brought to trial, crime type (i), region (n);

$BTA_{i,n}$ = cases brought to trial in a court of record, crime type (i), region (n);

$BTB_{i,n}$ = cases brought to trial in a court not of record, crime type (i), region (n);

$PBA_{i,n}$ = probability of a court case going to trial in a court of record, crime type (i), region (n);

$PBB_{i,n}$ = probability of a court case going to trial in a court not of record, crime type (i), region (n);

then

$$PBA_{i,n} = BTA_{i,n}/TCC_{i,n} \; ; \tag{27}$$

and

$$PBB_{i,n} = BTB_{i,n}/TCC_{i,n} \; ; \tag{28}$$

We now return to the prosecution stage to derive $PS_{i,n}$. To begin with, those cases with the verdict returned plus those that bypass the Commonwealth's Attorney are equal to "cases to court." That is,

$$BV_i + Bypass_i = TCC_i \; . \tag{29}$$

Then

$$Bypass_i = TCC_i - BV_i \; . \tag{30}$$

From equation (25)

$$TCA_i = N_i + O_i + BV_i \tag{31}$$

Adding equation (31) to equation (30),

$$\begin{aligned} TCA_i + Bypass_i &= TCC_i - BV_i + N_i + O_i + BV_i \\ &= TCC_i + N_i + O_i \end{aligned} \tag{32}$$

Now, the probability that a case goes to the Commonwealth's Attorney for a prosecution decision (PS_i) can be found by dividing the Commonwealth's Attorney's caseload by the total number of cases flowing through and bypassing the stage. That is,

$$PS_i = TCA_i/TCA_i + Bypass; \tag{33}$$

Or, substituting equation (32),

$$PS_i = TCA_i/TCC_i + N_i + O_i \; . \tag{34}$$

From equation (25), this can be rewritten, for (n) regions, as

$$PS_{i,n} = (BV_{i,n} + N_{i,n} + O_{i,n})/(TCC_{i,n} + N_{i,n} + O_{i,n}) \; .$$

We have just defined and derived the intermediate probabilities in this model. We need now to derive the stage probabilities; that is, the probabilities that inputs and intermediate products will reach

a certain stage, and hence, be acted upon by that stage and subject to its costs. Let

$P2_i$ = probability that a true complaint will be processed by the Commonwealth's Attorney;

$P2B_i$ = the probability that a true complaint will bypass the Commonwealth's Attorney and go to trial;

$P3T_i$ = probability that a true complaint will go to trial;

$P3TA_i$ = probability that a true complaint is tried in a court of record; and

$P3TB_i$ = probability that a true complaint is tried in a court not of record.

Then, for (n) regions,

$$P2_{i,n} = PA_{i,n} \cdot PS_{i,n} ; \tag{36}$$

$$P2B_{i,n} = PA_{i,n} \cdot NPS_{i,n} = PA_{i,n}(1 - PS_{i,n}) ; \tag{37}$$

$$P3T_{i,n} = P2_{i,n} \cdot PP_{i,n} + P2B_{i,n} ; \tag{38}$$

$$P3TA_{i,n} = P3T_{i,n} \cdot PBA_{i,n} ; \tag{39}$$

and

$$P3TB_{i,n} = P3T_{i,n} \cdot PBB_{i,n} . \tag{40}$$

The probabilities $P2_{i,n}$, $P3TA_{i,n}$, and $P3TB_{i,n}$ are the probabilities that a true complaint will get to stage 2, stage 3A and stage 3B, respectively. This entire flow process is depicted in Figure 1.

We assumed in the first part of this analysis that the focus of law enforcement agencies could be placed on arrests per true complaint, therefore we must now make some assumptions concerning the costs of this and other branches of the criminal justice system.

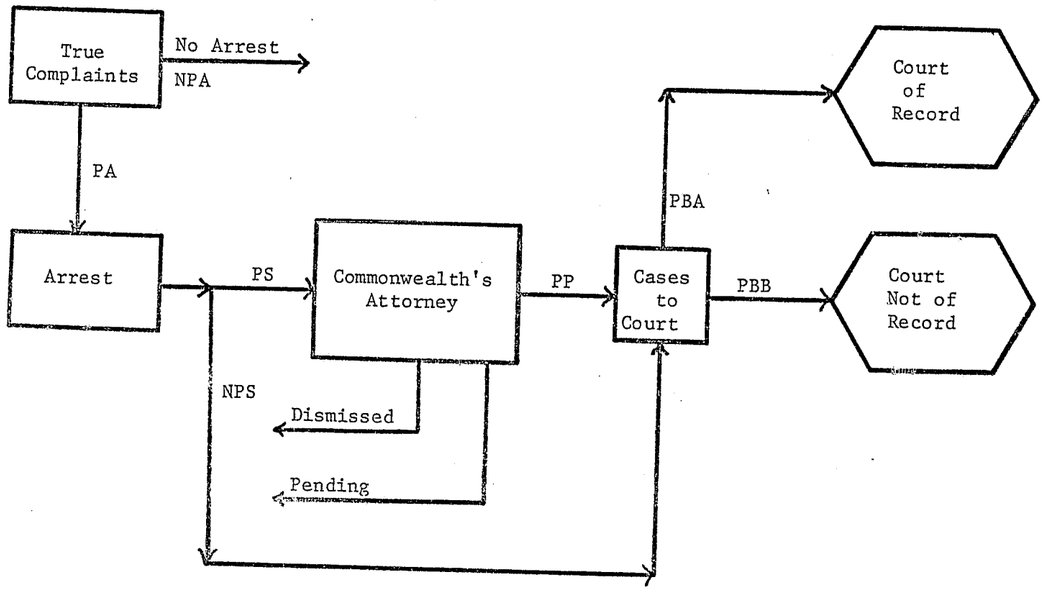

Figure 1

THE MODEL OF THE CRIMINAL JUSTICE SYSTEM OF VIRGINIA

The law enforcement agencies must respond to true complaints. We have argued better performance for the agency "getting their man" more often; we will assume, however, that on the average, there is no difference in system cost between making an arrest for a true complaint and making no arrest for a true complaint, per crime type. That is, every true complaint coming into their organization must be answered, and, there is a systems cost in answering it whether or not an arrest is actually made (investigation time, etc.). As it is not possible to estimate the objective cost for those cases not being cleared by arrest, we make the simplifying assumption that, on the average, the system's cost per arrest/non-arrest, per crime type, is the same.

The Commonwealth's Attorney has a decision of either prosecuting or not prosecuting an offense. As discussed in Chapter II, the decision of dismissing a case, depending on the crime type and jurisdiction, may be made by judges, justices of the peace, police justices, or even police and sheriff's themselves. We have assumed in this model, that this function is the responsibility of the Commonwealth's Attorney. We assume, therefore, that on the average, the objective prosecution cost of the cases prosecuted, dismissed, and pending are the same, per crime type.

In the courts rests the responsibility of adjudication. Courts may find verdicts of guilty of the offense charged, of a lesser offense, or of acquittal; or, they may refer the case to another court or to a grand jury. In juvenile cases, the options run even higher. We will not be concerned with the outcome of the trial, but only with

the fact that a case is brought to trial. We assume that on the average, the court cost per trial per crime type, regardless of trial outcome, is the same. That is, a guilty verdict costs the court system, on the average, the same as an acquittal. Further, no distinction will be drawn between a jury trial and a bench trial, either from a justice or a system cost point of view. In this manner, the output of the court system is justice, rather than any specific verdict.

If, as in the first part of this chapter, we can assume that the agency budget represents the variable cost of the agency, then we can proceed as follows.[13] Let

$D1_i$ = the variable cost of law enforcement agencies by ith crime type;

$D2_i$ = the variable costs of the Commonwealth's Attorney by ith crime type. This figure includes time spent in grand juries as well as court;

$D3A_i$ = the variable cost of courts of record by ith crime type. This includes time that the judges and clerks spend on the grand jury;

$D3B_i$ = the variable cost of a court not of record by ith crime type.

W_i = index of wage rates for counties and cities;

$*$ = adjusted variable cost; and

subscripts i and n denote crime type and region respectively.

$$D1^*_{i,n} = D1_{i,n} \cdot W_n \; ; \tag{41}$$

$$D2^*_{i,n} = D2_{i,n} \cdot W_n \; ; \tag{42}$$

[13] Here, of course, we are implicitly assuming that each agency type is operating within the flat portion of its cost curves.

$$D3A^{*}_{i,n} = D3A_{i,n} \cdot W_n \ ; \tag{43}$$

and

$$D3B^{*}_{i,n} = D3B_{i,n} \cdot W_n \ . \tag{44}$$

If

$C1^{*}_{i}$ = average adjusted variable cost per true complaint for law enforcement agencies;

$C2^{*}_{i}$ = average adjusted variable cost per case referred to the Commonwealth's Attorney;

$CB2^{*}_{i}$ = average adjusted variable cost per case, to the Commonwealth's Attorney, of a case bypassing his office;

$C3A^{*}_{i}$ = average adjusted variable cost per case brought to trial in a court of record; and

$C3B^{*}_{i}$ = average adjusted variable cost per case brought to trial in a court not of record;

then, for (n) regions,

$$C1^{*}_{i,n} = D1^{*}_{i,n}/V_{i,n} \ ; \tag{45}$$

$$C2^{*}_{i,n} = D2^{*}_{i,n}/TCA_{i,n} \ ; \tag{46}$$

$$C3A^{*}_{i,n} = D3A^{*}_{i,n}/BTA_{i,n} \ ; \tag{47}$$

$$C3B^{*}_{i,n} = D3B^{*}_{i,n}/BTB_{i,n} \ . \tag{48}$$

We have now derived the transitional probabilities of cases moving through the stages of the criminal justice system, and the average variable cost per case flowing into each stage. If we now multiply the probability of flowing into each stage by the average variable system cost incurred in each stage, we can obtain the

increment to average variable cost of the system, of one more true complaint entering it. Let X^{*}_{i} represent the adjusted incremental systems cost. Then,

$$X^{*}_{i} = P1_i C1^{*}_{i} + P2_i C2^{*}_{i} + P2B_i CB2^{*}_{i} + P3A_i C3A^{*}_{i} + P3B_i C3B^{*}_{i} \ . \tag{49}$$

Assuming that the probability of a true complaint getting to the law enforcement stage,

$$P1_i = 1 \ ,$$

(which perhaps in further studies, as better data become available, may be relaxed), and that the cost to the Commonwealth's Attorney of cases bypassing his office,

$$CB2^{*}_{i} = 0 \ ,$$

equation (49) for (n) regions reduces to

$$X^{*}_{i,n} = C1^{*}_{i,n} + P2_{i,n} C2^{*}_{i,n} + P3A_{i,n} C3A^{*}_{i,n} + P3B_{i,n} C3B^{*}_{i,n} \ . \tag{50}$$

If there are (c) counties and (d) cities such that

$$n = c + d \ , \tag{51}$$

then a mean value for counties by crime type ($\overline{X}^{*}_{i,c}$) and cities by crime type ($\overline{X}^{*}_{i,d}$) can be calculated.

$$\overline{X}^{*}_{i,c} = \sum_{1}^{c} X^{*}_{i,c}/c - j_i \ ; \tag{52}$$

and

$$\overline{X}^{*}_{i,d} = \sum_{1}^{d} X^{*}_{i,d}/d - k_i \ , \tag{53}$$

where

j_i = ith crime type for which $V_{i,c} = 0$; and

k_i = ith crime type for which $V_{i,d} = 0$.

If it can be shown that for (c) counties and (d) cities, by ith crime type, that

$$\overline{X}^*_{i,c} \neq \overline{X}^*_{i,d} , \tag{54}$$

than one system may have a lower incremental cost per additional true complaint. If we utilize the incremental cost data in conjunction with the clearance rates obtained in the first part of this analysis, we may be able to draw some general conclusions about system "efficiency." As in the first part of this chapter, there will be nine cases of clearance equality-inequality and incremental cost equality-inequality. If a type of region exhibits lower incremental costs and similar clearance rates, similar incremental costs and higher clearance rates, or lower incremental costs and higher clearance rates, it may be said to be more "efficient" than the other. If it exhibits higher incremental costs and higher clearance rates, its relative "efficiency" cannot be deduced a priori; and if both clearance rates and incremental costs are similar, both systems may be said to be as "efficient."[14]

We now proceed to examine possible factors that may influence this incremental cost. We will deal with incremental cost in nominal

[14]Again, as in section one, caution should be exercised in the interpretation of "efficiency" as it includes community valuation and agency valuation of average variable cost. This incremental cost is not marginal cost, but rather an increment to average variable cost.

terms to remove any undue influence to wage rates. Let, as in the first section of this chapter,

U_n = population of the nth region;

M_n = land area of the nth region;

Q_n = population density of the nth region;

Y_n = average family buying income of the nth region; and

Z_n = organizational dummy variable.

Then, assuming a linear relationship,

$$X_{i,n} = g_{1,i} + h_{1,i}U_n ; \tag{55}$$

$$X_{i,n} = g_{2,i} + h_{2,i}M_n ; \tag{56}$$

$$X_{i,n} = g_{3,i} + h_{3,i}Q_n ; \tag{57}$$

$$X_{i,n} = g_{4,i} + h_{4,i}Y_n ; \tag{58}$$

$$X_{i,n} = g_{5,i} + h_{5,i}Q_n + h_{6,i}Y_n ; \tag{59}$$

$$X_{i,n} = g_{7,i} + h_{7,i}Z_n ; \tag{60}$$

and

$$X_{i,n} = g_{8,i} + h_{8,i}Q_n + h_{9,i}Y_n + h_{10,i}Z_n ; \tag{61}$$

where

h_1 = coefficient of population;

h_2 = coefficient of land area;

h_3 = coefficient of population density;

h_4 = coefficient of average family buying income;

h_5 = coefficient of population density when average family buying income is considered;

h_6 = coefficient of average family buying income when population density is considered;

h_7 = coefficient of the dummy variable;

h_8 = coefficient of population density when average family buying income, and the organizational dummy variable are considered;

h_9 = coefficient of average family buying income when population density and the organizational dummy variable are considered;

h_{10} = coefficient of the organizational dummy variable when population density and average family buying income are considered;

and g_1 through g_8 are positive or negative constants. In addition,

$Z_n = 0$, for counties, and

$Z_n = 1$, for cities.

Valuable insight might be gained, via these equations, as to the influence of some of the geographic and demographic, as well as organizational factors on criminal justice system incremental cost.

As in the case of police and sheriff's, this incremental cost may be subject to economies and diseconomies of absolute size. Hence a rank correlation can be performed between true complaints and unadjusted systems incremental cost. Since true complaints (V_i) form the input to the system, the same rankings obtained in the first part of this chapter can be used as the independent variable. As previously discussed, if a significant relationship exists, the sign of the rank correlation coefficient could imply the existence of economies or diseconomies of absolute size.

Projections on the Criminal Justice System Model

In the preceding section, we have developed a model of the criminal justice system of Virginia. In this section, we will derive two projection equations in order to (1) demonstrate the model's usefulness as a planning device, and (2) enable us to draw some tentative conclusions about the direction of criminal justice system costs.

There has been recent emphasis on the implementing of new technology, in law enforcement agencies, particularly in the use of computer communication systems. It is argued that with such capital expenditures in this agency, the clearance rate would improve and hence, deterrence would be greater. This very well may be the case; however, the impact on the rest of the system of improving the clearance rate has not yet been considered.

Let us look at this proposition by examining the impact of such an undertaking upon the system incremental cost. We will neglect the actual cost of such an expenditure, but assume that the effect on the system of such an expenditure is successful enough to yield an increase in the clearance rate of (r) percent per year for (y) years.

From equation (50), in nominal terms,

$$X_i = C1_i + P2_i C2_i + P3A_i C3A_i + P3B_i C3B_i \quad . \qquad (50')$$

Expanding, via equations (36) through (40),

$$X_i = C1_i + C2_i(PA_i PS_i) + C3A_i(PBA_i P3T_i) + C3B_i(PBB_i P3T_i) \qquad (63)$$

Further expanding the last two terms,

$$C3A_i(PBA_iP3T_i) = C3A_iPBA_i(P2_iPP_i + P2B_i)$$

$$= C3A_iPBA_i[PP_iPS_iPA_i + PA_i(1-PS_i)]$$

$$= C3A_iPBA_i[PP_iPS_i + (1-PS_i)]\ PA_i \qquad (64)$$

and

$$C3B_i(PBB_iP3T_i) = C3B_iPBB_i(P2_iPP_i + P2B_i)$$

$$= C3B_iPBB_i[PP_iPS_iPA_i + PA_i(1-PS_i)]$$

$$= C3B_iPBB_i[PP_iPS_i + (1-PS_i)]\ PA_i\ . \qquad (65)$$

Therefore, at rate (r) per year, for (y) years, (n) regions, (i) crime types, beginning at year 1, incremental cost can be expressed as

$$X_{i,n,y+1} = C1_{i,n,1} + C2_{i,n,1}[PS_{i,n,1}PA_{i,n,1}(1+r_i)^y]$$

$$+ C3A_{i,n,1}PBA_{i,n,1}[(1-PS_{i,n,1})+PP_{i,n,1}PS_{i,n,1}]PA_{i,n,1}(1+r_i)^y$$

$$+ C3B_{i,n,1}PBB_{i,n,1}[(1-PS_{i,n,1})+PP_{i,n,1}PS_{i,n,1}]$$

$$\cdot\ PA_{i,n,1}(1+r_i)^y \qquad (66)$$

In this equation, for simplicity, it is assumed that the average variable costs per case for each of the four agencies, and transitional probabilities, other than clearance rates, remain the same for each (y) years as they were in year 1; however, different assumptions could be made and functions derived for each of the average cost variables and transitional probabilities as more is learned about them.

It should be pointed out that this incremental cost may have a downward bias, due to the fact that queuing is assumed to take place at a zero cost. More arrests per complaint may lead to more initial detentions; however, as an offsetting factor, as facilities become crowded, perhaps more people will be released on bond or on their own recognizance. Although additional incarceration costs may well result from the increased clearance rate, they are not directly considered in this model; however, they may be very real, indeed, and should not be overlooked.

Government law enforcement planners are continually faced with the problem of attempting to estimate the budget necessary to adequately meet the needs of criminal justice systems. Using the model we have developed, we may explore possible future resource requirements under certain limited conditions.

In general terms,

Total Cost = (average cost per unit)(number of units) (67)

Previously, we let

$C1_{i,n}$ = average variable cost per true complaint, law enforcement agency;

$C2_{i,n}$ = average variable cost per case referred to a Commonwealth's Attorney;

$C3A_{i,n}$ = average variable cost per case brought to trial in a court of record;

$C3B_{i,n}$ = average variable cost per case brought to trial in a court not of record;

and

$V_{i,n}$ = number of true complaints;

$TCA_{i,n}$ = number of Commonwealth's Attorney cases;

$BTA_{i,n}$ = number of cases brought to trial in a court of record;

$BTB_{i,n}$ = number of cases brought to trial in a court not of record.

So that

$$C_{i,n} = \text{Total Cost} = C1_{i,n}V_{i,n} + C2_{i,n}TCA_{i,n} + C3A_{i,n}BTA_{i,n} + C3B_{i,n}BTB_{i,n} \cdot \quad (68)$$

Now if

$E1_i$ = percent rate of change of true complaints between two years;

$E2_i$ = percent rate of change of Commonwealth's Attorney cases between two years;

$E3_i$ = percent rate of change of cases brought to trial in a court of record between two years; and

$E4_i$ = percent rate of change of cases brought to trial in a court not of record between two years;

so that for crime type (i), region (n), year 2,

$$E1_{i,n,2} = (V_{i,n,2} - V_{i,n,1})/V_{i,n,1} \; ; \quad (69)$$

$$E2_{i,n,2} = (TAC_{i,n,2} - TAC_{i,n,1})/TCA_{i,n,1} \; ; \quad (70)$$

$$E3_{i,n,2} = (BTA_{i,n,2} - BTA_{i,n,1})/BTA_{i,n,1} \; ; \quad (71)$$

and

$$E4_{i,n,1} = (BTB_{i,n,2} - BTB_{i,n,1})/BTB_{i,n,1} \cdot \quad (72)$$

Then, for crime type (i), region (n), year (y), beginning at year 3 (when y = 1),

$$C_{i,n,y+2} = C1_{i,n,2}V_{i,n,2}(1+E1_{i,n,2})^y + C2_{i,n,2}TCA_{i,n,2}(1+E2_{i,n,2})^y + C3A_{i,n,2}BTA_{i,n,2}(1+E3_{i,n,2})^y + C3B_{i,n,2}BTB_{i,n,2}(1+E4_{i,n,2})^y \cdot \quad (73)$$

Total system cost, for region (n), year (y+2), can then be found by summing equation (73) over (i) crime types. That is,

$$C_{n,y+2} = \sum_{1}^{i} C_{i,n,y+2} \cdot \quad (74)$$

This estimation of total cost rests on the assumptions that the transitional probabilities within the system are the same in year (y+2) as they were in year 2, and that case loads for each agency change at the same rate per year as they did between year 1 and year 2. Further, the average cost per unit in year (y+2) is assumed to be the same as in year (2).

It should also be pointed out, as was pointed out earlier for incremental costs, that the total cost may be persistently understated by the amounts of increased costs of correction facilities. Lack of inclusion of the cost of detention facilities may also bias these figures downward, unless increased detention is offset by increased release on bond and recognizance.

Further, it should be noted, that admittedly these assumptions are quite restrictive, but for short period analysis, they may be feasible. As more is learned about the inter-functioning of the system, they may be relaxed and replaced with more sophisticated ones.

Summary of the Models

Police and Sheriff Organizations

We first examine the relationships between average clearance rates for (c) sheriff and (d) police organizations for (i) crime types, ($\overline{PA}_{i,c}$ and $\overline{PA}_{i,d}$ respectively), and average adjusted average cost per true complaint for (c) sheriff and (d) police organizations for (i) crime types ($\overline{Cl}^*_{i,c}$ and $\overline{Cl}^*_{i,d}$ respectively). That is,

$$\overline{PA}_{i,c} = \overline{PA}_{i,d} \ , \tag{20}$$

and

$$\overline{Cl}^*_{i,c} = \overline{Cl}^*_{i,d} \ . \tag{21}$$

This may yield some conclusions concerning the relative performance and/or efficiency of the two types of organizations.

We then proceed to test several hypotheses concerning possible determinants of clearance rates themselves. For (a) law enforcement agencies (where n = c + d), the relationships between clearance rates and population (U), land areas (M), population density (Q), family buying income (Y), and a zero-one organizational dummy variable (Z), are examined via the following equations:

$$PA_{i,n} = a_{3,i} + b_{3,i}U_n \ ; \tag{7}$$

$$PA_{i,n} = a_{4,i} + b_{4,i}M_n \ ;$$

$$PA_{i,n} = a_{5,i} + b_{4,i}Q_n \ ; \tag{9}$$

$$PA_{i,n} = a_{6,i} + b_{6,i}Y_n \ ; \tag{10}$$

$$PA_{i,n} = a_{9,i} + b_{9,i}Z_n \ ; \tag{12}$$

$$PA_{i,n} = a_{7,i} + b_{7,i}Q_n + b_{8,i}Y_n \ ; \tag{11}$$

and

$$PA_{i,n} = a_{10,i} + b_{10,i}Q_n + b_{11,i}Y_n + b_{12,i}Z_n \ ; \tag{13}$$

where,

b_3 = coefficient of population;

b_4 = coefficient of land area;

b_5 = coefficient of population density;

b_6 = coefficient of average family buying income;

b_9 = coefficient of the zero-one organizational dummy;

b_7 = coefficient of population density when average family buying income is considered;

b_8 = coefficient of average family buying income when population density is considered;

b_{10} = coefficient of population density when average family buying income and organizational variables are considered;

b_{11} = coefficient of average family buying income when population density and organizational variables are considered;

b_{12} = coefficient of the organizational variable when population density and average family buying income are considered;

$Z_n = 0$, for sheriff organizations;

$Z_n = 1$, for police organizations;

and a_3, a_4, a_5, a_9, a_7, and a_{10} are positive or negative constants.

In addition, the relationship between clearance rates and manpower (L) are examined for (c) sheriff and (d) police organizations for (i) crime type. That is,

$$PA_{i,c} = a_{1,i} + b_{1,i}L_c \ , \tag{5}$$

and

$$PA_{i,d} = a_{2,i} + b_{2,i}L_d \ , \tag{6}$$

where

b_1 = coefficient of sheriff labor,

b_2 = coefficient of police labor,

and a_1 and a_2 are positive or negative constants.

Further, the effects of absolute numbers of true complaints on clearance rates and possible returns to size class are examined via a rank correlation of clearance rates and true complaints.

Criminal Justice System Model

We have developed, essentially, a three-stage model of the criminal justice system: Law Enforcement, Commonwealth's Attorney, and Courts. We are able to estimate the adjusted incremental systems cost for (i) crime types and (n) regions ($X^*_{i,n}$) as

$$X^*_{i,n} = C1^*_{i,n} + P2_{i,n}C2^*_{i,n} + P3A_{i,n}C3A^*_{i,n} + P3B_{i,n}C3B^*_{i,n} \ , \tag{50}$$

where the letter "P" represents the conditional probabilities of reaching each stage and the letter "C" represents the adjusted average cost per case incurred at each stage. For (c) counties and (d) cities

(where n - c + d), the average adjusted systems incremental cost ($\overline{X}^*_{i,c}$ and $\overline{X}^*_{i,d}$ respectively) are examined alone with the mean clearance rates developed in the police and sheriff analysis. That is,

$$\overline{X}^*_{i,c} = \overline{X}^*_{i,d} \ , \tag{54'}$$

and

$$\overline{PA}_{i,c} = \overline{PA}_{i,d} \tag{20}$$

are examined to determine possible relative system efficiency properties.

We then proceed to test several hypotheses concerning possible determinants of nominal incremental systems cost (X). For (i) crime types and (n) regions, the relationships of nominal (or unadjusted) systems incremental cost and population (U), land area (M), population density (Q), average family buying income (Y), and a zero-one organizational dummy variable (Z) are examined. That is,

$$X_{i,n} = g_{1,i} + h_{1,i}U_n \ ; \tag{55}$$

$$X_{i,n} = g_{2,i} + h_{2,i}M_n \ ; \tag{56}$$

$$X_{i,n} = g_{3,i} + h_{3,i}Q_n \ ; \tag{57}$$

$$X_{i,n} = g_{4,i} + h_{4,i}Y_n \ ; \tag{58}$$

$$X_{i,n} = g_{7,i} + h_{7,i}Z_n \ ; \tag{60}$$

$$X_{i,n} = g_{5,i} + h_{5,i}Q_n + h_{6,i}Y_n \ ; \tag{59}$$

$$X_{i,n} = g_{8,i} + h_{8,i}Q_n + h_{9,i}Y_n + h_{10,i}Z_n \ ; \tag{61}$$

where

h_1 = coefficient of population;

h_2 = coefficient of land area;

h_3 = coefficient of population density;

h_4 = coefficient of average family buying income;

h_7 = coefficient of the dummy variable;

h_5 = coefficient of population density when average family buying income is considered;

h_6 = coefficient of average family buying income when population density is considered;

h_8 = coefficient of population density when average family buying income and the organizational dummy variable are considered;

h_9 = coefficient of average family buying income when population density and the organizational dummy variable are considered;

h_{10} = coefficient of the organizational dummy variable when population density and average family buying income are considered;

$Z_n = 0$, for counties;

$Z_n = 1$, for cities;

and g_1, g_2, g_3, g_4, g_5, g_7, and g_8 are positive or negative constants.

In addition, the effects of absolute numbers of complaints on the unadjusted systems incremental cost and possible returns to size class are examined via a rank correlation of unadjusted systems incremental cost and true complaints entering the system at the Law Enforcement stage.

Projections on the Criminal Justice System Model

Utilizing the model developed in the previous section, two projections are performed. The first projects incremental systems cost (X)

for (y) years under the assumption that clearance rates increase at (r) percent per year. For (n) regions and (i) crime types, the equation is,

$$X_{i,n,y+1} = C1_{i,n,1} + C2_{i,n,1}[PS_{i,n,1}(1+r_i)^y] + C3A_{i,n,1}PBA_{i,n,1}[(1-PS_{i,n,1}PS_{i,n,1})PA_{i,n,1}]PA_{i,n,1}(1+r_i)^y + C3B_{i,n,1}PBB_{i,n,1}[(1-PS_{i,n,1})+PP_{i,n,1}PS_{i,n,1}] \cdot PA_{i,n,1}(1+r_i)^y , \quad (66)$$

where the letter "C" represents average system cost per case at each stage and the letter "P" represents the transitional probabilities, whose product at each stage forms the conditional probabilities of reaching that stage.

The second projection involves total systems cost and permits the projection of this cost (C) for (y) years and (n) regions under the assumption that case loads change each year at some rate (E) which may then be taken as the rate of change of caseloads between the last two years preceding the beginning of the projection. First, total cost by crime type ($C_{i,n,y+2}$) is projected by

$$C_{i,n,y+1} = C1_{i,n,2}V_{i,n,2}(1+E1_{i,n,2})^y + C2_{i,n,2}TCA_{i,n,2}(1+E2_{i,n,2})^y + C3A_{i,n,2}BTA_{i,n,2}(1+E3_{i,n,2})^y + C3B_{i,n,2}BTB_{i,n,2}(1+E4_{i,n,2})^y , \quad (73)$$

where the numbered letters "C" represent average cost per case at each stage and "V", "TCA", "BTA", and "BTB" represent the actual case loads at each stage.

The projected total cost by crime type is then summed to obtain the projected total system cost for the entire system, for (n) regions ($C_{n,y+2}$). That is,

$$C_{n,y+2} = \sum_{1}^{i} C_{i,n,y+2} \cdot \qquad (74)$$

CHAPTER IV

TESTING AND RESULTS

In this chapter, the police and sheriff models and criminal justice system models and related hypotheses set out in the previous chapter will be empirically tested, and the results of these tests will be presented and discussed. We will begin with a discussion of the cost and case load data used throughout the analyses, and proceed, in turn, to the analysis of police and sheriff operations, county and city criminal justice systems, and projections on these systems.

The Data

Case load and budget data, for law enforcement organizations, Commonwealth's Attorneys, courts of record and courts not of record, were collected for counties and cities in Virginia, for 1968 and 1969, by the Commonwealth of Virginia, with assistance provided by the Law Enforcement Assistance Administration, under the Omnibus Crime Control and Safe Streets Act of 1968. Local agencies were surveyed, and court dockets and other records were examined to determine accurate case loads and arrest data. In order to arrive at a best estimate of agency cost per crime type, local agency officials were asked to estimate the percentage of their total time spent on criminal, civil, and traffic matters; and then, for criminal matters, they supplied a relative weighting scheme of time spent on each of seventeen crime types. By

first adjusting the respective total budgets by the percentage of time spent on criminal matters, and then adjusting these figures by the weighting scheme, the agency cost per crime type was obtained.

Arrest and case load data were classified by individual case. Where an individual had multiple charges against him, he was counted as being charged with only the most serious one.

Below is a list of the seventeen crime types. Where the definition may be unclear or deviates from the Federal Bureau of Investigation Uniform Crime Report definition, the definition provided by the Division of Justice and Crime Prevention, Richmond, Virginia, is used.

(1) Murder : "Includes first and second degree murder, voluntary manslaughter, and involuntary manslaughter."

(2) Rape

(3) Robbery

(4) Aggravated Assault : "Refers to assault by use of a deadly weapon. This involves any malicious assault in which the victim's skin was broken."

(5) Auto Theft

(6) Burglary

(7) Larceny : ". . . encompasses both petit and grand larceny."

(8) Narcotics Law

(9) Liquor Law

(10) Prostitution

(11) Gambling

(12) Sex Offenses : "Refers to all sex offenses other than prostitution or rape. It may include both felonies (as in the case of violations for deviated sex) and misdemeanors (as in the case of violations for pornography)."

(13) Offenses Against Family and Children : "Any offenses of neglect or abuse against family and children, including non-support, contributing to the delinquency of a minor, keeping children out of school, etc."

(14) Drunkeness

(15) Disorderly Conduct and Vagrancy

(16) Driving While Intoxicated

(17) Other Non-Traffic Violations : "This category includes all of those crime types which are not specifically classified as one of the sixteen crime types. It may include, for example, simple assault, hunting and fishing violations, violations for concealed weapons, negligent and non-negligent manslaughter, escape from prison, etc."

In order to test our law enforcement and criminal justice system models, ten counties and ten cities of Virginia were selected. The selection process was as follows.

To begin with, the data had to be available. Then, no counties or cities that shared the same circuit court were selected.[1] Also, no counties or cities were slected that shared the same regional juvenile and domestic relations court.[2]

---

[1]See Appendix 1.

[2]See Appendix 2 for those areas covered by regional juvenile and domestic relations courts.

Each county had to have a county sheriff and could not have a county police force. Further, as many counties have towns that maintain their own police force, an effort was made to select those counties that had the fewest number of towns, and towns of the smallest population size that did have their own police force. In this manner, county law enforcement system costs not accounted for by the county sheriff would be minimized.[3]

Finally, consideration was given to select those areas that represented as many planning districts as possible, in order to take the widest possible sample of Virginia.[4] This, however, was not possible in all instances, and, in some cases, areas from the same planning district were chosen.

The above selection process resulted in the following ten counties and ten cities as the test regions.

	Counties		Cities
(1)	Accomack	(11)	Charlottesville
(2)	Caroline	(12)	Danville
(3)	Carroll	(13)	Fredericksburg
(4)	Craig	(14)	Lynchburg
(5)	Dinwiddie	(15)	Petersburg
(6)	Fauquier	(16)	Radford
(7)	Franklin	(17)	Salem
(8)	Henry	(18)	Staunton
(9)	Nelson	(19)	Suffolk
(10)	Surrey	(20)	Virginia Beach

---

[3]See Appendix 4, Table 92 for a list of town police departments and the percentage of county population covered jointly by them and the county sheriff.

[4]See Appendix 3 for a list of counties, cities, and towns by planning district.

Police and Sheriff Operations

As a reference point for this analysis, we present the total number of true complaints, by crime type for the 10 sheriff and 10 police organizations for 1968 and 1969 in Table 1, and the total clearance rates for these organizations in Table 2 (that is, the total number of arrests divided by the total number of true complaints).[5]

Relative Performance

The test of the relative performance of police and sheriff agencies begins with calculating the clearance rates for these agencies by crime type for 1968 and 1969 ($PA_{i,d}$ and $PA_{i,c}$, respectively). These are presented by county and city in Appendix 6, Tables 105 through 108.

The clearance rates for "index" crimes (types 1 through 7), "non-index" crimes (types 8 through 17), and "all" crimes (types 1 through 17), are not averages of clearance rates of those types within their respective categories. Rather, they are calculated as single broad crime types. The total number of arrests for each type falling within the particular broad category are summed and divided by the sum of the true complaints of the subcategories. For example, the clearance rate for "index" crimes is the sum of arrests for "murder" through "larceny," divided by the sum

---

[5] In a few instances, the number of arrests exceed the number of true complaints. This, of course, could be the result of multiple arrests for a single crime and hence, would yield a clearance rate of greater than 100 percent. As such clearance rates would, for comparative purposes, yield little meaning, a slight adjustment is necessitated. In those few instances where this problem occurs, the number of complaints was increased to equal the number of arrests, resulting in a clearance rate of 100 percent. As each arrestee must individually flow through the system and hence, incur a system cost, it is felt that this adjustment would be in keeping with the underlying methodology and exert very little, if any, bias in the results.

TABLE 1

TOTAL TRUE COMPLAINTS FOR THE 10 SHERIFF AND 10 POLICE AGENCIES BY CRIME TYPE[a]

Crime Type	Sheriff Total True Complaints 1968	1969	Police Total True Complaints 1968	1969
1. Murder	46	45	34	27
2. Rape	19	21	56	71
3. Robbery	42	38	191	284
4. Agg. Assault	280	283	728	635
5. Auto Theft	94	121	654	910
6. Burglary	522	636	2,981	3,074
7. Larceny	431	431	8,035	9,450
8. Narcotics Law	7	10	75	199
9. Liquor Law	150	166	647	334
10. Prostitution	1	0	78	51
11. Gambling	100	133	171	132
12. Sex Offenses	55	57	374	296
13. Family &Cldn	201	261	675	840
14. Drunkeness	1,814	1,546	7,562	7,733
15. Disord&Vag	457	459	4,704	4,278
16. D. W. I.	698	794	1,026	1,003
17. Other Ntraf	2,061	2,146	8,818	5,647

[a]As several jurisdictions showed arrests exceeding true complaints, the number of true complaints was adjusted in these instances to be not less than the number of arrests. The totals above reflect the adjustments. In this manner, multi-person, single complaints can be handled.

TABLE 2

TOTAL CLEARANCE RATES FOR THE 10 SHERIFF AND 10 POLICE AGENCIES BY CRIME TYPE[a]

Crime Type	Sheriff Total Clearance Rates 1968	1969	Police Total Clearance Rates 1968	1969
1. Murder	1.00	0.95	0.88	0.81
2. Rape	1.00	1.00	0.48	0.76
3. Robbery	0.83	0.84	0.39	0.42
4. Agg. Assault	0.79	0.81	0.67	0.56
5. Auto Theft	0.64	0.64	0.23	0.19
6. Burglary	0.37	0.39	0.14	0.17
7. Larceny	0.49	0.51	0.16	0.17
8. Narcotics Law	1.00	0.90	0.52	0.69
9. Liquor Law	0.68	0.85	0.91	0.96
10. Prostitution	1.00	-----[b]	0.91	1.00
11. Gambling	0.40	0.10	1.00	0.99
12. Sex Offenses	0.65	0.46	0.75	0.74
13. Family&Cldn	0.83	0.74	0.96	0.97
14. Drunkeness	0.84	0.81	0.99	0.98
15. Disord&Vag	0.87	0.87	0.75	0.80
16. D. W. I.	0.72	0.69	0.99	0.99
17. Other Ntraf	0.77	0.79	0.95	0.99

[a]These clearance rates were calculated by summing the arrests for a given crime type over all ten counties and also over all ten cities. The arrest figures were divided by the sum of the true complaints for a given crime type for the county and city respectively. As in several jurisdictions, arrests exceeded true complaints (reflecting multi-person arrests for a single complaint), the number of true complaints was adjusted in these instances to be not less than the number of arrests.

[b]There were no true complaints in 1969.

of the true complaints for "murder" through "larceny." This procedure is used throughout the analyses as an alternate method of data aggregation and enables us to conduct tests and perhaps draw conclusions at a much broader level.

A mean ($\overline{PA}_{i,d}$ and $\overline{PA}_{i,c}$) and variance is then calculated for each crime type for both types of organizations for both years. These are statistically tested to determine if a significant difference exists. The procedure is to first test the null hypothesis that the variances are not significantly different at the 0.05 level. If we accept the hypothesis, we then test the null hypothesis that the means are not significantly different at the 0.05 level by use of the standard t test. If, on the other hand, we reject the null hypothesis and hence accept the alternate--that the variances are significantly different at the 0.05 level--we test the same null hypothesis for the means, but we use the Dixon Massey approximation to the t distribution to perform the test.[6] The results are presented in Tables 3 and 4. Note that the superscript "a" for variances indicating a rejection of the null hypothesis, also indicates the use of the Dixon-Massey approximation for the test of the means. The superscript "a" for the means, then, simply indicates rejection of the null hypothesis regardless of which test was used.[7]

---

[6]Wilfred J. Dixon and Frank J. Massey, Jr., Introduction to Statistical Analysis, 2nd ed. (New York: McGraw-Hill, 1957), pp. 123-124.

[7]Those regions and crime types for which there were no true complaints were not used in calculating and testing the means and variances. These values are indicated in the tables by the dashed lines.

TABLE 3

MEAN AND VARIANCE OF THE CLEARANCE RATE: 1968

Crime Type	Sheriff		Police	
	Mean	Variance	Mean	Variance
1. Murder	0.98	0.002[a]	0.88	0.034[a]
2. Rape	1.00[a]	0.000	0.65[a]	0.060
3. Robbery	0.90[a]	0.026	0.43[a]	0.071
4. Agg. Assault	0.84	0.044	0.69	0.105
5. Auto Theft	0.71[a]	0.082	0.34[a]	0.072
6. Burglary	0.47	0.086	0.27	0.086
7. Larceny	0.49	0.073	0.35	0.102
8. Narcotics Law	1.00	0.000	0.86	0.101
9. Liquor Law	0.86	0.085[a]	0.98	0.003[a]
10. Prostitution[b]	----	-----	----	-----
11. Gambling	0.54	0.423	1.00	0.000
12. Sex Offenses	0.76	0.077	0.92	0.048
13. Family&Cldn	0.92	0.035	0.96	0.019
14. Drunkeness	0.86	0.069[a]	0.99	0.001[a]
15. Disord&Vag	0.90	0.022	0.87	0.051
16. D. W. I.	0.93	0.043[a]	0.99	0.000[a]
17. Other Ntraf	0.82	0.052[a]	0.93	0.014[a]
Index	0.56	0.058	0.[illegible]	0.082
Non-index	0.85	0.041[a]	0.93	0.006[a]
All	0.78	0.034	0.70	0.029

[a]Significant at the 0.05 level.

[b]Insufficient degrees of freedom to conduct the statistical tests.

TABLE 4

MEAN AND VARIANCE OF THE CLEARANCE RATE: 1969

Crime Type	Sheriff		Police	
	Mean	Variance	Mean	Variance
1. Murder	0.95	0.010[a]	0.92	0.048[a]
2. Rape	1.00[a]	0.000	0.76[a]	0.071
3. Robbery	0.90[a]	0.023[a]	0.52[a]	0.082[a]
4. Agg. Assault	0.80	0.058	0.69	0.117
5. Auto Theft	0.64[a]	0.099[a]	0.24[a]	0.011[a]
6. Burglary	0.39[a]	0.041[a]	0.19[a]	0.011[a]
7. Larceny	0.47	0.052	0.30	0.058
8. Narcotics Law	0.80	0.200[a]	0.94	0.025[a]
9. Liquor Law	0.86	0.066[a]	0.99	0.002[a]
10. Prostitution[b]	----	-----	----	-----
11. Gambling[b]	----	-----	----	-----
12. Sex Offenses	0.61	0.192[a]	0.95	0.021[a]
13. Family &Cldn	0.70	0.188[a]	0.98	0.003[a]
14. Drunkeness	0.87	0.070[a]	0.98	0.003[a]
15. Disord&Vag	0.89	0.029	0.90	0.040
16. D. W. I.	0.87	0.067[a]	0.99	0.000[a]
17. Other Ntraf	0.84[a]	0.055[a]	0.98[a]	0.005[a]
Index	0.52[a]	0.038	0.28[a]	0.026
Non-Index	0.83[a]	0.040[a]	0.95[a]	0.005[a]
All	0.74	0.029	0.68	0.020

[a]Significant at the 0.05 level.

[b]Insufficient degrees of freedom to conduct the statistical tests.

In Table 3 we see that only in three instances ("rape," "robbery," and "auto theft") do we reject the null hypothesis, and in each instance, the value of the clearance rate for the sheriff type of agency exceeds that of the police.

In 1969, Table 4, the same test results in rejection of the null hypothesis in five instances ("rape," "robbery,""auto theft," "burglary," and "other ntraf"). For "rape," "robbery," "auto theft," "burglary," and "index," the sheriff has a higher clearance rate. For "other ntraf," the police have a higher clearance rate.

It is significant to note that for both years, the sheriff clearance rate exceeds that of the police for "rape," "robbery," and "auto theft." These, as well as "burglary" (exceeded in one year), are all index crimes. The higher clearance rate exhibited by police in 1969 for "other ntraf" should be heavily discounted as this is a very heterogeneous category.

We see, then, a slight pattern for a tendency toward higher performance by sheriff agencies, as measured by clearance rates for index crimes; and, at the same time, at least in 1969, a slightly lesser tendency for police performance in non-index crimes to be slightly higher than that of sheriff agencies. Perhaps it is also worth noting here that between 1968 and 1969, of the 15 crime types that are comparable, the sheriff mean clearance rate fell in 9 cases, rose in 2, and remained the same in 4; while, at the same time, the police mean clearance rates fell only in 6, rose in 7, and remained the same only in 2.

Relative Efficiency

This part of the analysis first involves the calculation of adjusted average cost figures for both types of agencies for both years ($Cl^*_{i,d}$ and $Cl^*_{i,c}$, respectively). The average cost figures for each region, for each year, are weighted by an index of average annual wages per worker in that region for that year.[8] As discussed in Chapter II, the sheriff is usually responsible for maintaining the county jail facilities, while in the cities, this responsibility is usually delegated to a city sergeant, rather than the local police agency. Hence, cost figures for sheriff departments are net of jail operating expenses.[9] These figures are presented in Appendix 6, Tables 109 through 112.

The analysis of means of adjusted average variable cost is the next step in examining the relative efficiency of these types of law enforcement agencies. The same test procedure is used as was used in the previous section to test $\overline{Cl}^*_{i,d}$ and $\overline{Cl}^*_{i,c}$, the mean values of adjusted variable cost for police and sheriff agencies respectively.

In 1968, Table 5, we are able to reject the null hypothesis at the 0.05 level of no significant difference of the means in 4 instances ("rape," "sex offenses," "family&cldn," "D. W. I."). In each category,

---

[8] See Appendix 4, Table 97.

[9] It was not possible to obtain jail operating expenses for sheriff agencies in 1968. In order to make the adjustment, it is assumed that jail operating expenditures occupied the same percentage of the budget in 1968 as it did in 1969. This percentage is then multiplied by the 1968 budget and the result subtracted from it in order to allow for the operating expenditures in 1968. See Appendix 4, Table 93 for the exact percentages used in each area.

TABLE 5

MEAN AND VARIANCE OF THE ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR LAW ENFORCEMENT AGENCIES: 1968

Crime Type	Sheriff		Police	
	Mean	Variance	Mean	Variance
1. Murder	417.43	351,769.31[a]	2,069.88	8,476,720.00[a]
2. Rape	297.17[a]	45,144.53[a]	770.75[a]	241,507.00[a]
3. Robbery	251.20	23,850.66[a]	647.00	403,950.75[a]
4. Agg. Assault	111.89	7,575.10	161.70	10,587.78
5. Auto Theft	74.88	4,121.55[a]	213.30	76,164.19[a]
6. Burglary	92.50	4,974.28[a]	341.20	252,096.19[a]
7. Larceny	113.80	8,718.61[a]	265.30	267,811.75[a]
8. Narcotics Law	177.00	11,415.33[a]	1,295.75	3,934,432.00[a]
9. Liquor Law	97.29	4,370.90[a]	242.40	107,565.69[a]
10. Prostitution[b]	------	---------	------	---------
11. Gambling	20.00	512.00	136.75	7,168.25
12. Sex Offenses	66.57[a]	2,268.95[a]	268.00[a]	58,790.66[a]
13. Family&Cldn	64.14[a]	1,275.81[a]	146.56[a]	11,701.99[a]
14. Drunkeness	33.00	688.44	47.50	445.83
15. Disord&Vag	39.40	690.04[a]	72.80	3,700.62[a]
16. D. W. I.	59.30[a]	3,214.23[a]	150.10[a]	10,767.84[a]
17. Other Ntraf	34.60	662.93[a]	54.50	2,131.17[a]
Index	103.30	2,615.79[a]	208.90	41,791.63[a]
Non-Index	40.00[a]	799.78	67,10[a]	1,119.65
All	54.20[a]	909.06	103.10[a]	2,147.65

[a] Significant at the 0.05 level.

[b] Insufficient degrees of freedom to conduct the statistical tests.

the adjusted average cost per true complaints for police exceeds that of the sheriff.

In 1969, Table 6, we reject the null hypothesis for 13 types: "murder," "rape," "burglary," "narcotics law," "liquor law," "sex offenses," "family&cldn," "disord&vag," "D. W. I.," and "other ntraf." Once again, for every one of these crime types, the police average cost exceeds that of the sheriff. It is also worth noting that every type having a significant and lower average cost in 1968 for sheriffs, also had a significant and lower average cost for sheriffs in 1969.

Further, between 1968 and 1969, mean adjusted average cost for sheriffs, out of 15 comparable types, rose in 7 and fell in 8; while for police, average cost rose in 11 and fell in 4. In addition, if we probe slightly deeper, we notice that for sheriff departments, movements in both clearance rates and adjusted average cost move in the same direction in 7 of 15 types and only in opposite directions in 4. For police departments, of the 15 types, 9 types move in the same direction and 4 move in the opposite direction. This movement, shown in Table 7, would seem to indicate that the clearance rates and adjusted average cost may be directly related over time.[10] However, caution should be used in accepting this relationship as for a given number of arrests and total cost, fluctuations in true complaints would cause clearance rates and average cost per true complaint to move together.

[10]The 1968 data are adjusted by a 1968 wage index and the 1969 data by a 1969 wage index relative to Virginia in 1968 and 1969, respectively. That is, the index for Virginia is set at 1.00 in each year and each region is measured relative to it for that year. Hence the 1968-69 comparison of adjusted average cost is made possible.

TABLE 6

MEAN AND VARIANCE OF THE ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR LAW ENFORCEMENT AGENCIES: 1969

Crime Type	Sheriff		Police	
	Mean	Variance	Mean	Variance
1. Murder	331.71[a]	84,839.50[a]	2,809.86[a]	2,693,410.00[a]
2. Rape	261.00[a]	40,758.50	708.75[a]	46,437.64
3. Robbery	230.33	6,945.85[a]	689.30	834,973.06[a]
4. Agg. Assault	121.78	4,953.19	198.00	15,219.78
5. Auto Theft	10[illegible].63	8,166.55[a]	409.70	785,558.62[a]
6. Burglary	[illegible]0[a]	4,533.82[a]	288.50[a]	45,805.61[a]
7. Larceny	99.60	6,311.60	139.20	12,488.39
8. Narcotics Law	165.50[a]	11,776.33[a]	928.50[a]	835,409.12[a]
9. liquor Law	100.86[a]	2,556.81[a]	514.00[a]	309,879.37[a]
10. Prostitution[b]	------	---------	------	----------
11. Gambling[b]	------	---------	------	----------
12. Sex Offenses	51.33[a]	1,091.06[a]	279.10[a]	67,925.37[a]
13. Family&Cldn	57.86[a]	2,256.81[a]	153.22[a]	16,654.13[a]
14. Drunkeness	38.80	534.84	50.40	1,154.49
15. Disord&Vag	43.40[a]	456.93[a]	82.40[a]	3,825.15[a]
16. D. W. I.	65.22[a]	2,448.69[a]	151.30[a]	9,116.89[a]
17. Other Ntraf	42.10[a]	791.21[a]	78.60[a]	3,134.48[a]
Index	97.50[a]	3,341.61[a]	197.00[a]	16,247.55[a]
Non-Index	44.90[a]	610.54	82.70[a]	1,669.56
All	56.60[a]	485.37[a]	123.30[a]	3,329.56[a]

[a]Significant at the 0.05 level.

[b]Insufficient degrees of freedom to conduct the statistical tests.

TABLE 7

1968 AND 1969 MOVEMENTS IN CLEARANCE RATES AND ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR POLICE AND SHERIFF AGENCIES[a]

Crime Type	Sheriff		Police	
	$\overline{Cl}$*	$\overline{PA}$	$\overline{Cl}$*	$\overline{PA}$
1. Murder	D	D	U	U
2. Rape	D	T	D	U
3. Robbery	D	T	U	U
4. Agg. Assault	U	D	U	T
5. Auto Theft	U	D	U	D
6. Burglary	D	D	D	D
7. Larceny	D	D	D	D
8. Narcotics Law	D	T	D	U
9. Liquor Law	U	T	U	U
10. Prostitution[b]				
11. Gambling[b]				
12. Sex Offenses	D	D	U	U
13. Family&Cldn	D	D	U	U
14. Drunkeness	U	U	U	D
15. Disord&Vag	U	D	U	U
16. D. W. I.	U	D	U	T
17. Other Ntraf	U	U	U	U
Index	D	D	D	D
Non-Index	U	D	U	U
All	D	D	U	D

[a]The letter "U" indicates an upward movement from 1968 to 1969; the letter "D" indicates a downward movement from 1968 to 1969; the letter "T" indicates no change.

[b]Was not comparable for the two years.

In Chapter III we developed the criteria necessary to examine the relative efficiency of these two agencies and the 9 possible case combinations that may occur. In Tables 8 and 9, we indicate the relationships between clearance rates and adjusted average cost for 1968 and 1969 for these agencies.

As can be seen in Table 8, of the first 17 crime types (16 of which are comparable), police and sheriffs are equally efficient according to our criteria in 10 types. Sheriffs are more efficient in cases dealing with "rape," "robbery," "auto theft," "sex offenses," "family& cldn," and "D. W. I."

In 1969, as shown in Table 9, of the first 17 crime types (15 of which are comparable), only in 3 types ("agg. assault," "larceny," and "drunkeness") are the two types of agencies equally efficient. In the other 12, the sheriffs are more efficient. Further, it should be noted that each of the 6 areas of relative efficiency for sheriffs in 1968 remained areas of relative efficiency for sheriffs in 1969.

Determinants of Performance: Some Non-economic Aspects

In this subsection we test the hypotheses that the clearance rate is related to population (U_n), land area (M_n), population density (Q_n), average family buying income (Y_n) and a zero-one organizational dummy variable (Z_n), and that the relationship is not linear in form.[11] We test the null hypothesis that the clearance rate is not dependent on each of the above variables by testing the null hypothesis that the

[11]These data are presented in Appendix 4, Tables 95 and 96.

TABLE 8

COMPARISON OF CLEARANCE RATES AND ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR SHERIFF AND POLICE AGENCIES: 1968[a]

Crime Type	$\overline{PA}_{i,c}$ $\overline{PA}_{i,d}$	$\overline{Cl}^*_{i,c}$ $\overline{Cl}^*_{i,d}$
1. Murder	=	=
2. Rape	>	<
3. Robbery	>	=
4. Agg. Assault	=	=
5. Auto Theft	>	=
6. Burglary	=	=
7. Larceny	=	=
8. Narcotics Law	=	=
9. Liquor Law	=	=
10. Prostitution[b]		
11. Gambling	=	=
12. Sex Offenses	=	<
13. Family&Cldn	=	<
14. Drunkeness	=	=
15. Disord&Vag	=	=
16. D. W. I.	=	<
17. Other Ntraf	=	=
Index	=	=
Non-Index	=	<
All	=	<

[a]Based on the data in Tables 3 and 5.

[b]Bot tested.

TABLE 9

COMPARISON OF CLEARANCE RATES AND ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR SHERIFF AND POLICE AGENCIES: 1969[a]

Crime Type	$\overline{PA}_{i,c}$ $\overline{PA}_{i,d}$	$\overline{Cl}^*_{i,c}$ $\overline{Cl}^*_{i,d}$
1. Murder	=	<
2. Rape	>	<
3. Robbery	>	=
4. Agg. Assault	=	=
5. Auto Theft	>	=
6. Burglary	>	<
7. Larceny	=	=
8. Narcotics Law	=	<
9. Liquor Law	=	<
10. Prostitution[b]		
11. Gambling[b]		
12. Sex Offenses	=	<
13. Family&Cldn	=	<
14. Drunkeness	=	=
15. Disord&Vag	=	<
16. D. W. I.	=	<
17. Other Ntraf	<	<
Index	>	<
Non-Index	<	<
All	=	<

[a]Based on the data in Tables 4 and 6.

[b]Not tested.

coefficients of these independent variables is not significantly different from zero at the 0.05 level. We use a standard t-test. Rejection of this null hypothesis implies a dependency of clearance rates on the particular independent variables. Acceptance of the null hypothesis indicates independence of the clearance rates and the independent variable in question. The results of these tests are presented in Tables 10 through 19. Those R^2 values that have the superscript "a" indicate a rejection of the null hypothesis of non-linearity at the 0.05 level. Coefficients having the superscript "a" indicate a rejection of the null hypothesis of non-independence at the 0.05 level. Regression constants are tested in the same manner.

As shown in these tables for 1968 and 1969, the null hypothesis of the relationship being non-linear is accepted in every instance except for the dummy variable in the crime type "sex offenses," 1969 (Table 19).

For population, the null hypothesis of independence is rejected in 1968 for "gambling," and in 1969, for "rape," "prostitution," and "gambling"; however, none of the coefficients exceed 0.0000.

For land area, the null hypothesis for independence is rejected for 1968 for "auto theft," "sex offenses," and "D. W. I.," and in 1969, for "gambling," "sex offenses," and "other ntraf." It is worth noting that in 1968, the sign of significant coefficients of land area are negative in every case except "auto theft" (for both years, the only significant index crime); in 1969, the sign is negative.

TABLE 10

CLEARANCE RATE AS A FUNCTION OF POPULATION: 1968

Form of the Equation:

$$PA_{i,n} = a_{3,i} + b_{3,i}U_n \qquad (7)$$

Crime Type	$a_{3,i}$	(S.E.)	$b_{3,i}$	(S.E.)	R^2
1. Murder	0.6535^a	(0.1315)	0.0000	(0.0000)	0.0514
2. Rape	0.5320^a	(0.1440)	0.0000	(0.0000)	0.0035
3. Robbery	0.3719^a	(0.1298)	0.0000	(0.0000)	0.0145
4. Agg. Assault	0.7539^a	(0.1071)	-0.0000	(0.0000)	0.0086
5. Auto Theft	0.5673^a	(0.1111)	-0.0000	(0.0000)	0.0519
6. Burglary	0.4262^a	(0.0999)	-0.0000	(0.0000)	0.0327
7. Larceny	0.4838^a	(0.0973)	-0.0000	(0.0000)	0.0451
8. Narcotics Law	0.4069^a	(0.1657)	0.0000	(0.0000)	0.0002
9. Liquor Law	0.8865^a	(0.0968)	-0.0000	(0.0000)	0.0009
10. Prostitution	0.1248	(0.1337)	0.0000	(0.0000)	0.0485
11. Gambling	0.0097	(0.1244)	0.0000^a	(0.0000)	0.3698
12. Sex Offenses	0.8399^a	(0.1155)	0.0000	(0.0000)	0.0438
13. Family&CIdn	0.7165^a	(0.1221)	0.0000	(0.0000)	0.0472
14. Drunkeness	0.9108^a	(0.0648)	0.0000	(0.0000)	0.0050
15. Disord&Vag	0.9233^a	(0.0615)	-0.0000	(0.0000)	0.0334
16. D. W. I.	0.9693^a	(0.0493)	-0.0000	(0.0000)	0.0023
17. Other Ntraf	0.8809^a	(0.0617)	0.0000	(0.0000)	0.0017
Index	0.5288^a	(0.0903)	0.0000	(0.0000)	0.0680
Non-Index	0.9064^a	(0.0520)	-0.0000	(0.0000)	0.0090
All	0.8173^a	(0.0545)	-0.0000^a	(0.0000)	0.1649

[a]Significant at the 0.05 level.

TABLE 11

CLEARANCE RATE AS A FUNCTION OF POPULATION: 1969

Form of the Equation:

$$PA_{i,n} = a_{3,i} + b_{3,i}U_n \qquad (7)$$

Crime Type	$a_{3,i}$	(S.E.)	$b_{3,i}$	(S.E.)	R^2
1. Murder	0.5480[a]	(0.1321)	0.0000	(0.0000)	0.1307
2. Rape	0.4341[a]	(0.1329)	0.0000[a]	(0.0000)	0.1588
3. Robbery	0.4935[a]	(0.1234)	0.0000	(0.0000)	0.0114
4. Agg. Assault	0.8169[a]	(0.0915)	-0.0000	(0.0000)	0.0625
5. Auto Theft	0.4719[a]	(0.0984)	-0.0000	(0.0000)	0.0435
6. Burglary	0.3185[a]	(0.0589)	-0.0000	(0.0000)	0.0266
7. Larceny	0.4369[a]	(0.0766)	-0.0000	(0.0000)	0.0538
8. Narcotics Law	0.4803[a]	(0.1559)	0.0000	(0.0000)	0.0420
9. Liquor Law	0.6426[a]	(0.1297)	0.0000	(0.0000)	0.0592
10. Prostitution	-0.0355	(0.1004)	0.0000[a]	(0.0000)	0.2799
11. Gambling	0.0686	(0.1274)	0.0000[a]	(0.0000)	0.2728
12. Sex Offenses	0.6292[a]	(0.1434)	0.0000	(0.0000)	0.0052
13. Family&Cldn	0.6694[a]	(0.1377)	0.0000	(0.0000)	0.0147
14. Drunkeness	0.9245[a]	(0.0626)	-0.0000	(0.0000)	0.0002
15. Disord&Vag	0.9121[a]	(0.0580)	-0.0000	(0.0000)	0.0091
16. D. W. I.	0.8516[a]	(0.0879)	0.0000	(0.0000)	0.0200
17. Other Ntraf	0.9016[a]	(0.0591)	0.0000	(0.0000)	0.0011
Index	0.4544[a]	(0.0661)	-0.0000	(0.0000)	0.0785
Non-Index	0.8953[a]	(0.0510)	-0.0000	(0.0000)	0.0006
All	0.7738	(0.0452)	-0.0000[a]	(0.0000)	0.1882

[a]Significant at the 0.05 level.

TABLE 12

CLEARANCE RATE AS A FUNCTION OF LAND AREA: 1968

Form of the Equation:

$$PA_{i,n} = a_{4,i} + b_{4,i}M_n \qquad (8)$$

Crime Type	$a_{4,i}$	(S.E.)	$b_{4,i}$	(S.E.)	R^2
1. Murder	0.6339[a]	(0.1289)	0.0004	(0.0003)	0.0768
2. Rape	0.4797[a]	(0.1410)	0.0003	(0.0004)	0.0321
3. Robbery	0.3474[a]	(0.1277)	0.0003	(0.0003)	0.0335
4. Agg. Assault	0.6994[a]	(0.1066)	0.0001	(0.0003)	0.0051
5. Auto Theft	0.3546[a]	(0.1049)	0.0005[a]	(0.0003)	0.1445
6. Burglary	0.2789[a]	(0.0965)	0.0003	(0.0003)	0.0854
7. Larceny	0.3547[a]	(0.0967)	0.0002	(0.0003)	0.0442
8. Narcotics Law	0.3504[a]	(0.1633)	0.0002	(0.0004)	0.0161
9. Liquor Law	0.9686[a]	(0.0915)	-0.0003	(0.0002)	0.0952
10. Prostitution	0.3197[a]	(0.1321)	-0.0004	(0.0004)	0.0591
11. Gambling	0.4198[a]	(0.1511)	-0.0004	(0.0004)	0.0586
12. Sex Offenses	0.9634[a]	(0.0976)	-0.0007[a]	(0.0003)	0.3078
13. Family&Cldn	0.9605[a]	(0.1129)	-0.0006	(0.0003)	0.1758
14. Drunkeness	0.9867[a]	(0.0613)	-0.0002	(0.0002)	0.0971
15. Disord&Vag	0.8754[a]	(0.0620)	0.0000	(0.0002)	0.0043
16. D. W. I.	1.0246[a]	(0.0446)	-0.0002[a]	(0.0001)	0.1730
17. Other Ntraf	0.9397[a]	(0.0573)	-0.0002	(0.0002)	0.1257
Index	0.3638[a]	(0.0882)	0.0003	(0.0002)	0.0989
Non-Index	0.9443[a]	(0.0489)	-0.0002	(0.0001)	0.1121
All	0.7229[a]	(0.0589)	0.0001	(0.0002)	0.0116

[a]Significant at the 0.05 level.

TABLE 13

CLEARANCE RATE AS A FUNCTION OF LAND AREA: 1969

Form of the Equation:

$$PA_{i,n} = a_{4,i} + b_{4,i}M_n \qquad (8)$$

Crime Type	$a_{4,i}$	(S.E.)	$b_{4,i}$	(S.E.)	R^2
1. Murder	0.6851[a]	(0.1462)	0.0001	(0.0004)	0.0018
2. Rape	0.5078[a]	(0.1461)	0.0004	(0.0004)	0.0457
3. Robbery	0.4409[a]	(0.1245)	0.0003	(0.0003)	0.0549
4. Agg. Assault	0.7220[a]	(0.972)	0.0001	(0.0003)	0.0067
5. Auto Theft	0.2925[a]	(0.0966)	0.0004	(0.0003)	0.1346
6. Burglary	0.1917[a]	(0.0528)	0.0004	(0.0001)	0.2668
7. Larceny	0.3040[a]	(0.0771)	0.0003	(0.0002)	0.0988
8. Narcotics Law	0.7182[a]	(0.1578)	-0.0005	(0.0004)	0.0777
9. Liquor Law	0.7256	(0.1379)	0.0001	(0.0004)	0.0011
10. Prostitution	0.2588[a]	(0.1167)	-0.0004	(0.0003)	0.0845
11. Gambling	0.5625[a]	(0.1286)	-0.0010[a]	(0.0003)	0.3050
12. Sex Offenses	0.9215[a]	(0.1215)	-0.0010[a]	(0.0003)	0.3297
13. Family&Cldn	0.8854[a]	(0.1326)	-0.0006	(0.0004)	0.1423
14. Drunkeness	0.9784[a]	(0.0619)	-0.0002	(0.0002)	0.0822
15. Disord&Vag	0.8983[a]	(0.0601)	-0.0000	(0.0002)	0.0002
16. D. W. I.	0.9808[a]	(0.0866)	-0.0003	(0.0002)	0.1065
17. Other Ntraf	0.9937[a]	(0.0542)	-0.0003[a]	(0.0001)	0.2117
Index	0.2825[a]	(0.0605)	0.0004[a]	(0.0002)	0.2755
Non-Index	0.9574[a]	(0.0480)	-0.0002[a]	(0.0001)	0.1664
All	0.6914[a]	(0.0515)	0.0001	(0.0001)	0.0123

[a]Significant at the 0.05 level.

TABLE 14

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY: 1968

Form of the Equation:

$$PA_{i,n} = a_{5,i} + b_{5,i}Q_n \qquad (9)$$

Crime Type	$a_{5,i}$	(S.E.)	$b_{5,i}$	(S.E.)	R^2
1. Murder	0.7436[a]	(0.1233)	0.0000	(0.0001)	0.0002
2. Rape	0.5661[a]	(0.1317)	-0.0000	(0.0001)	0.0004
3. Robbery	0.4416[a]	(0.1192)	-0.0000	(0.0001)	0.0040
4. Agg. Assault	0.7490[a]	(0.0979)	-0.0000	(0.0000)	0.0089
5. Auto Theft	0.5968[a]	(0.0966)	-0.0001	(0.0000)	0.1410
6. Burglary	0.4454[a]	(0.0888)	-0.0001	(0.0000)	0.0850
7. Larceny	0.4748[a]	(0.0887)	-0.0000	(0.0000)	0.0487
8. Narcotics Law	0.4150[a]	(0.1514)	-0.0000	(0.0001)	0.0000
9. Liquor Law	0.7883[a]	(0.0826)	0.0001	(0.0000)	0.1292
10. Prostitution	0.0891	(0.1164)	0.0001	(0.0001)	0.1349
11. Gambling	0.1738	(0.1355)	0.0001	(0.0001)	0.1051
12. Sex Offenses	0.6088[a]	(0.0927)	0.0001[a]	(0.0000)	0.2615
13. Family&Cldn	0.6756[a]	(0.1053)	0.0001[a]	(0.0000)	0.1520
14. Drunkeness	0.8743[a]	(0.0565)	0.0000	(0.0000)	0.0929
15. Disord&Vag	0.8744[a]	(0.0569)	0.0000	(0.0000)	0.0072
16. D. W. I.	0.9341[a]	(0.0440)	0.0000	(0.0000)	0.0487
17. Other Ntraf	0.8164[a]	(0.0526)	0.0000	(0.0000)	0.1283
Index	0.5314[a]	(0.0808)	0.0001	(0.0000)	0.1059
Non-Index	0.8430[a]	(0.0445)	0.0000	(0.0000)	0.1289
All	0.7615[a]	(0.0541)	-0.0000	(0.0000)	0.0155

[a]Significant at the 0.05 level.

TABLE 15

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY: 1969

Form of the Equation:

$$PA_{i,n} = a_{5,i} + b_{5,i}Q_n \qquad (9)$$

Crime Type	$a_{5,i}$	(S.E.)	$b_{5,i}$	(S.E.)	R^2
1. Murder	0.7397[a]	(0.1340)	-0.0000	(0.0001)	0.0107
2. Rape	0.6181[a]	(0.1377)	-0.0000	(0.0001)	0.0010
3. Robbery	0.5803[a]	(0.1167)	-0.0000	(0.0001)	0.0204
4. Agg. Assault	0.7968[a]	(0.0881)	-0.0000	(0.0000)	0.0397
5. Auto Theft	0.5439[a]	(0.0828)	-0.0001[a]	(0.0000)	0.2503
6. Burglary	0.3615[a]	(0.0507)	-0.0000[a]	(0.0000)	0.2039
7. Larceny	0.4459	(0.0714)	-0.0000	(0.0000)	0.0909
8. Narcotics Law	0.3923[a]	(0.1363)	0.0001[a]	(0.0001)	0.1895
9. Liquor Law	0.6659[a]	(0.1244)	0.0001	(0.0001)	0.0424
10. Prostitution	0.0592	(0.1076)	0.0001	(0.0000)	0.0828
11. Gambling	0.1063	(0.1240)	0.0001[a]	(0.0001)	0.2380
12. Sex Offenses	0.4085[a]	(0.1033)	0.0002[a]	(0.0000)	0.4290
13. Family&Cldn	0.6277[a]	(0.1278)	0.0001	(0.0001)	0.0614
14. Drunkeness	0.8716[a]	(0.0568)	0.0000	(0.0000)	0.0891
15. Disord&Vag	0.8740[a]	(0.0549)	0.0000	(0.0000)	0.0191
16. D. W. I.	0.8051[a]	(0.0789)	0.0001	(0.0000)	0.1252
17. Other Ntraf	0.8520[a]	(0.0526)	0.0000	(0.0000)	0.1236
Index	0.4854[a]	(0.0574)	-0.0001[a]	(0.0000)	0.2314
Non-Index	0.8336[a]	(0.0439)	0.0000[a]	(0.0000)	0.1807
All	0.7149[a]	(0.0476)	-0.0000	(0.0000)	0.0020

[a]Significant at the 0.05 level.

TABLE 16

CLEARANCE RATE AS A FUNCTION OF AVERAGE FAMILY BUYING INCOME: 1968

Form of the Equation:

$$PA_{i,n} = a_{6,i} + b_{6,i}Y_n \qquad (10)$$

Crime Type	$a_{6,i}$	(S.E.)	$b_{6,i}$	(S.E.)	R^2
1. Murder	0.8980[a]	(0.4809)	-0.0000	(0.0001)	0.0056
2. Rape	0.3366	(0.5123)	0.0000	(0.0001)	0.0107
3. Robbery	-0.0117	(0.4553)	0.0001	(0.0001)	0.0494
4. Agg. Assault	0.8447[a]	(0.3833)	-0.0000	(0.0000)	0.0058
5. Auto Theft	1.0353[a]	(0.3858)	-0.0001	(0.0000)	0.1043
6. Burglary	0.5134	(0.3612)	-0.0000	(0.0000)	0.0090
7. Larceny	0.5361	(0.3546)	-0.0000	(0.0000)	0.0063
8. Narcotics Law	0.0964	(0.5869)	0.0000	(0.0001)	0.0166
9. Liquor Law	0.6814[a]	(0.3426)	0.0000	(0.0000)	0.0185
10. Prostitution	0.0627	(0.4881)	0.0000	(0.0001)	0.0058
11. Gambling	-0.2470	(0.5439)	0.0001	(0.0001)	0.0559
12. Sex Offenses	0.5530	(0.4189)	0.0000	(0.0001)	0.0144
13. Family&Cldn	0.3120	(0.4312)	0.0001	(0.0001)	0.0689
14. Drunkeness	0.7995[a]	(0.2299)	0.0000	(0.0000)	0.0169
15. Disord&Vag	1.1759[a]	(0.2125)	-0.0000	(0.0000)	0.0958
16. D. W. I.	0.8630[a]	(0.1746)	0.0000	(0.0000)	0.0182
17. Other Ntraf	0.8356[a]	(0.2202)	0.0000	(0.0000)	0.0017
Index	0.6847[a]	(0.3293)	0.0000	(0.0000)	0.0276
Non-Index	0.8619[a]	(0.1865)	0.0000	(0.0000)	0.0014
All	0.9944[a]	(0.2043)	-0.0000	(0.0000)	0.0806

[a]Significant at the 0.05 level.

TABLE 17

CLEARANCE RATE AS A FUNCTION OF AVERAGE FAMILY BUYING INCOME: 1969

Form of the Equation:

$$PA_{i,n} = a_{6,i} + b_{6,i}Y_n \qquad (10)$$

Crime Type	$a_{6,i}$	(S.E.)	$b_{6,i}$	(S.E.)	R^2
1. Murder	-0.1383	(0.4808)	0.0001[a]	(0.0001)	0.1494
2. Rape	-0.2439	(0.4924)	0.0001[a]	(0.0001)	0.1467
3. Robbery	0.4100	(0.4555)	0.0000	(0.0001)	0.0042
4. Agg. Assault	1.2179[a]	(0.3288)	-0.0001	(0.0000)	0.1061
5. Auto Theft	1.2314[a]	(0.3130)	-0.0001[a]	(0.0000)	0.2848
6. Burglary	0.6422[a]	(0.2027)	-0.0000[a]	(0.0000)	0.1487
7. Larceny	0.7054[a]	(0.2791)	-0.0000	(0.0000)	0.0717
8. Narcotics Law	-0.0932	(0.5633)	0.0001	(0.0001)	0.0756
9. Liquor Law	0.5773	(0.4903)	0.0000	(0.0001)	0.0063
10. Prostitution	-0.4477	(0.4103)	0.0001	(0.0000)	0.1091
11. Gambling	-0.6669	(0.4981)	0.0001[a]	(0.0001)	0.1789
12. Sex Offenses	-0.4035	(0.4630)	0.0001[a]	(0.0001)	0.2334
13. Family&Cldn	-0.0127	(0.4792)	0.0001	(0.0001)	0.1187
14. Drunkeness	0.9338[a]	(0.2304)	-0.0000	(0.0000)	0.0002
15. Disord&Vag	1.1555[a]	(0.2050)	-0.0000	(0.0000)	0.0850
16. D. W. I.	0.4401	(0.4083)	0.0001	(0.0000)	0.1090
17. Other Ntraf	0.8029[a]	(0.2160)	0.0000	(0.0000)	0.0133
Index	0.8701[a]	(0.2262)	-0.0001[a]	(0.0000)	0.2016
Non-Index	0.8376[a]	(0.1871)	0.0000	(0.0000)	0.0048
All	0.9420[a]	(0.1758)	-0.0000	(0.0000)	0.0920

[a]Significant at the 0.05 level.

TABLE 18

CLEARANCE RATE AS A FUNCTION OF A ZERO-ONE ORGANIZATIONAL DUMMY VARAIBLE: 1968

Form of the Equation:

$$PA_{i,n} = a_{g,i} + b_{g,i}Z_n \qquad (12)$$

Crime Type	$a_{g,i}$	(S.E.)	$b_{g,i}$	(S.E.)	R^2
1. Murder	0.7880[a]	(0.1303)	-0.0800	(0.1842)	0.0104
2. Rape	0.6000[a]	(0.1392)	-0.0830	(0.1968)	0.0099
3. Robbery	0.4520[a]	(0.1264)	-0.0630	(0.1787)	0.0008
4. Agg. Assault	0.7590[a]	(0.1037)	-0.0720	(0.1466)	0.0132
5. Auto Theft	0.6370[a]	(0.0987)	-0.3000[a]	(0.1397)	0.2041
6. Burglary	0.4700[a]	(0.0926)	-0.2010	(0.1310)	0.1156
7. Larceny	0.4910[a]	(0.0935)	-0.1450	(0.1322)	0.0626
8. Narcotics Law	0.4000[a]	(0.1606)	0.0290	(0.2271)	0.0009
9. Liquor Law	0.7720[a]	(0.0871)	0.2110[a]	(0.1231)	0.1402
10. Prostitution	0.1000	(0.1269)	0.2360	(0.1795)	0.0876
11. Gambling	0.1080	(0.1372)	0.3920[a]	(0.1941)	0.1848
12. Sex Offenses	0.6110[a]	(0.1027)	0.3050[a]	(0.1452)	0.1969
13. Family&Cldn	0.6450[a]	(0.1097)	0.3110[a]	(0.1552)	0.1825
14. Drunkeness	0.8600[a]	(0.0591)	0.1300	(0.0856)	0.1184
15. Disord&Vag	0.9040[a]	(0.0604)	-0.0320	(0.0855)	0.0077
16. D. W. I.	0.9300[a]	(0.0466)	0.0640	(0.0659)	0.0497
17. Other Ntraf	0.8190[a]	(0.9571)	0.1080	(0.0807)	0.0905
Index	0.5580[a]	(0.0837)	-0.2090[a]	(0.1184)	0.1476
Non-Index	0.8470[a]	(0.0485)	0.0880	(0.0686)	0.0838
All	0.7850	(0.0561)	-0.0850	(0.0793)	0.0580

[a]Significant at the 0.05 level.

TABLE 19

CLEARANCE RATE AS A FUNCTION OF A ZERO-ONE ORGANIZATIONAL DUMMY VARIABLE: 1969

Form of the Equation:

$$PA_{i,n} = a_{9,i} + b_{9,i}Z_n \qquad (12)$$

Crime Type	$a_{9,i}$	(S.E.)	$b_{9,i}$	(S.E.)	R^2
1. Murder	0.6630[a]	(0.1422)	0.0750	(0.2011)	0.0077
2. Rape	0.6000[a]	(0.1459)	0.0130	(0.2064)	0.0002
3. Robbery	0.5420[a]	(0.1250)	-0.0180	(0.1767)	0.0006
4. Agg. Assault	0.8000[a]	(0.935)	-0.1070	(0.1323)	0.0351
5. Auto Theft	0.5800[a]	(0.839)	-0.3410[a]	(0.1186)	0.3146
6. Burglary	0.3860[a]	(0.0508)	-0.1930[a]	(0.0719)	0.2859
7. Larceny	0.4670[a]	(0.0742)	-0.1690	(0.1049)	0.1261
8. Narcotics Law	0.4000[a]	(0.1491)	0.3550	(0.2109)	0.1360
9. Liquor Law	0.6900	(0.1337)	0.0990	(0.1890)	0.0150
10. Prostitution	0.0000	(0.1080)	0.3000[a]	(0.1528)	0.1764
11. Gambling	0.0080	(0.1145)	0.5860[a]	(0.1620)	0.4210
12. Sex Offenses	0.3660[a]	(0.1066)	0.5880[a]	(0.1508)	0.4580[a]
13. Family&Cldn	0.5560[a]	(0.1287)	0.3270[a]	(0.1820)	0.1520
14. Drunkeness	0.8670[a]	(0.0604)	0.1090	(0.0855)	0.0829
15. Disord&Vag	0.8920[a]	(0.0587)	0.0070	(0.0830)	0.0004
16. D. W. I.	0.7840[a]	(0.0823)	0.2100[a]	(0.1164)	0.1531
17. Other Ntraf	0.8370[a]	(0.0547)	0.1410[a]	(0.0774)	0.1558
Index	0.5170[a]	(0.0566)	-0.2400[a]	(0.0801)	0.3329
Non-Index	0.8300[a]	(0.0471)	0.1230[a]	(0.0666)	0.1594
All	0.7370[a]	(0.0497)	-0.0560	(0.0702)	0.0341

[a]Significant at the 0.05 level.

Apparently, then, of those types where a dependent relationship exists, larger land area has a depressing effect on the clearance rates for non-index crimes, and a positive effect on clearance rates for significant index crimes.

For population density, the null hypothesis of independence is rejected in 1968 for "sex offenses" and "family&cldn," and in 1969, for "auto theft," "burglary," "narcotics law," "gambling," and "sex offenses."

Further, in 1968, the significant coefficients (both non-index crimes) are positive, while in 1969, the significant coefficients of index crimes are negative and non-index crimes, positive. That is, for those crime types in which a dependency exists, increasing population density exerts a positive force on clearance rates for non-index crimes, while the same increasing population density exerts a downward force on the clearance rates for non-index crimes.

For average family buying income, the null hypothesis of independence is accepted in 1968 for every type; and in 1969, it is rejected for "murder," "rape," "auto theft," "gambling," and "sex offenses."

The sign of the coefficients of "murder" and "rape" (index crimes), and "gambling" and "sex offenses" (non-index crimes) is positive, while the sign of the coefficients of "auto theft" and "burglary" (index crimes) is negative. This relationship at first may appear somewhat strange, in view of the preceding instances where opposite relationships were found for index and non-index crimes. Yet, a closer look at the grouping reveals that of those four that have a positive coefficient,

all but "gambling" are crimes against person; of two of those having a negative coefficient, both--"auto theft" and "burglary"--are crimes against property.

We find a slight indication, then, that in those crime types that are significant for 1969, higher levels of average family buying income exert a positive influence on the clearance rates of crimes against person, and a negative influence on crimes against property. Perhaps, we may be viewing a situation of a value system that changes with income.

We have called the zero-one dummy variable a proxy for organization, since, as we previously discussed, we feel that this (including the particular methods of selecting the heads of the departments) is the primary difference, if one exists, between the two types of agencies. It is important, however, to remember that if there are any consistently different characteristics of the two agencies, they will also be embodied in the results. For the zero-one dummy variable, then, in 1968, the null hypothesis of independence is rejected for "auto theft," "liquor law," "sex offenses," and "family&cldn," while in 1969, it is rejected for "auto theft," "burglary," "prostitution," "gambling," "sex offenses," "family&cldn," and "other ntraf."

Once again, a basic pattern is evident for both years. The significant coefficients of index crimes are negative, and the significant coefficients of non-index crimes are positive. The fact, then, that the law enforcement agency is police, has a depressing effect on the clearance rate for index crimes and a positive effect on the clearance rate for non-index crimes, for those types in which the

dependency of the dummy variable and the clearance rate exists. That is, organization or some other characteristic difference between police and sheriffs is related to lower clearance rates for index crimes and higher clearance rates for non-index crimes. This follows our earlier indications of the differences in the mean clearance rates of the two types of organizations.

In one instance, in 1969, we reject the null hypothesis that the relationship is not linear. For "sex offenses" we are able, via a linear relationship, to explain approximately 46 percent of the variance in the clearance rate by the fact that an area has either a police or a sheriff department.

We next combine several of these variables to examine their combined impact on the clearance rates for 1968 and 1969, as shown in Tables 20 through 27. The null hypothesis of non-linearity is accepted in every instance.

For clearance rates as a function of population density and average family buying income, 1968, we reject the null hypothesis of independence for population density for "sex offenses" and "other ntraf," and average family buying income for "disord&vag"; for 1969, we reject the null hypothesis for population density for "murder," and for average family buying income, for "murder," "auto theft," and "disord&vag."

Although the signs of the significant coefficients are consistent with the previously discussed analyses of each variable separately, the linear combination of the two results is no better linear explanation

TABLE 20

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY
AND AVERAGE FAMILY BUYING INCOME: 1968
(for crime types 1-10)

Form of the Equation:

$$PA_{i,n} = a_{7,i} + b_{7,i}Q_n + b_{8,i}Y_n \qquad (11)$$

Crime Type	$a_{7,i}$ (S.E.)	$b_{7,i}$ (S.E.)	$b_{8,i}$ (S.E.)	R^2
1. Murder	0.9435[a] (0.5283)	0.0000 (0.0001)	-0.0000 (0.0001)	0.0090
2. Rape	0.2666 (0.5618)	-0.0000 (0.0001)	0.0000 (0.0001)	0.0178
3. Robbery	-0.1646 (0.4901)	-0.0001 (0.0001)	0.0001 (0.0001)	0.0908
4. Agg. Assault	0.8074[a] (0.4209)	-0.0000 (0.0001)	-0.0000	0.0100
5. Auto Theft	0.8739[a] (0.4100)	-0.0001 (0.0001)	-0.0000 (0.0001)	0.1648
6. Burglary	0.3486 (0.3812)	-0.0001 (0.0000)	0.0000 (0.0000)	0.0887
7. Larceny	0.4163 (0.3816)	-0.0000 (0.0000)	0.0000 (0.0001)	0.0501
8. Narcotics Law	0.0230 (0.644)	-0.0000 (0.0001)	0.0001 (0.0001)	0.0226
9. Liquor Law	0.8689[a] (0.3546)	0.0001 (0.0000)	-0.0000 (0.0000)	0.1320
10. Prostitution	0.3630 (0.4963)	0.0001 (0.0001)	-0.0000 (0.0001)	0.1511

[a]Significant at the 0.05 level.

TABLE 21

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY
AND AVERAGE FAMILY BUYING INCOME: 1968
(for crime types 11-"all")

Form of the Equation:

$$PA_{i,n} = a_{7,i} + b_{7,i}Q_n + b_{8,i}Y_n \qquad (11)$$

Crime Type	$a_{7,i}$ (S.E.)	$b_{7,i}$ (S.E.)	$b_{8,i}$ (S.E.)	R^2
11. Gambling	-0.0333 (0.5805)	0.0001 (0.0001)	0.0000 (0.0001)	0.1122
12. Sex Offenses	0.9078[a] (0.3920)	0.0001[a] (0.0000)	-0.0000 (0.0000)	0.2874
13. Family&Cldn	0.5263 (0.4614)	0.0001 (0.0001)	0.0000 (0.0001)	0.1578
14. Drunkeness	0.9029[a] (0.2430)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0937
15. Disord&Vag	1.2766[a] (0.2234)	0.0000 (0.0000)	-0.0001[a] (0.0000)	0.1742
16. D. W. I.	0.9131[a] (0.1891)	0.0000 (0.0000)	0.0000 (0.0000)	0.0493
17. Other Ntraf	0.9744[a] (0.2230)	0.0000[a] (0.0000)	-0.0000 (0.0000)	0.1548
Index	0.5344 (0.3476)	-0.0001 (0.0000)	-0.0000 (0.0000)	0.1059
Non-Index	0.9803[a] (0.1886)	0.0000[a] (0.0000)	-0.0000 (0.0000)	0.1567
All	1.0021 (0.2248)[a]	0.0000 (0.0000)	-0.0000 (0.0000)	0.0811

[a]Significant at the 0.05 level.

TABLE 22

CLEARANCE RATE AS A FUNCTION OF AVERAGE FAMILY BUYING INCOME AND POPULATION DENSITY: 1969
(for crime types 1-10)

Form of the Equation:

$$PA_{i,n} = a_{7,i} + b_{7,i}Q_n + b_{8,i}Y_n \qquad (11)$$

Crime Type	$a_{7,i}$ (S.E.)	$b_{7,i}$ (S.E.)	$b_{8,i}$ (S.E.)	R^2
1. Murder	-0.4568 (0.4910)	-0.0001[a] (0.0001)	0.0002[a] (0.0001)	0.2822
2. Rape	-0.4904 (0.5218)	-0.0001 (0.0001)	0.0001[a] (0.0001)	0.2205
3. Robbery	0.2489 (0.4941)	-0.0001 (0.0001)	0.0000 (0.0001)	0.0472
4. Agg. Assault	1.1979[a] (0.3643)	-0.0000 (0.0000)	-0.0001 (0.0000)	0.1072
5. Auto Theft	1.0680[a] (0.3303)	-0.0001 (0.0000)	-0.0001[a] (0.0000)	0.3521
6. Burglary	0.5325[a] (0.2131)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.2346
7. Larceny	0.6120[a] (0.3034)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.1075
8. Narcotics Law	0.2479 (0.5837)	0.0001 (0.0001)	0.0000 (0.0001)	0.1926
9. Liquor Law	0.7390 (0.5333)	0.0001 (0.0001)	-0.0000 (0.0001)	0.0435
10. Prostitution	-0.3479 (0.4502)	0.0000 (0.0001)	0.0000 (0.0001)	0.1273

[a]Significant at the 0.05 level.

TABLE 23

CLEARANCE RATE AS A FUNCTION OF AVERAGE FAMILY BUYING INCOME AND POPULATION DENSITY: 1969
(for crime types 11-"all")

Form of the Equation:

$$PA_{i,n} = a_{7,i} + b_{7,i}Q_n + b_{8,i}Y_n \qquad (11)$$

Crime Type	$a_{7,i}$ (S.E.)	$b_{7,i}$ (S.E.)	$b_{8,i}$ (S.E.)	R^2
11. Gambling	-0.3741 (0.5183)	0.0001 (0.0001)	0.0001 (0.0001)	0.2767
12. Sex Offenses	0.0215 (0.4324)	0.0001 (0.0001)	0.0001 (0.0001)	0.4563
13. Family&Cldn	0.0562 (0.5294)	0.0000 (0.0001)	0.0001 (0.0001)	0.1250
14. Drunkeness	1.0743[a] (0.2385)	0.0000 (0.0000)	-0.0000 (0.0000)	0.1284
15. Disord&Vag	1.2800[a] (0.2124)	0.0000 (0.0000)	-0.0001[a] (0.0000)	0.2012
16. D. W. I.	0.5584[a] (0.3331)	0.0000 (0.0000)	0.0000 (0.0000)	0.1542
17. Other Ntraf	0.9294[a] (0.2249)	0.0000 (0.0000)	-0.0000 (0.0000)	0.1300
Index	0.7456[a] (0.2374)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.2850
Non-Index	0.9834[a] (0.1845)	0.0000 (0.0000)	-0.0000[a] (0.0000)	0.2131
All	0.9842[a] (0.1930)	0.0000 (0.0000)	-0.0000 (0.0000)	0.1100

[a]Significant at the 0.05 level.

TABLE 24

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY,
AVERAGE FAMILY BUYING INCOME AND ORGANIZATION
DUMMY VARIABLE: 1968
(for crime types 1-10)

Form of the Equation:

$$PA_{i,n} = a_{10,i} + b_{10,i}Q_n + b_{11,i}Y_n + b_{12,i}Z_n \qquad (13)$$

Crime Type	$a_{10,i}$ (S.E.)	$b_{10,i}$ (S.E.)	$b_{11,i}$ (S.E.)	$b_{12,i}$ (S.E.)	R^2
1. Murder	0.0502 (0.7237)	0.0001 (0.0001)	0.0000 (0.0001)	-0.4863 (0.5414)	0.0566
2. Rape	-0.5411 (0.7305)	0.0001 (0.0001)	0.0002 (0.0000)	-0.8898 (0.5464)	0.1575
3. Robbery	-0.9501 (0.6243)	0.0001 (0.0001)	0.0002[a] (0.0001)	-0.8654[a] (0.4670)	0.2514
4. Agg. Assault	0.7049 (0.5898)	0.0000 (0.0001)	0.0000 (0.0001)	-0.1099 (0.4411)	0.0138
5. Auto Theft	0.5244 (0.5611)	0.0000 (0.0001)	0.0000 (0.0001)	-0.3851 (0.4197)	0.2065
6. Burglary	-0.1437 (0.5036)	0.0000 (0.0001)	0.0001 (0.0001)	-0.5424 (0.3767)	0.1932
7. Larceny	0.0951 (0.5225)	0.0000 (0.0001)	0.0001 (0.0001)	-0.3539 (0.3908)	0.0964
8. Narcotics Law	-1.1616 (0.0915)	0.0000 (0.0002)	0.0001 (0.0001)	-0.2034 (0.6744)	0.0281
9. Liquor Law	1.2289[a] (0.4799)	-0.0000 (0.0001)	-0.0001 (0.0001)	0.3967 (0.3590)	0.1936
10. Prostitution	0.5405 (0.6938)	0.0001 (0.0001)	-0.0001 (0.0001)	0.1956 (0.5189)	0.1585

[a]Significant at the 0.05 level.

TABLE 25

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY,
AVERAGE FAMILY BUYING INCOME AND ORGANIZATION
DUMMY VARIABLE: 1968
(for crime types 11-"all")

Form of the Equation:

$$PA_{i,n} = a_{10,i} + b_{10,i}Q_n + b_{11,i}Y_n + b_{12,i}Z_n \qquad (13)$$

Crime Type	$a_{10,i}$ (S.E)	$b_{10,i}$ (S.E.)	$b_{11,i}$ (S.E.)	$b_{12,i}$ (S.E.)	R^2
11. Gambling	0.7715 (0.7592)	-0.0001 (0.0001)	-0.0001 (0.0001)	0.8866 (0.5679)	0.2296
12. Sex Offenses	1.2496[a] (0.5357)	0.0001 (0.0001)	-0.0001 (0.0001)	0.3766 (0.4007)	0.3247
13. Family&Cldn	0.8728 (0.6208)	0.0000 (0.0001)	-0.0000 (0.0001)	0.3818 (0.4643)	0.1919
14. Drunkeness	1.1634 (0.3273)	-0.0000 (0.0001)	-0.0000 (0.0000)	0.2869 (0.2449)	0.1653
15. Disord&Vag	1.2637[a] (0.3137)	0.0000 (0.0001)	-0.0001 (0.0000)	-0.0143 (0.2346)	0.1744
16. D. W. I.	0.9636[a] (0.2648)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0556 (0.1981)	0.0541
17. Other Ntraf	1.1231[a] (0.3083)	0.0000 (0.0001)	-0.0000 (0.0000)	0.1638 (0.2306)	0.1807
Index	0.1158 (0.4630)	0.0000 (0.0001)	-0.0001 (0.0001)	-0.4611 (0.3463)	0.1951
Non-Index	1.0833[a] (0.2620)	0.0000 (0.0000)	-0.0000 (0.0000)	0.1136 (0.1960)	0.1741
All	0.8983[a] (0.3133)	0.0000 (0.0001)	-0.0000 (0.0000)	0.1143 (0.2343)	0.0946

[a]Significant at the 0.05 level.

TABLE 26

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY,
AVERAGE FAMILY BUYING INCOME AND ORGANIZATION
DUMMY VARIABLE: 1969
(for crime types 1-10)

From of the Equation:

$$PA_{i,n} = a_{10,i} + b_{10,i}Q_n + b_{11,i}Y_n + b_{12,i}Z_n \qquad (13)$$

Crime Type	$a_{10,i}$ (S.E.)	$b_{10,i}$ (S.E.)	$b_{11,i}$ (S.E.)	$b_{12,i}$ (S.E.)	R^2
1. Murder	-0.4737 (0.6417)	-0.0001 (0.0001)	0.0002[a] (0.0001)	-0.0207 (0.4816)	0.2783
2. Rape	-1.1066[a] (0.6342)	0.0001 (0.0001)	0.0002[a] (0.0001)	-0.7523 (0.4759)	0.3258
3. Robbery	0.4281 (0.6415)	-0.0001 (0.0001)	0.0000 (0.0001)	0.2188 (0.4815)	0.0593
4. Agg. Assault	1.4408[a] (0.4657)	-0.0001 (0.0001)	0.0001 (0.0001)	0.2965 (0.3495)	0.1456
5. Auto Theft	0.9960[a] (0.4306)	-0.0000 (0.0001)	-0.0001 (0.0001)	-0.0878 (0.3232)	0.3551
6. Burglary	0.3538 (0.2698)	0.0000 (0.0000)	0.0000 (0.0000)	-0.2181 (0.2018)	0.2867
7. Larceny	0.4713 (0.3924)	0.0000 (0.0001)	-0.0000 (0.0001)	-0.1718 (0.2945)	0.1261
8. Narcotics Law	0.1150 (0.7609)	0.0001 (0.0001)	0.0000 (0.0001)	-0.1623 (0.5710)	0.1966
9. Liquor Law	0.5414 (0.6924)	0.0001 (0.0001)	0.0000 (0.0001)	-0.2412 (0.5196)	0.0562
10. Prostitution	0.0613 (0.5644)	-0.0001 (0.0001)	-0.0000 (0.0001)	0.4995 (0.4236)	0.1971

[a]Significant at the 0.05 level.

TABLE 27

CLEARANCE RATE AS A FUNCTION OF POPULATION DENSITY,
AVERAGE FAMILY BUYING INCOME AND ORGANIZATION
DUMMY VARIABLE: 1969
(for crime types 11-"all")

Form of the Equation:

$$PA_{i,n} = a_{10,i} + b_{10,i}Q_n + b_{11,i}Y_n + b_{12,i}Z_n \qquad (13)$$

Crime Type	$a_{10,i}$ (S.E.)	$b_{10,i}$ (S.E.)	$b_{11,i}$ (S.E.)	$b_{12,i}$ (S.E.)	R^2
11. Gambling	0.4647 (0.5852)	-0.0001 (0.0001)	-0.0001 (0.0001)	1.0241[a] (0.4392)	0.4601
12. Sex Offenses	0.3075 (0.5529)	0.0001 (0.0001)	0.0000 (0.0001)	0.3491 (0.4150)	0.4793
13. Family&Cldn	0.4872 (0.6693)	-0.0001 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.1812
14. Drunkeness	1.2933[a] (0.2987)	-0.0001 (0.0000)	-0.0000 (0.0001)	0.2673 (0.2242)	0.1995
15. Disord&Vag	1.3807[a] (0.2745)	0.0000 (0.0000)	-0.0001[a] (0.0000)	0.1230 (0.2360)	0.2186
16. D. W. I.	0.6461 (0.4338)	0.0000 (0.0001)	0.0000 (0.0001)	0.1070 (0.3256)	0.1599
17. Other Ntraf	1.1774[a] (0.3760)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.3028 (0.2072)	0.2325
Index	0.5458[a] (0.2994)	0.0000 (0.0001)	-0.0000 (0.0000)	-0.2440 (0.2247)	0.3341
Non-Index	1.1550[a] (0.2307)	0.0000 (0.0000)	-0.0000 (0.0000)	0.2095 (0.1732)	0.2791
All	0.9280[a] (0.2512)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0685 (0.1885)	0.1173

[a]Significant at the 0.05 level.

of the clearance rates, and at the same time, their linear combination seems to lose some of the individual significant properties as exhibited by the general tendency toward fewer significant crime types in their linear combination as compared with their individual examinations.

For clearance rates as a linear function of population density, average family buying income and the zero-one dummy variable, for 1968 we accept the null hypothesis of independence in all of the cases, reject the null hypothesis for average family buying income for "robbery," and reject it for the dummy variable for "robbery." For 1969, we accept it for population density for all types, reject it for average family buying income for "murder," "rape," and "disord&vag," and reject it for the dummy variable for "gambling."

As with the previous equation, the linear combination of these variables results in no better linear explanation of clearance rates, and this combination also shows, perhaps even more so than in the previous case, a general tendency toward significance in fewer crime types than the variables previously exhibited in individual examination.

Determinants of Performance: Returns to Manpower

In this section, we are proceeding to test the null hypothesis that the clearance rates for sheriffs are not depedent upon the manpower of the sheriff departments, that the clearance rates for police are not dependent upon the manpower of the police departments, and the null hypothesis that the respective relationships are not linear

in form.[12] A rejection of the latter null hypothesis would indicate constant returns to manpower (since the function form of the equation is homogeneous of the first degree). A rejection of the first null hypothesis (which may be restated, as, the coefficient of labor is not significantly different from zero), would indicate something about the direction of the returns to manpower. That is, while the returns to manpower may be constant or not constant, it may be constant or not constant in a positive or negative direction.

We first examine the relationship in a combined sample of all law enforcement agencies for both years (Tables 28 and 29). We reject the null hypothesis of a linear relationship for all types except "gambling" in 1968, where 53 percent of the variance in the clearance rate is explainted by manpower. We reject the null hypothesis of independence in 1968 for "prostitution" and "gambling."

When we separate the agencies by type, we find somewhat better results (Tables 30 through 33). We can reject the null hypothesis of non-linearity for sheriffs for "prostitution" in 1969, and for police in 1968 for "liquor law," "sex offenses," and "D. W. I.," and for police in 1969, for "sex offenses." In each instance of rejection, at least 53 percent of the variation in clearance rates is explained by manpower.

In 1968, for sheriffs, we reject the null hypothesis of independence for "murder," and for police, we reject it for "liquor law," "prostitution," "gambling," and "D. W. I." In 1969, for sheriffs, we reject it for

[12] These data are presented in Appendix 4, Table 94.

TABLE 28

CLEARANCE RATE AS A FUNCTION OF MANPOWER FOR ALL LAW ENFORCEMENT AGENCIES: 1968

Form of the Equation:

$$PA_{i,n} = a_{1,i} + b_{1,i}L_n \qquad (5')$$

Crime Type	$a_{1,i}$	(S.E.)	$b_{1,i}$	(S.E.)	R^2
1. Murder	0.7134[a]	(0.1177)	0.0009	(0.0010)	0.0122
2. Rape	0.5752[a]	(0.1264)	-0.0004	(0.0020)	0.0025
3. Robbery	0.4092[a]	(0.1146)	0.0003	(0.0018)	0.0014
4. Agg. Assault	0.7413[a]	(0.0942)	-0.0005	(0.0015)	0.0053
5. Auto Theft	0.5811[a]	(0.0936)	-0.0024	(0.0015)	0.1260
6. Burglary	0.4263[a]	(0.0855)	-0.0014	(0.0014)	0.0579
7. Larceny	0.4656[a]	(0.0855)	-0.0012	(0.0014)	0.0414
8. Narcotics Law	0.4162[a]	(0.1454)	0.0000	(0.0023)	0.0000
9. Liquor Law	0.8406[a]	(0.0838)	0.0009	(0.0013)	0.0269
10. Prostitution	0.9905	(0.1102)	0.0032[a]	(0.0017)	0.1605
11. Gambling	0.0388	(0.0942)	0.0067[a]	(0.0015)	0.5310[a]
12. Sex Offenses	0.7577[a]	(0.1036)	0.0001	(0.0016)	0.0004
13. Family&Cldn	0.7044[a]	(0.1036)	0.0024	(0.0016)	0.1093
14. Drunkeness	0.8893[a]	(0.0553)	0.0009	(0.0009)	0.0560
15. Disord&Vag	0.9111[a]	(0.0542)	-0.0006	(0.0009)	0.0253
16. D. W. I.	0.0525[a]	(0.0431)	0.0003	(0.0007)	0.0069
17. Other Ntraf	0.8442[a]	(0.0530)	0.0007	(0.0008)	0.0404
Index	0.5210[a]	(0.0780)	-0.0017	(0.0012)	0.0967
Non-Index	0.8785[a]	(0.0456)	0.0003	(0.0007)	0.0106
All	0.7828[a]	(0.0501)	-0.0010	(0.0008)	0.0845

[a]Significant at the 0.05 level.

TABLE 29

CLEARANCE RATE AS A FUNCTION OF MANPOWER FOR ALL LAW ENFORCEMENT AGENCIES: 1969

Form of the Equation:

$$PA_{i,n} = a_{1,i} + b_{1,i}L_n \qquad (5')$$

Crime Type	$a_{1,i}$	(S.E.)	$b_{1,i}$	(S.E.)	R^2
1. Murder	0.5937[a]	(0.1229)	0.0025	(0.0018)	0.0969
2. Rape	0.5121[a]	(0.1274)	0.0022	(0.0019)	0.0716
3. Robbery	0.5498[a]	(0.1131)	-0.0004	(0.0016)	0.0031
4. Agg. Assault	0.7901[a]	(0.0847)	-0.0010	(0.0012)	0.0363
5. Auto Theft	0.4972[a]	(0.0856)	-0.0020	(0.0012)	0.1298
6. Burglary	0.3339[a]	(0.0519)	-0.0010	(0.0008)	0.0944
7. Larceny	0.4387[a]	(0.0687)	-0.0013	(0.0010)	0.0870
8. Narcotics Law	0.4680[a]	(0.1394)	0.0025	(0.0020)	0.0807
9. Liquor Law	0.6468[a]	(0.1169)	0.0022	(0.0017)	0.0820
10. Prostitution	0.0042	(0.0928)	0.0034[a]	(0.0014)	0.2598
11. Gambling	0.0329[a]	(0.0916)	0.0062[a]	(0.0013)	0.5492
12. Sex Offenses	0.5602[a]	(0.1257)	0.0023	(0.0018)	0.0822
13. Family&Cldn	0.6534[a]	(0.1242)	0.0015	(0.0018)	0.0388
14. Drunkeness	0.8955[a]	(0.0566)	0.0005	(0.0008)	0.0210
15. Disord&Vag	0.9041[a]	(0.0531)	-0.0002	(0.0008)	0.0038
16. D. W. I.	0.8409[a]	(0.0790)	0.0011	(0.0011)	0.0501
17. Other Ntraf	0.8682[a]	(0.0519)	0.0009	(0.0008)	0.0754
Index	0.4660[a]	(0.0572)	-0.0016[a]	(0.0008)	0.1713
Non-Index	0.8691[a]	(0.0458)	0.0005	(0.0007)	0.0330
All	0.7489[a]	(0.0432)	-0.0009	(0.0006)	0.1079

[a]Significant at the 0.05 level.

TABLE 30

CLEARANCE RATE AS A LINEAR FUNCTION OF MANPOWER
FOR SHERIFF AGENCIES: 1968

Form of the Equation:

$$PA_{i,c} = a_{1,i} + b_{1,i}L_c \qquad (5)$$

Crime Type	$a_{1,i}$	(S.E.)	$b_{1,i}$	(S.E.)	R^2
1. Murder	0.3654	(0.2300)	0.0556[a]	(0.0264)	0.3565
2. Rape	0.3304	(0.3378)	0.0355	(0.0388)	0.0946
3. Robbery	0.0961	(0.3032)	0.0468	(0.0348)	0.1843
4. Agg. Assault	0.6526[a]	(0.2241)	0.0140	(0.0257)	0.0357
5. Auto Theft	0.4804[a]	(0.2323)	0.0206	(0.0267)	0.0694
6. Burglary	0.3339	(0.1941)	0.0179	(0.0223)	0.0746
7. Larceny	0.3927[a]	(0.1819)	0.0139	(0.0209)	0.0457
8. Narcotics Law	0.0798	(0.3305)	0.0421	(0.0380)	0.1134
9. Liquor Law	0.7555[a]	(0.2651)	0.0020	(0.0304)	0.0006
10. Prostitution	0.1674	(0.2157)	-0.0089	(0.0248)	0.0158
11. Gambling	0.0241	(0.2135)	0.0110	(0.0245)	0.0247
12. Sex Offenses	0.6694[a]	(0.2767)	-0.0077	(0.0318)	0.0072
13. Family&Cldn	0.7680[a]	(0.3196)	-0.0162	(0.0367)	0.0237
14. Drunkeness	0.8840[a]	(0.1805)	-0.0032	(0.0207)	0.0029
15. Disord&Vag	0.9598[a]	(0.0999)	-0.0073	(0.0115)	0.0487
16. D. W. I.	0.9679[a]	(0.1420)	-0.0050	(0.0163)	0.0116
17. Other Ntraf	0.9527[a]	(0.1465)	-0.0176	(0.0168)	0.1202
Index	0.4446[a]	(0.1593)	0.0149	(0.0183)	0.0768
Non-Index	0.9141[a]	(0.1362)	-0.0088	(0.0156)	0.0382
All	0.8141[a]	(0.1256)	-0.0039	(0.0144)	0.0092

[a]Significant at the 0.05 level.

TABLE 31

CLEARANCE RATE AS A LINEAR FUNCTION OF MANPOWER
FOR SHERIFF AGENCIES: 1969

Form of the Equation:

$$PA_{i,c} = a_{1,i} + b_{1,i}L_c \qquad (5)$$

Crime Type	$a_{1,i}$	(S.E.)	$b_{1,i}$	(S.E.)	R^2
1. Murder	0.2158	(0.2571)	0.0466[a]	(0.0233)	0.3336
2. Rape	0.0724	(0.2767)	0.0550[a]	(0.0251)	0.3756
3. Robbery	0.2055	(0.2954)	0.0350	(0.0267)	0.1767
4. Agg. Assault	0.7691[a]	(0.1631)	0.0032	(0.0148)	0.0059
5. Auto Theft	0.0540[a]	(0.2433)	0.0043	(0.0220)	0.0045
6. Burglary	0.3161[a]	(0.1338)	0.0073	(0.0121)	0.0432
7. Larceny	0.3262[a]	(0.1443)	0.0147	(0.0131)	0.1361
8. Narcotics Law	-0.1662	(0.2638)	0.0590[a]	(0.0239)	0.4325
9. Liquor Law	0.5111	(0.2810)	0.0186	(0.0254)	0.0628
10. Prostitution	0.0000	(0.0000)	0.0000	(0.0000)	1.0000[a]
11. Gambling	-0.0239[a]	(0.0112)	0.0033[a]	(0.0010)	0.5725
12. Sex Offenses	0.2063	(0.3010)	0.0166	(0.0272)	0.0445
13. Family&Cldn	0.4883	(0.3257)	0.0071	(0.0295)	0.0007
14. Drunkeness	0.8101[a]	(0.1785)	0.0059	(0.0162)	0.0165
15. Disord&Vag	0.9336	(0.1137)	-0.0043	(0.0103)	0.0216
16. D. W. I.	0.6825[a]	(0.2458)	0.0106	(0.0223)	0.0274
17. Other Ntraf	0.9712[a]	(0.1494)	-0.0140	(0.0135	0.1179
Index	0.4074[a]	(0.1250)	0.0114	(0.0113)	0.1129
Non-Index	0.8609[a]	(0.1347)	-0.0032	(0.0122)	0.0086
All	0.7046[a]	(0.1146)	0.0034	(0.0104)	0.0131

[a]Significant at the 0.05 level.

TABLE 32

CLEARANCE RATE AS A LINEAR FUNCTION OF MANPOWER
FOR POLICE: 1968

Form of the Equation:

$$PA_{i,d} = a_{2,i} + b_{2,i}L_d \qquad (6)$$

Crime Type	$a_{2,i}$	(S.E.)	$b_{2,i}$	(S.E.)	R^2
1. Murder	0.5621[a]	(0.2184)	0.0021	(0.0025)	0.0800
2. Rape	0.5186[a]	(0.1945)	-0.0000	(0.0022)	0.0000
3. Robbery	0.3248[a]	(0.1567)	0.0009	(0.0018)	0.0317
4. Agg. Assault	0.6927[a]	(0.1812)	-0.0001	(0.0020)	0.0002
5. Auto Theft	0.3991	(0.1481)	-0.0009	(0.0017)	0.0332
6. Burglary	0.2931	(0.1634)	-0.0003	(0.0018)	0.0043
7. Larceny	0.3824[a]	(0.1777)	-0.0005	(0.0020)	0.0081
8. Narcotics Law	0.4765	(0.2788)	-0.0007	(0.0031)	0.0056
9. Liquor Law	1.0377[a]	(0.0179)	-0.0008[a]	(0.0002)	0.6454[a]
10. Prostitution	0.1245	(0.2469)	0.0030	(0.0028)	0.1252
11. Gambling	-0.0057	(0.1929)	0.0071[a]	(0.0022)	0.5726
12. Sex Offenses	1.1378[a]	(0.0729)	-0.0031[a]	(0.0008)	0.6435[a]
13. Family&Cldn	0.8984[a]	(0.0736)	0.0008	(0.0008)	0.1066
14. Drunkeness	0.9814	(0.0154)	0.0001	(0.0002)	0.0569
15. Disord&Vag	0.9149[a]	(0.1248)	-0.0006	(0.0014)	0.0225
16. D. W. I.	1.0133[a]	(0.0063)	-0.0003[a]	(0.0001)	0.6450[a]
17. Other Ntraf	0.9158[a]	(0.0649)	0.0002	(0.0007)	0.0058
Index	0.3987[a]	(0.1588)	-0.0007	(0.0018)	0.0187
Non-Index	0.9624[a]	(0.0424)	-0.0004	(0.0005)	0.0754
All	0.7554[a]	(0.0926)	-0.0008	(0.0010)	0.0654

[a]Significant at the 0.05 level.

TABLE 33

CLEARANCE RATE AS A LINEAR FUNCTION OF MANPOWER
FOR POLICE: 1969

Form of the Equation:

$$PA_{i,d} = a_{2,i} + b_{2,i}L_d \qquad (6)$$

Crime Type	$a_{2,i}$	(S.E.)	$b_{2,i}$	(S.E.)	R^2
1. Murder	0.5109[a]	(0.2151)	0.0030	(0.0022)	0.1823
2. Rape	0.3822[a]	(0.1929)	0.0030	(0.0020)	0.2210
3. Robbery	0.5829[a]	(0.1545)	-0.0008	(0.0016)	0.0282
4. Agg. Assault	0.7446[a]	(0.1857)	-0.0007	(0.0019)	0.0152
5. Auto Theft	0.2498[a]	(0.0584)	-0.0001	(0.0006)	0.0069
6. Burglary	0.1870[a]	(0.0574)	0.0001	(0.0006)	0.0022
7. Larceny	0.3488[a]	(0.1294)	-0.0007	(0.0013)	0.0299
8. Narcotics Law	0.7319[a]	(0.2308)	0.0003	(0.0024)	0.0200
9. Liquor Law	0.6024[a]	(0.2127)	0.0024	(0.0022)	0.1334
10. Prostitution	0.0924	(0.2477)	0.0027	(0.0026)	0.1232
11. Gambling	0.2394	(0.2309)	0.0046[a]	(0.0024)	0.3204
12. Sex Offenses	1.1013[a]	(0.0448)	-0.0019[a]	(0.0005)	0.6842[a]
13. Family&Cldn	0.9324[a]	(0.1710)	-0.0006	(0.0018)	0.0164
14. Drunkeness	0.9950	(0.0265)	-0.0002	(0.0003)	0.0929
15. Disord&Vag	0.9265[a]	(0.1090)	-0.0004	(0.0011)	0.0126
16. D. W. I.	1.0132[a]	(0.0055)	-0.0003[a]	(0.0001)	0.6845
17. Other Ntraf	0.9567[a]	(0.0369)	0.0003	(0.0004)	0.0624
Index	0.3112[a]	(0.0867)	-0.0004	(0.0009)	0.0302
Non-Index	0.9749[a]	(0.0356)	-0.0003	(0.0004)	0.0703
All	0.7590[a]	(0.0701)	-0.0010	(0.0007)	0.1987

[a]Significant at the 0.05 level.

"murder," "rape," "narcotics law," and "gambling"; and for police, for "gambling," "sex offenses," and "D. W. I."

We find evidence of constant returns to manpower in the combined sample in "gambling" 1968. In breaking up the sample, in 1968 we find the same evidence for a total of 3 different non-index crimes, and in 1969 for 2 non-index crimes, one of which--"sex offenses"--for police, previously occurred in 1968. The evidence of constant returns, while only appearing in a few non-index crimes, occurs more frequently for police than sheriffs, but only in the category "sex offenses" is it consistent for both years.

It is interesting that for all law enforcement agencies, for both years, the significant coefficient of the 2 non-index crimes is positive. For sheriff agencies alone, for both years, significant coefficients of index crimes are positive, as are the coefficients of significant non-index crimes. For police, who have no significant coefficients for index crimes, for both years, the significant coefficients of 3 of the 4 non-index crimes in 1968 and 2 of the 3 non-index crimes in 1969 are negative. The one exception in both years for police is "gambling."

Apparently, then, for sheriff organizations, for those crime types where a dependent relationship occurs, increasing manpower has an increasing effect on the clearance rates for both index and non-index crimes, while for police organizations, for those non-index types where a significant relationship exists, there appears a tendency for increases in manpower to have a decreasing effect on the clearance rate.

In order to examine the clearance rate and manpower relationship more closely, two other methods of attack are used. The first, estimating the relationship in log form (Appendix 5, Table 98), does not contribute a great deal to the discussion. As some of the clearance rates are zero, this form of the relationship is estimated by the summary measures "index," "non-index," and "all." It is found that the null hypothesis is only rejected for 1969, when a combined sample of all law enforcement agencies is used. Approximately 31 percent of the variance in index is explained by manpower, and the exponent of manpower (-0.28), for which the null hypothesis of independence is rejected, seems to indicate a general decreasing return to manpower for index for all law enforcement agencies.

The other approach is to use rank correlation techniques. This approach avoids the necessity of using summary measures, as in the second approach, and at the same time, requires no assumptions about the distribution of the two variables as both previous approaches do, resulting in possibly more freedom to examine the relationship. The results of the tests are in Appendix 5, Tables 99 through 104. Although both the Kendall and Spearman coefficients are calculated and tested, we restrict our discussion to that of the Kendall coefficient, as it is usually smaller than the Spearman.

For all law enforcement agencies in 1968, we reject the null hypothesis of independence for "prostitution," "gambling," and "family& cldn"; and in 1969, for "murder," "auto theft," "burglary," "narcotics law," "prostitution," "gambling," and "sex offenses." So, to begin

with, we are able to find more significant cases of dependency. Overall, we find a negative relationship for significant index crimes (except "murder"), and a positive relationship for significant non-index crimes. We might infer, then, some tendency for clearance rates in significant index crimes to be inversely related to manpower (except in the case of murder), and some tendency for the clearance rate to be positively related to manpower in significant non-index crimes.

When the agencies are separated by type, we find that for sheriffs in 1968, we reject the null hypothesis for "murder," "rape," "narcotics law," "prostitution," and "gambling," and for 1969, for "murder," "rape," "narcotics law," "prostitution," "gambling," and "other ntraf." For police in 1968, we reject it for "liquor law," "prostitution," "gambling," "sex offenses," "family&cldn," and "D. W. I." While in 1969, we reject it for "murder," "gambling," "sex offenses," "family&cldn," and "D. W. I."

In general, for sheriff agencies, for those significant coefficients (both index crimes and non-index crimes), we find that manpower and clearance rates are positively related, with the exception of the hetergeneous "other ntraf" category in 1969. In general, for police agencies, the coefficient of "murder," the only significant index crime, is positively related to manpower (in 1969), as is "gambling" in 1968 and 1969, "prostitution" and "family&cldn" in 1968, while clearance rates for other significant crime types (non-index crimes), are negatively related to manpower. A switching from a significant and positive to a significant and negative relationship occurs between 1968 and 1969 for "family&cldn."

Determinants of Performance: Returns to Size

The final analysis for police and sheriff agencies involves the relationship of true complaints to clearance rates. The differences in clearance rates for both organizations that observed in the beginning of this chapter may well be due to economies or diseconomies of absolute size: that is, lower clearance rates may be related to higher numbers of true complaints or vice versa. Or, perhaps, the range of operation for a type of agency is such that clearance rates and numbers of true complaints are positively related; that is, by increasing the number of true complaints it would be possible to increase clearance rates and vice versa. The tool of rank correlation is used and both Kendall and Spearman rank correlation coefficients are calculated and tested. As in the previous discussion, our discussion here is restricted to the Kendall coefficients.

For all law enforcement agencies in 1968 (Table 34), we reject the null hypothesis of non-independence for "murder," "rape," "robbery," "auto theft," "burglary," "larceny," "narcotics law," "prostitution," "gambling," and "D. W. I." For 1969 (Table 35), we reject it for "murder," "rape," "narcotics law," "liquor law," "prostitution," "gambling," "sex offenses," and "family&cldn." For both years, significant coefficients of non-index crimes are positive (except for "D. W. I." in 1968), as are the coefficients of "murder" and "rape." The coefficients of "auto theft," "burglary," and "larceny" (all of them crimes against person and significant in 1968 only) are negative. This might tend to imply that in general, law enforcement agencies are operating

TABLE 34

RANK CORRELATION OF CLEARANCE RATES AND TRUE COMPLAINTS
FOR ALL LAW ENFORCEMENT AGENCIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.4212[a]	0.5016[a]
2. Rape	0.3738[a]	0.5093[a]
3. Robbery	0.3593[a]	0.4636[a]
4. Agg. Assault	-0.0575	-0.0241
5. Auto Theft	-0.2973[a]	-0.3666
6. Burglary	-0.3680[a]	-0.4695[a]
7. Larceny	-0.3298[a]	-0.4601[a]
8. Narcotics Law	0.7746[a]	0.8980[a]
9. Liquor Law	-0.1577	-0.1960
10. Prostitution	0.9070[a]	0.9764[a]
11. Gambling	0.8155[a]	0.9374[a]
12. Sex Offenses	0.0401	0.0767
13. Family&Cldn	0.2551	0.3427
14. Drunkeness	0.0219	-0.0102
15. Disord&Vag	-0.1375	-0.1592
16. D. W. I.	-0.3168[a]	-0.3702[a]
17. Other Ntraf	-0.0816	-0.0988
Index	-0.3404[a]	-0.4977[a]
Non-Index	-0.0997	-0.1467
All	-0.2434	-0.3536

[a]Significant at the 0.05 level.

TABLE 35

RANK CORRELATION OF CLEARANCE RATES AND TRUE COMPLAINTS
FOR ALL LAW ENFORCEMENT AGENCIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.3986[a]	0.5227[a]
2. Rape	0.3733[a]	0.5241[a]
3. Robbery	-0.0229	0.0823
4. Agg. Assault	-0.2131	-0.2756
5. Auto Theft	-0.2270	-0.3105
6. Burglary	-0.1867	-0.2719
7. Larceny	-0.2341	-0.3420
8. Narcotics Law	0.6266[a]	0.7654[a]
9. Liquor Law	0.3734[a]	0.4880[a]
10. Prostitution	0.9718[a]	0.9961[a]
11. Gambling	0.7988[a]	0.9304[a]
12. Sex Offenses	0.2845[a]	0.3814[a]
13. Family&Cldn	0.2962[a]	0.3576
14. Drunkeness	-0.0416	-0.0264
15. Disord&Vag	-0.1856	-0.2427
16. D. W. I.	-0.1139	-0.1120
17. Other Ntraf	-0.0079	0.0178
Index	-0.3138[a]	-0.4458[a]
Non-Index	-0.0312	-0.0444
All	-0.1326	-0.2289

[a]Significant at the 0.05 level.

in a range of decreasing returns to numbers of true complaints for index crimes against property, increasing returns to index crimes against person, and increasing returns to numbers of true complaints for non-index crimes (the exception being "D. W. I." in 1968). At best we reject the null hypothesis in 6 of 7 index crimes and 6 of 10 non-index crimes.

For sheriff departments, in 1968 (Table 36) we reject the null hypothesis for "murder," "rape," "robbery," "narcotics law," "prostitution," "gambling," "D. W. I.," and "other ntraf," and in 1969 (Table 37) for "murder," "rape," "robbery," "narcotics law," "prostitution," "gambling," "sex offenses," and "drunkeness." For both years, the significant index crime coefficients are positive, and the coefficients of non-index crimes "narcotics law," "liquor law," "prostitution," "gambling," and "sex offenses" are positive, while the coefficients of the non-index crimes "drunkeness," "D. W. I.," and "other ntraf" are negative.

For police agencies, in 1968 (Table 38), we reject the null hypothesis for "larceny," "narcotics law," "liquor law," "prostitution," "gambling," and "sex offenses," while in 1969 (Table 39), we reject it for "prostitution," "gambling," "sex offenses," and "disord&vag." The only significant index crime is "larceny" (negative coefficient); the coefficients of the non-index crimes "narcotics law," "liquor law," "prostitution," and "gambling" are positive, and "sex offenses" and "disord&vag" are negative.

In general, where dependence is shown, sheriff departments are not operating at the point of diminishing returns to size in index crimes, while police may be ("larceny"); both are not operating at diminishing

TABLE 36

RANK CORRELATION OF CLEARANCE RATES AND TRUE COMPLAINTS FOR SHERIFFS AGENCIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.4504[a]	0.5443[a]
2. Rape	0.8165[a]	0.8915[a]
3. Robbery	0.5976[a]	0.7763[a]
4. Agg. Assault	-0.1712	-0.1133
5. Auto Theft	-0.1163	-0.1539
6. Burglary	-0.0899	-0.1459
7. Larceny	0.0682	0.0671
8. Narcotics Law	0.9428[a]	0.9759[a]
9. Liquor Law	-0.1231	-0.1271
10. Prostitution	1.0000[a]	1.0000[a]
11. Gambling	0.8824[a]	0.9753[a]
12. Sex Offenses	0.1001	0.0258
13. Family&Cldn	0.3819	0.5509[a]
14. Drunkeness	-0.3810	-0.5394[a]
15. Disord&Vag	-0.1392	-0.1614
16. D. W. I.	-0.4700[a]	-0.5449[a]
17. Other Ntraf	-0.5351[a]	-0.5771[a]
Index	0.0920	0.1346
Non-Index	-0.2148	-0.3001
All	-0.3333	-0.4545

[a]Significant at the 0.05 level.

TABLE 37

RANK CORRELATION OF CLEARANCE RATES AND TRUE COMPLAINTS
FOR SHERIFFS AGENCIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.6001[a]	0.7102[a]
2. Rape	0.7947[a]	0.8827[a]
3. Robbery	0.4181[a]	0.6337[a]
4. Agg. Assault	-0.1935	-0.2070
5. Auto Theft	0.1482	0.1447
6. Burglary	0.0682	0.0122
7. Larceny	0.1380	0.3129
8. Narcotics Law	0.7939[a]	0.8457[a]
9. Liquor Law	0.4248[a]	0.5310[a]
10. Prostitution	1.0000[a]	1.0000[a]
11. Gambling	1.0000[a]	1.0000[a]
12. Sex Offenses	0.5137[a]	0.6886[a]
13. Family&Cldn	0.3015	0.3114
14. Drunkeness	-0.5443[a]	-0.7033[a]
15. Disord&Vag	-0.3028	-0.4006
16. D. W. I.	-0.0609	0.0224
17. Other Ntraf	-0.3266	0.3892
Index	0.2000	0.3091
Non-Index	-0.2772	-0.4590
All	-0.0667	-0.2000

[a]Significant at the 0.05 level.

TABLE 38

RANK CORRELATION OF CLEARANCE RATES AND TRUE COMPLAINTS
FOR POLICE AGENCIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.3617	0.4365
2. Rape	0.1905	0.2901
3. Robbery	0.0000	0.0988
4. Agg. Assault	0.0239	0.0500
5. Auto Theft	-0.1609	-0.3119
6. Burglary	-0.2697	-0.3769
7. Larceny	-0.4045[a]	-0.5532[a]
8. Narcotics Law	0.6592[a]	0.8220[a]
9. Liquor Law	0.4575[a]	-0.5254
10. Prostitution	0.8220[a]	0.9256[a]
11. Gambling	0.8452[a]	0.9285[a]
12. Sex Offenses	-0.3977[a]	-0.4671
13. Family&Cldn	-0.0503	-0.0582
14. Drunkeness	0.1808	-0.2335
15. Disord&Vag	-0.3266	-0.3824
16. D. W. I.	-0.2485	-0.2901
17. Other Ntraf	0.1089	-0.1434
Index	-0.3333	-0.4909
Non-Index	-0.1764	-0.2392
All	0.0449	0.0243

[a]Significant at the 0.05 level.

TABLE 39

RANK CORRELATION OF CLEARANCE RATES AND TRUE COMPLAINTS FOR POLICE AGENCIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.3044	0.4032
2. Rape	0.2553	0.3166
3. Robbery	-0.3182	-0.4756
4. Agg. Assault	-0.2557	0.3309
5. Auto Theft	0.0000	-0.1398
6. Burglary	0.1348	0.1885
7. Larceny	-0.2000	-0.3333
8. Narcotics Law	0.2862	0.3919
9. Liquor Law	0.2829	0.3907
10. Prostitution	0.9354[a]	0.9815[a]
11. Gambling	0.7230[a]	0.8323[a]
12. Sex Offenses	-0.4804[a]	-0.5388[a]
13. Family&Cldn	0.1808	0.2335
14. Drunkeness	0.2531	0.3114
15. Disord&Vag	-0.4260[a]	-0.5145
16. D. W. I.	-0.2513	-0.2910
17. Other Ntraf	-0.1491	-0.1741
Index	-0.1348	-0.2249
Non-Index	-0.1633	-0.2253
All	-0.0920	-0.1657

[a]Significant at the 0.05 level.

returns to size for "narcotics law," "liquor law," "prostitution," and "gambling"; police operate at diminishing returns to size for "sex offenses," while sheriffs do not; sheriffs operate at diminishing returns to size in "drunkeness," "D. W. I.," and "other ntraf," and police operate at diminishing returns to size in "disord&vag."

County and City Criminal Justice Systems

The first part of this analysis consists of calculating the adjusted average cost per case for Commonwealth's Attorneys, courts of record and courts not of record, and calculating all of the transitional and joint probabilities for each of the 10 counties and 10 cities for 1968 and 1969. The same method of adjustment used in the police and sheriff analysis is used here. These data are presented in Appendices 8 and 9.[13]

Based on these costs and probabilities, an adjusted systems incremental cost (X^*) is calculated for each county and each city according to equation (50). These are presented in Appendix 7.

[13]One slight adjustment is necessary in calculating one of the transitional probabilities, PS (the probability that a case going to trial will go to a Commonwealth's Attorney). This probability is derived in Chapter III as the total Commonwealth's Attorney cases divided by the sum of the total court cases brought to trial and those Commonwealth's Attorney cases that are pending or dismissed before trial. If, as is the situation in a few instances, the courts claim fewer cases brought to trial than does the Commonwealth's Attorney, this probability may exceed one. Since having the value of this probability exceed one makes no logical sense, and in order to enable the empirical results to be consistent in a meaningful way, in those few situations where PS exceeds 1.00, it is set equal to it.

Relative Adjusted Incremental Systems Cost

In this analysis we examine the adjusted systems incremental cost of county and city criminal justice systems by comparing mean values by crime type for the two organizations for 1968 and 1969 ($\overline{X}^*_{i,c}$ and $\overline{X}^*_{i,d}$ respectively).

In 1968, Table 40, we reject the null hypothesis of no difference of the means for "sex offenses" and "D. W. I." In 1969, Table 41, however, we reject the null hypothesis for "murder," "rape," "burglary," "narcotics law," "liquor law," "sex offenses," "family&cldn," "disord& vag," "D. W. I.," and "other ntraf." In every instance where the null hypothesis is rejected, city incremental systems cost exceeds that of the county.

Relative System Efficiency

In Chapter III, we developed the methodology for examining the relative efficiency of county and city systems. In Table 42, we see that for 1968, for "rape," "robbery," "auto theft," "sex offenses," and "D. W. I." county systems are relatively more efficient than city systems. For all other types, the relative efficiency is the same. For 1969, however, we see a significant difference (Table 43). In fact, county systems are relatively more efficient in all types except "agg. assault" and "drunkeness," and in the heterogeneous category, "other ntraf," where relative efficiency is indeterminate.

In moving from 1968 to 1969 (Table 44), we find that clearance rates and adjusted incremental cost move together in counties in 11 types of 15, and opposite in none. In county summary measures, they

TABLE 40

MEAN AND VARIANCE OF THE ADJUSTED INCREMENTAL SYSTEM COST: 1968

Crime Type	County: Mean	County: Variance	City: Mean	City: Variance
1. Murder	698.38	508,901.12[a]	2,256.00	8,625,517.00[a]
2. Rape	569.17	122,056.19	879.13	283,390.56
3. Robbery	563.40	227,903.00	710.44	439,597.87
4. Agg. Assault	282.89	92,596.81[a]	204.70	14,762.65[a]
5. Auto Theft	195.11	50,671.28	245.70	81,486.81
6. Burglary	172.50	12,951.61[a]	377.00	292,108.00[a]
7. Larceny	164.60	18,144.90[a]	289.50	286,033.87[a]
8. Narcotics Law	225.75	20,481.58[a]	1,377.75	3,953,786.00[a]
9. Liquor Law	169.88	8,730.97[a]	284.90	105,308.50[a]
10. Prostitution[b]	------	---------	------	----------
11. Gambling	26.50	840.50	122.60	8,198.80
12. Sex Offenses	96.63[a]	5,959.70[a]	313.10[a]	55,168.73[a]
13. Family&Cldn	112.43	4,071.62	195.80	12,645.05
14. Drunkeness	45.80	818.84	55.80	418.62
15. Disord&Vag	60.20	830.18[a]	93.30	4,036.45[a]
16. D. W. I.	118.60[a]	5,128.26	195.70[a]	11,527.98
17. Other Ntraf	63.60	1,441.60	86.90	2,515.88
Index	190.00	13,234.66[a]	236.30	50,091.09[a]
Non-Index	66.44	1,130.93	91.40	12,844.87
All	97.80	2,757.73	127.20	2,526.62

[a]Significant at the 0.05 level.

[b]Insufficient degrees of freedom to conduct the statistical tests.

TABLE 41

MEAN AND VARIANCE OF THE ADJUSTED INCREMENTAL SYSTEM COST: 1969

Crime Type	County: Mean	County: Variance	City: Mean	City: Variance
1. Murder	672.00[a]	408,877.62[a]	2,673.50[a]	3,149,556.00[a]
2. Rape	524.00[a]	143,876.50	894.63[a]	58,355.71
3. Robbery	498.17	215,599.75	758.80	843,818.19
4. Agg. Assault	238.30	49,395.09	255.90	25,221.81
5. Auto Theft	184.22	20,859.41[a]	434.00	781,052.00
6. Burglary	171.20[a]	8,215.50[a]	317.80[a]	45,534.15[a]
7. Larceny	148.80	13,907.48	158.20	14,477.94
8. Narcotics Law	202.75[a]	13,887.58[a]	1,048.50[a]	822,091.69[a]
9. Liquor Law	149.38[a]	8,970.54[a]	565.88[a]	337,046.00[a]
10. Prostitution[b]	------	---------	------	----------
11. Gambling[b]	------	---------	------	----------
12. Sex Offenses	75.67[a]	3,066.66[a]	342.70[a]	69,113.94[a]
13. Family&Cldn	97.29[a]	3,455.90[a]	211.78[a]	14,701.66[a]
14. Drunkeness	50.30	890.68	59.30	1,165.12
15. Disord&Vag	58.90[a]	737.43[a]	106.60[a]	4,407.60[a]
16. D. W. I.	101.67[a]	4,740.25	191.20[a]	10,329.94
17. Other Ntraf	65.50[a]	1,158.94[a]	115.50[a]	4,213.16[a]
Index	178.20	9,398.15	219.60	17,219.36
Non-Index	66.80[a]	901.51	109.60[a]	2,107.15
All	94.00[a]	1,162.67[a]	148.80[a]	3,922.84[a]

[a]Significant at the 0.05 level.

[b]Insufficient degrees of freedom to conduct the statistical tests.

TABLE 42

COMPARISON OF CLEARANCE RATES AND ADJUSTED INCREMENTAL SYSTEMS COST FOR COUNTY AND CITY ORGANIZATIONS: 1968[a]

Crime Type	$\overline{PA}_{i,c}$	$\overline{PA}_{i,d}$	$\overline{X}^*_{i,c}$	$\overline{X}^*_{i,d}$
1. Murder	=		=	
2. Rape	>		=	
3. Robbery	>		=	
4. Agg. Assault	=		=	
5. Auto Theft	>		=	
6. Burglary	=		=	
7. Larceny	=		=	
8. Narcotics Law	=		=	
9. Liquor Law	=		=	
10. Prostitution[b]				
11. Gambling	=		=	
12. Sex Offenses	=		<	
13. Family&Cldn	=		=	
14. Drunkeness	=		=	
15. Disord&Vag	=		=	
16. D. W. I.	=		<	
17. Other Ntraf	=		=	
Index	=		=	
Non-Index	=		=	
All	=		=	

[a]Data for arrest probabilities obtained from Table 3. Data for incremental cost obtained from Table 40.

[b]Not tested.

TABLE 43

COMPARISON OF CLEARANCE RATES AND ADJUSTED INCREMENTAL SYSTEMS COST FOR COUNTY AND CITY ORGANIZATIONS: 1969[a]

Crime Type	$\overline{PA}_{i,c}$ $\overline{PA}_{i,d}$	$\overline{X}^*_{i,c}$ $\overline{X}^*_{i,d}$
1. Murder	=	<
2. Rape	>	<
3. Robbery	>	=
4. Agg. Assault	=	=
5. Auto Theft	>	=
6. Burglary	>	<
7. Larceny	=	=
8. Narcotics Law	=	<
9. Liquor Law	=	<
10. Prostitution[b]		
11. Gambling[b]		
12. Sex Offenses	=	<
13. Family&Cldn	=	<
14. Drunkeness	=	=
15. Disord&Vag	=	<
16. D. W. I.	=	<
17. Other Ntraf	<	<
Index	>	=
Non-Index	<	<
All	=	<

[a]Data for arrest probabilities obtained from Table 4. Data for incremental cost obtained from Table 41.

[b]Not tested.

TABLE 44

1968 AND 1969 MOVEMENTS IN ADJUSTED INCREMENTAL COST AND CLEARANCE RATES FOR COUNTY AND CITY AGENCIES[a]

Crime Type	County $\overline{X}^*$	County $\overline{PA}$	City $\overline{X}^*$	City $\overline{PA}$
1. Murder	D	D	U	U
2. Rape	D	T	U	U
3. Robbery	D	T	U	U
4. Agg. Assault	D	D	U	T
5. Auto Theft	D	D	U	D
6. Burglary	D	D	D	D
7. Larceny	D	D	D	D
8. Narcotics Law	D	T	D	U
9. Liquor Law	D	T	U	U
10. Prostitution[b]				
11. Gambling[b]				
12. Sex Offenses	D	D	U	U
13. Family&Cldn	D	D	U	U
14. Drunkeness	U	U	U	D
15. Disord&Vag	D	D	U	U
16. D. W. I.	D	D	D	T
17. Other Ntraf	U	U	U	U
Index	D	D	D	D
Non-Index	U	D	U	U
All	D	D	U	D

[a]The letter "U" indicates an upward movement from 1968 to 1969; the letter "D" indicates a downward movement from 1968 to 1969; the letter "T" indicates no change.

[b]Was not comparable for the two years.

moved together for Index and All, and opposite for Non-Index. For cities, in 10 of 15 crime types they moved together, but in 3 they moved in opposite directions. For the summary measures, they moved together in Index and Non-Index, while they moved in opposite directions in All. This movement may possibly yield some insight into possible recent relative emphasis on the two types of systems.

Determinants of Incremental Systems Cost: Non-Economic Aspects

In this subsection we examine some of the possible determinants of unadjusted incremental systems cost. We look at this cost as a linear function of population, land area, population density, average family buying income, and a zero-one organization dummy variable. The same method is used as is used in the police and sheriff analysis. That is, that the null hypothesis of non-linearity is tested at the 0.05 level, and the null hypothesis of a non-dependent relationship between the variables is tested by testing the null hypothesis that the coefficients of the independent variables are not significantly different from zero at the 0.05 level.

The results of these tests are presented in Tables 45 through 54. As can be easily seen, the null hypothesis of non-linearity is not rejected anywhere at the 0.05 level, and hence is accepted in each instance for both years.

For population, Tables 45 and 46, we reject the null hypothesis of independence for "rape" and "family&cldn" in 1968 and for "rape" in 1969. We accept it for all other types. The significant coefficients are positive for these three cases.

TABLE 45

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION: 1968

Form of the Equation:

$$X_{i,n} = g_{1,i} + h_{1,i}U_n \qquad (55)$$

Crime Type	$g_{1,i}$	(S.E.)	$h_{1,i}$	(S.E.)	R^2
1. Murder	1,237.2939[a]	(706.3157)	-0.0056	(0.0170)	0.0061
2. Rape	238.3536[a]	(132.0197)	0.0063[a]	(0.0032)	0.1782
3. Robbery	271.2173[a]	(155.9447)	0.0036	(0.0037)	0.0501
4. Agg. Assault	199.9198[a]	(59.6474)	0.0000	(0.0014)	0.0000
5. Auto Theft	173.3965[a]	(70.0409)	0.0003	(0.0017)	0.0018
6. Burglary	213.3216[a]	(116.1825)	0.0008	(0.0028)	0.0044
7. Larceny	218.2332[a]	(112.8017)	-0.0008	(0.0027)	0.0043
8. Narcotics Law	109.9160	(281.3013)	0.0056	(0.0068)	0.0363
9. Liquor Law	203.0643[a]	(72.9336)	-0.0005	(0.0018)	0.0052
10. Prostitution	263.9341	(596.7798)	0.0102	(0.0143)	0.0273
11. Gambling	9.1152	(19.1286)	0.0007	(0.0005)	0.1083
12. Sex Offenses	119.2636[a]	(56.1597)	0.0016	(0.0013)	0.0721
13. Family&Cldn	75.6469[a]	(29.3536)	0.0015[a]	(0.0007)	0.1970
14. Drunkeness	45.9693[a]	(7.4062)	-0.0000	(0.0002)	0.0036
15. Disord&Vag	70.9822[a]	(13.9062)	-0.0002	(0.0003)	0.0141
16. D. W. I.	154.1692	(31.5161)	-0.0004	(0.0008)	0.0189
17. Other Ntraf	67.3295[a]	(13.5507)	-0.0000	(0.0003)	0.0000
Index	183.2726[a]	(49.2598)	-0.0001	(0.0012)	0.0002
Non-Index	71.2501[a]	(11.1289)	-0.0000	(0.0003)	0.0013
All	93.5437[a]	(14.5774)	0.0001	(0.0004)	0.0093

[a]Significant at the 0.05 level.

TABLE 46

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION: 1969

Form of the Equation:

$$X_{i,n} = g_{1,i} + h_{1,i}U_n \qquad (55)$$

Crime Type	$g_{1,i}$	(S.E.)	$h_{1,i}$	(S.E.)	R^2
1. Murder	946.6934	(468.8855)	0.0075	(0.0105)	0.0273
2. Rape	220.5892[a]	(104.3653)	0.0062[a]	(0.0023)	0.2786
3. Robbery	332.4600[a]	(192.5557)	0.0036	(0.0043)	0.0365
4. Agg. Assault	228.6127[a]	(50.6830)	-0.0002	(0.0011)	0.0026
5. Auto Theft	319.8416	(202.8132)	-0.0010	(0.0046)	0.0025
6. Burglary	161.8312	(46.6682)	0.0016	(0.0010)	0.1129
7. Larceny	140.8759	(32.2300)	-0.0002	(0.0007)	0.0029
8. Narcotics Law	242.9074	(193.5718)	0.0046	(0.0043)	0.0594
9. Liquor Law	270.6304[a]	(129.3869)	-0.0004	(0.0029)	0.0009
10. Prostitution	22.5753	(36.1983)	0.0003	(0.0008)	0.0073
11. Gambling	4.9129	(36.4882)	0.0015	(0.0008)	0.1508
12. Sex Offenses	107.9500[a]	(61.2124)	0.0019	(0.0014)	0.0967
13. Family&Cldn	100.7508[a]	(35.0406)	0.0004	(0.0008)	0.0152
14. Drunkeness	54.2302[a]	(9.0668)	-0.0002	(0.0002)	0.0424
15. Disord&Vag	79.8362	(15.2502)	-0.0002	(0.0003)	0.0212
16. D. W. I.	130.3775	(30.8035)	-0.0002	(0.0007)	0.0046
17. Other Ntraf	82.4524[a]	(18.7350)	0.0000	(0.0004)	0.0005
Index	173.9793[a]	(33.7644)	0.0001	(0.0008)	0.0005
Non-Index	79.3227[a]	(13.7980)	0.0000	(0.0003)	0.0002
All	103.3208[a]	(17.6332)	0.0002	(0.0004)	0.0009

[a]Significant at the 0.05 level.

For land area (Tables 47 and 48), we reject the null hypothesis of independence for "liquor law," "sex offenses," "family&cldn," "disord&vag," and "D. W. I." in 1968; in 1969 we reject it for "murder," "rape," "burglary," "narcotics law," "liquor law," "sex offenses," "family&cldn," "disord&vag," "D. W. I.," and "other ntraf." All of the significant coefficients are negative, implying that larger land areas, for those significant coefficients, are associated with lower incremental systems cost.

For population density (Tables 49 and 50), we reject the null hypothesis in 1968 for "robbery," "narcotics law," "sex offenses," "family&cldn," "disord&vag," and "D. W. I."; in 1969, we reject it for "murder," "rape," "robbery," "burglary," "liquor law," "prostitution," "sex offenses," "disord&vag," and "D. W. I." All of the significant coefficients for both years are positive, indicating higher systems incremental costs associated with higher population density, regardless of the type of crime.

For average family buying income (Tables 51 and 52), we reject the null hypothesis for "sex offenses" and "family&cldn" in 1968, and for "murder," "rape," "burglary," "larceny," "sex offenses," "family&cldn," and "D. W. I." in 1969. Of these 7 different types only 2 are crimes against property. As the signs of the significants are positive, this may indicate that in higher income, it is more expensive to process crimes against person. This of course could be due to having higher clearance rates for these crimes, as previously discussed. It is also interesting that we accept the null hypothesis of independence of

TABLE 47

INCREMENTAL SYSTEMS COST AS A FUNCTION OF LAND AREA:
1968

Form of the Equation:

$$X_{i,n} = g_{2,i} + h_{2,i}M_n \qquad (56)$$

Crime Type	$g_{2,i}$	(S.E.)	$h_{2,i}$	(S.E.)	R^2
1. Murder	1,727.0415[a]	(670.2463)	-2.4513	(1.7998)	0.0934
2. Rape	567.3848[a]	(137.4134)	-0.5165	(0.3690)	0.0981
3. Robbery	538.1926[a]	(150.5956)	-0.5803	(0.4044)	0.1027
4. Agg. Assault	193.1075[a]	(59.2107)	0.0291	(0.1590)	0.0018
5. Auto Theft	215.3436[a]	(68.8269)	-0.1219	(0.1848)	0.0236
6. Burglary	332.4219[a]	(111.4637)	-0.3532	(0.2993)	0.0718
7. Larceny	267.6506[a]	(109.8258)	-0.2681	(0.2949)	0.0439
8. Narcotics Law	462.5044	(278.3591)	-0.6820	(0.7475)	0.0442
9. Liquor Law	271.6687[a]	(67.1960)	-0.3147[a]	(0.1804)	0.1446
10. Prostitution	1,154.8511[a]	(570.4929)	-2.1611	(1.5319)	0.0995
11. Gambling	52.4952[a]	(18.7074)	-0.0846	(0.0502)	0.1361
12. Sex Offenses	269.8425[a]	(47.3970)	-0.3794[a]	(0.1273)	0.3305
13. Family&Cldn	170.6192[a]	(28.1674)	-0.1858[a]	(0.0756)	0.2511
14. Drunkeness	52.1791[a]	(6.9543)	-0.0279	(0.0187)	0.1101
15. Disord&Vag	83.6457[a]	(12.6508)	-0.0660[a]	(0.0340)	0.1735
16. D. W. I.	190.7223[a]	(27.0832)	-0.1858[a]	(0.0727)	0.2661
17. Other Ntraf	81.4794[a]	(12.6053)	-0.0539	(0.0338)	0.1235
Index	215.4100[a]	(47.6741)	-0.1264	(0.1280)	0.0514
Non-Index	85.8496[a]	(9.7868)	-0.0588[a]	(0.0263)	0.2177
All	115.9104[a]	(13.3167)	-0.0668[a]	(0.0358)	0.1625

[a]Significant at the 0.05 level.

TABLE 48

INCREMENTAL SYSTEMS COST AS A FUNCTION OF LAND AREA:
1969

Form of the Equation:

$$X_{i,n} = g_{2,i} + h_{2,i}M_n \qquad (56)$$

Crime Type	$g_{2,i}$	(S.E.)	$h_{2,i}$	(S.E.)	R^2
1. Murder	1,964.7014[a]	(419.0713)	-2.9088[a]	(1.1253)	0.2707
2. Rape	588.5935[a]	(113.3158)	-0.6490[a]	(0.3043)	0.2017
3. Robbery	627.1831[a]	(193.5027)	-0.6794	(0.5196)	0.0867
4. Agg. Assault	239.0003[a]	(52.0479)	-0.0674	(0.1398)	0.0127
5. Auto Theft	442.0386[a]	(203.6156)	-0.5668	(0.5468)	0.0563
6. Burglary	275.3611[a]	(46.7070)	-0.2373[a]	(0.1254)	0.1659
7. Larceny	150.5414[a]	(32.9626)	-0.0551	(0.0885)	0.0210
8. Narcotics Law	696.4988[a]	(179.7991)	-1.1457[a]	(0.4828)	0.2382
9. Liquor Law	426.0354[a]	(122.0114)	-0.6204[a]	(0.3276)	0.1661
10. Prostitution	63.8803[a]	(36.0094)	-0.1190	(0.0967)	0.0777
11. Gambling	95.2851[a]	(38.2030)	-0.1654	(0.1026)	0.1263
12. Sex Offenses	286.2131[a]	(54.1010)	-0.4401[a]	(0.1453)	0.3377
13. Family&Cldn	172.4979[a]	(31.0080)	-0.2182[a]	(0.0833)	0.2761
14. Drunkeness	55.8522[a]	(9.2629)	-0.0271	(0.0249)	0.0619
15. Disord&Vag	98.8269[a]	(13.5352)	-0.0953[a]	(0.0363)	0.2763
16. D. W. I.	175.6117[a]	(27.1034)	-0.1910[a]	(0.0728)	0.2767
17. Other Ntraf	110.5454[a]	(17.2620)	-0.0994[a]	(0.0464)	0.2036
Index	204.0224[a]	(33.6654)	-0.1031	(0.0904)	0.0673
Non-Index	102.0700[a]	(12.2772)	-0.0823[a]	(0.0330)	0.2570
All	137.1537[a]	(15.7166)	-0.1065[a]	(0.0422)	0.2617

[a]Significant at the 0.05 level.

TABLE 49

INCREMENTAL SYSTEMS COST AS A FUNCTION
OF POPULATION DENSITY: 1968

Form of the Equation:

$$X_{i,n} = g_{3,i} + h_{3,i}Q_n \qquad (57)$$

Crime Type	$g_{3,i}$	(S.E.)	$h_{3,i}$	(S.E.)	R^2
1. Murder	588.1003	(624.3960)	0.3305	(0.2851)	0.0695
2. Rape	252.4939[a]	(117.3694)	0.1214[a]	(0.0536)	0.2219
3. Robbery	197.4138	(130.5537)	0.1274	(0.0596)	0.2024
4. Agg. Assault	206.5788[a]	(54.4581)	-0.0040	(0.0249)	0.0014
5. Auto Theft	160.4405[a]	(63.5630)	0.0152	(0.0290)	0.0151
6. Burglary	179.4440	(104.3665)	0.0399	(0.0476)	0.0376
7. Larceny	158.3336	(102.4305)	0.0256	(0.0468)	0.0164
8. Narcotics Law	- 5.7656	(241.3508)	0.1965	(0.1102)	0.1502
9. Liquor Law	126.5193[a]	(63.2461)	0.0417	(0.0289)	0.1038
10. Prostitution	92.0168	(525.5933)	0.3319	(0.2400)	0.0961
11. Gambling	7.9580	(16.8041)	0.0150[a]	(0.0077)	0.1756
12. Sex Offenses	71.6952[a]	(40.8282)	0.0663[a]	(0.0186)	0.4124
13. Family&Cldn	82.8455[a]	(26.7366)	0.0260[a]	(0.0122)	0.2019
14. Drunkeness	41.0066[a]	(6.6564)	0.0025	(0.0030)	0.0357
15. Disord&Vag	42.5645	(9.7336)	0.0161[a]	(0.0044)	0.4213
16. D. W. I.	104.5565[a]	(26.0644)	0.0249[a]	(0.0199)	0.1961
17. Other Ntraf	57.4675[a]	(11.9099)	0.0066	(0.0054)	0.0746
Index	162.4239	(44.4998)	0.0131	(0.0203)	0.0225
Non-Index	58.9962[a]	(9.3869)	0.0076[a]	(0.0043)	0.1488
All	86.0475[a]	(12.6951)	0.0082	(0.0058)	0.0998

[a]Significant at the 0.05 level.

TABLE 50

INCREMENTAL SYSTEMS COST AS A FUNCTION
OF POPULATION DENSITY: 1969

Form of the Equation:

$$X_{i,n} = g_{3,i} + h_{3,i}Q_n \qquad (57)$$

Crime Type	$g_{3,i}$	(S.E.)	$h_{3,i}$	(S.E.)	R^2
1. Murder	523.2632	(386.7100)	0.4492[a]	(0.1750)	0.2681
2. Rape	233.1185[a]	(97.5532)	0.1234[a]	(0.0441)	0.3027
3. Robbery	229.0266	(170.0751)	0.1469[a]	(0.0769)	0.1684
4. Agg. Assault	212.4740	(4. 1575)	0.0057	(0.0218)	0.0038
5. Auto Theft	214.6492	(191.2306)	0.0510	(0.0856)	0.0189
6. Burglary	158.6877[a]	(43.2105)	0.0360[a]	(0.0196)	0.1586
7. Larceny	135.2523[a]	(30.6862)	0.0003	(0.0139)	0.0000
8. Narcotics Law	57.7613[a]	(149.0444)	0.2254	(0.0674)	0.3831
9. Liquor Law	80.1116	(105.3534)	0.1221[a]	(0.0477)	0.2672
10. Prostitution	- 11.3702	(30.9305)	0.0295[a]	(0.0140)	0.1979
11. Gambling	19.2109	(35.9384)	0.0215	(0.0163)	0.0886
12. Sex Offenses	60.9101	(48.0390)	0.0729[a]	(0.0217)	0.3845
13. Family&Cldn	67.6849[a]	(29.3040)	0.0314[a]	(0.0133)	0.2380
14. Drunkeness	45.5578	(8.7442)	0.0020	(0.0040)	0.0146
15. Disord&Vag	47.6539[a]	(11.5080)	0.0174[a]	(0.0052)	0.3834
16. D. W. I.	80.9732[a]	(25.0095)	0.0295[a]	(0.0113)	0.2741
17. Other Ntraf	71.3356[a]	(17.2602)	0.0085	(0.0078)	0.0615
Index	162.0576[a]	(31.7093)	0.0097	(0.0143)	0.0247
Non-Index	66.7917[a]	(12.2620)	0.0090	(0.0055)	0.1264
All	90.6848[a]	(15.6126)	0.0121	(0.0071)	0.1409

[a]Significant at the 0.05 level.

TABLE 51

INCREMENTAL SYSTEMS COST AS A FUNCTION
OF AVERAGE FAMILY BUYING INCOME: 1968

Form of the Equation:

$$X_{i,n} = g_{4,i} + h_{4,i}Y_n \qquad (58)$$

Crime Type	$g_{4,i}$	(S.E.)	$h_{4,i}$	(S.E.)	R^2
1. Murder	- 815.0303	(2,489.9607)	0.2372	(0.3081)	0.0319
2. Rape	- 93.2346	(504.8877)	0.0657	(0.0625)	0.0579
3. Robbery	- 196.5693	(554.3823)	0.0729	(0.0686)	0.0591
4. Agg. Assault	460.1658[a]	(203.7527)	-0.0327	(0.0252)	0.0854
5. Auto Theft	53.8628	(248.4888)	0.0162	(0.0307)	0.0152
6. Burglary	- 434.8108	(383.3196)	0.0847	(0.0474)	0.1506
7. Larceny	- 373.3689	(379.9749)	0.0717	(0.0470)	0.1144
8. Narcotics Law	305.4995	(1,023.5574)	0.0034	(0.1267)	0.0000
9. Liquor Law	- 149.6770	(248.3674)	0.0424	(0.0307)	0.0957
10. Prostitution	- 482.5503	(2,146.4111)	0.1330	(0.2656)	0.0137
11. Gambling	- 9.8968	(71.7282)	0.0050	(0.0089)	0.0173
12. Sex Offenses	- 169.1947	(191.8926)	0.0425[a]	(0.0237)	0.1509
13. Family&Cldn	- 129.1580	(100.4704)	0.0315[a]	(0.0124)	0.2627
14. Drunkeness	31.4269	(26.3122)	0.0017	(0.0033)	0.0142
15. Disord&Vag	38.2906	(49.5858)	0.0035	(0.0061)	0.0175
16. D. W. I.	41.4648	(1,111.1295)	0.0125	(0.0138)	0.0439
17. Other Ntraf	64.5898	(48.4005)	0.0003	(0.0060)	0.0001
Index	- 31.8397	(168.3523)	0.0269	(0.0208)	0.0847
Non-Index	54.2818	(39.5978)	0.0020	(0.0049)	0.0090
All	49.6411	(51.0124)	0.0061	(0.0063)	0.0491

[a]Significant at the 0.05 level.

TABLE 52

INCREMENTAL SYSTEMS COST AS A FUNCTION
OF AVERAGE FAMILY BUYING INCOME: 1969

Form of the Equation:

$$X_{i,n} = g_{4,i} + h_{4,i}Y_n \qquad (58)$$

Crime Type	$g_{4,i}$	(S.E.)	$h_{4,i}$	(S.E.)	R^2
1. Murder	-2,510.8918	(1,507.7319)	0.4336[a]	(0.1738)	0.2571
2. Rape	- 623.6440	(377.2000)	0.1219[a]	(0.0435)	0.3039
3. Robbery	- 254.4171	(701.9946)	0.0821	(0.0809)	0.0541
4. Agg. Assault	368.1409[a]	(183.3405)	-0.0173	(0.0211)	0.0359
5. Auto Theft	- 501.6968	(722.5920)	0.0929	(0.0833)	0.0647
6. Burglary	- 204.5145	(152.4800)	0.0489[a]	(0.0176)	0.3004
7. Larceny	- 66.1156	(108.4073)	0.0237[a]	(0.0125)	0.1667
8. Narcotics Law	- 319.7886	(714.4080)	0.0831	(0.0823)	0.0535
9. Liquor Law	- 392.0918	(449.8674)	0.0765	(0.0518)	0.1078
10. Prostitution	3.3429	(133.4797)	0.0033	(0.0154)	0.0026
11. Gambling	- 45.6762	(143.8342)	0.0113	(0.0166)	0.0252
12. Sex Offenses	- 299.4702	(208.7213)	0.0549[a]	(0.0241)	0.2242
13. Family&Cldn	- 170.4611	(110.5304)	0.0334[a]	(0.0127)	0.2761
14. Drunkeness	43.3859	(34.0673)	0.0006	(0.0039)	0.0013
15. Disord&Vag	48.5994	(56.4076)	0.0029	(0.0065)	0.0108
16. D. W. I.	- 58.3516	(104.7934)	0.0214[a]	(0.0121)	0.1490
17. Other Ntraf	86.1132	(68.9479)	-0.0003	(0.0079)	0.0001
Index	- 1.9801	(116.6503)	0.0209	(0.0134)	0.1187
Non-Index	47.8042	(50.1831)	0.0038	(0.0058)	0.0231
All	12.2056	(60.9479)	0.0113	(0.0070)	0.1258

[a]Significant at the 0.05 level.

average family buying income and unadjusted systems cost in so many instances, as one might have anticipated a stronger relationship due to the unadjusted cost data.

For the zero-one dummy variable, in 1968 (Table 53), we reject the null hypothesis for "rape," "gambling," "sex offenses," "disord & vag," and "D. W. I."; for 1969 (Table 54), we reject the null hypothesis for the same categories, adding "murder," "burglary," "narcotics law," and "liquor law." All of the coefficients are positive, essentially reinforcing the earlier tests that cities have somewhat higher incremental systems costs than do counties.

We next test the hypothesis that unadjusted systems incremental cost is a linear function of population density and average family buying income, and also that it is a linear function of these two and a zero-one dummy variable.

For the first of these, we accept the null hypothesis of non-linearity for all types for both years. For 1968 (Tables 55 and 56), we reject the null hypothesis of independence of population density for "rape," "robbery," "narcotics law," "gambling," "disord&vag," and "D. W. I."; for average family buying income, we reject for "sex offenses." In 1969 (Tables 57 and 58), we reject the null hypothesis for population density for "narcotics law," "liquor law," "prostitution," "sex offenses," "disord&vag," and "D. W. I."; for average family buying income, we reject the null hypothesis for "burglary" and "larceny." All significant coefficients are positive. As was demonstrated in examining the relationship of clearance rates to these variables, no better explanatory power

TABLE 53

INCREMENTAL SYSTEMS COST AS A FUNCTION OF ORGANIZATIONAL DUMMY VARIABLE: 1968

Form of the Equation:

$$X_{i,n} = g_{7,i} + h_{7,i} Z_n \qquad (60)$$

Crime Type	$g_{7,i}$	(S.E.)	$h_{7,i}$	(S.E.)	R^2
1. Murder	411.8999	(651.5034)	1,309.0999	(921.3650)	0.1008
2. Rape	253.2000[a]	(128.6212)	349.9998[a]	(181.8987)	0.1705
3. Robbery	206.9000	(143.7990)	349.7998	(203.3624)	0.1412
4. Agg. Assault	213.1000[a]	(57.7011)	- 24.5000	(81.6017)	0.0050
5. Auto Theft	147.6000[a]	(66.9814)	69.8000	(94.7261)	0.0293
6. Burglary	140.7000	(108.2381)	193.1000	(153.0718)	0.0813
7. Larceny	133.0000	(107.6359)	124.8000	(152.2201)	0.0360
8. Narcotics Law	70.0000	(269.0532)	417.3999	(380.4988)	0.0627
9. Liquor Law	118.7000[a]	(67.1753)	136.3000	(95.0002)	0.1026
10. Prostitution	0.0000	(554.9055)	1,114.8999	(784.7549)	0.1057
11. Gambling	4.6000	(17.7739)	50.2000[a]	(25.1361)	0.1814
12. Sex Offenses	61.6000	(44.1377)	212.0000[a]	(62.4202)	0.3906
13. Family&Cldn	67.0000[a]	(26.2787)	107.1000[a]	(37.1637)	0.3157
14. Drunkeness	37.9000[a]	(6.8398)	13.4000	(9.6739)	0.0963
15. Disord&Vag	48.7000[a]	(12.3203)	34.3000[a]	(17.4235)	0.1772
16. D. W. I.	99.4000[a]	(27.6242)	82.5000[a]	(39.0665)	0.1986
17. Other Ntraf	56.1000[a]	(12.6343)	21.7000	(17.8676)	0.0757
Index	151.0000[a]	(46.6914)	60.7000	(66.0316)	0.0448
Non-Index	57.4000[a]	(9.9495)	25.2000[a]	(14.0708)	0.1512
All	81.5000[a]	(13.1086)	32.8000[a]	(18.5384)	0.1481

[a]Significant at the 0.05 level.

TABLE 54

INCREMENTAL SYSTEMS COST AS A FUNCTION OF ORGANIZATIONAL DUMMY VARIABLE: 1969

Form of the Equation:

$$X_{i,n} = g_{7,i} + h_{7,i}Z_n \qquad (60)$$

Crime Type	$g_{7,i}$	(S.E.)	$h_{7,i}$	(S.E.)	R^2
1. Murder	419.2998	(406.1741)	1,522.9998[a]	(574.4170)	0.2809
2. Rape	195.1000[a]	(1,000.0710)	437.2000[a]	(141.5218)	0.3465
3. Robbery	226.0000	(183.7732)	438.2000	(259.8945)	0.1353
4. Agg. Assault	210.4000	(51.0085)	20.9000	(72.1369)	0.2897
5. Auto Theft	166.2000	(200.4249)	246.2000	(283.4436)	0.0402
6. Burglary	138.3000[a]	(43.5657)	146.2000[a]	(61.6112)	0.2382
7. Larceny	124.6000	(32.3056)	22.2000	(45.6871)	0.0129
8. Narcotics Law	63.4000	(169.5339)	648.7000[a]	(239.7571)	0.2891
9. Liquor Law	105.2000	(119.9315)	307.2998[a]	(169.6088)	0.1542
10. Prostitution	0.0000	(35.0275)	63.6000	(49.5363)	0.0839
11. Gambling	0.5000	(36.2112)	100.4000[a]	(51.2104)	0.1759
12. Sex Offenses	36.6000	(48.5922)	257.9998[a]	(68.7198)	0.4392
13. Family&Cldn	57.0000	(30.1357)	113.4000[a]	(42.6182)	0.2823
14. Drunkeness	42.7000[a]	(9.1283)	11.7000	(12.9093)	0.0436
15. Disord&Vag	51.4000[a]	(13.7330)	43.5000[a]	(19.5000)	0.2180
16. D. W. I.	72.2000[a]	(25.8378)	103.9000[a]	(36.5401)	0.3100
17. Other Ntraf	64.2000[a]	(17.7191)	39.1000	(25.0585)	0.1191
Index	151.3000[a]	(32.9921)	49.9000	(46.6578)	0.0597
Non-Index	61.0000[a]	(12.3926)	37.8000[a]	(17.5257)	0.2053
All	82.3000[a]	(15.5757)	52.3000[a]	(22.0274)	0.2384

[a]Significant at the 0.05 level.

TABLE 55
INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY AND AVERAGE FAMILY BUYING INCOME: 1968
(for crime types 1-10)

Form of the Equation:

$$X_{i,n} = g_{5,i} + h_{5,i}Q_n + h_{6,i}Y_n \qquad (59)$$

Crime Type	$g_{5,i}$ (S.E.)	$h_{5,i}$ (S.E.)	$h_{6,i}$ (S.E.)	R^2
1. Murder	3.0615 (2,682.5635)	0.2919 (0.3395)	0.0808 (0.3597)	0.0722
2. Rape	245.7018 (504.9932)	0.1209[a] (0.0639)	0.0009 (0.0677)	0.2219
3. Robbery	152.0484 (561.6089)	0.1244[a] (0.0711)	0.0063 (0.0753)	0.2027
4. Agg. Assault	504.0105[a] (222.2226)	0.0156 (0.0281)	-0.0411 (0.0298)	0.1018
5. Auto Theft	82.1039 (272.7869)	0.0101 (0.0345)	0.0108 (0.0366)	0.0201
6. Burglary	-436.6924 (421.8533)	-0.0007 (0.0532)	0.0851 (0.0566)	0.1506
7. Larceny	-405.8005 (417.5859)	-0.0116 (0.0528)	0.0779 (0.0560)	0.1169
8. Narcotics Law	1,051.5532 (1,004.2964)	0.2662[a] (0.1271)	-0.1460 (0.1347)	0.2052
9. Liquor Law	-68.9772 (267.7070)	0.0288 (0.0339)	0.0270 (0.0359)	0.1326
10. Prostitution	528.1973 (2,258.8042)	0.3607 (0.2859)	-0.0602 (0.3029)	0.0982

[a]Significant at the 0.05 level.

TABLE 56

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY AND AVERAGE FAMILY BUYING INCOME: 1968
(for crime types 11-"all")

Form of the Equation:

$$X_{i,n} = g_{5,i} + h_{5,i}Q_n + h_{6,i}Y_n \qquad (59)$$

Crime Type	$g_{5,i}$ (S.E.)	$h_{5,i}$ (S.E.)	$h_{6,i}$ (S.E.)	R^2
11. Gambling	37.6902 (71.9193)	0.0170[a] (0.0091)	-0.0041 (0.0096)	0.1843
12. Sex Offenses	3.9836 (174.8524)	0.0618 (0.0221)	0.0094 (0.0234)	0.4179
13. Family&Cldn	-87.6474 (106.8648)	0.0148 (0.0135)	0.0235 (0.0143)	0.3113
14. Drunkeness	37.7900 (28.6286)	0.0023 (0.0036)	0.0004 (0.0038)	0.0365
15. Disord & Vag	92.6199[a] (39.9700)	0.0194[a] (0.0051)	-0.0069 (0.0054)	0.4729
16. D. W. I.	112.8849 (112.1260)	0.0255[a] (0.0142)	-0.0012 (0.0150)	0.1964
17. Other Ntraf	88.7220[a] (50.6457)	0.0086 (0.0064)	-0.0043 (0.0068)	0.0911
Index	-30.9044 (185.2759)	0.0003 (0.0234)	0.0267 (0.0248)	0.0847
Non--Index	79.3206[a] (40.0679)	0.0089[a] (0.0051)	-0.0028 (0.0054)	0.1623
All	69.5402 (54.4665)	0.0071 (0.0069)	0.0023 (0.0073)	0.1050

[a]Significant at the 0.05 level.

TABLE 57

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY AND AVERAGE FAMILY BUYING INCOME: 1969
(for crime types 1-10)

Form of the Equation:

$$X_{i,n} = g_{5,i} + h_{5,i}Q_n + h_{6,i}Y_n \qquad (59)$$

Crime Type	$g_{5,i}$ (S.E.)	$h_{5,i}$ (S.E.)	$h_{6,i}$ (S.E.)	R^2
1. Murder	-1,628.4915 (1,569.7661)	0.3016 (0.1998)	0.2781 (0.1970)	0.3449
2. Rape	-387.2012 (388.8347)	0.0808 (0.0495)	0.0802 (0.0488)	0.3982
3. Robbery	161.9570 (729.5625)	0.1423 (0.0929)	0.0087 (0.0915)	0.1689
4. Agg. Assault	428.1516[a] (199.4844)	0.0205 (0.0254)	-0.0279 (0.0250)	0.0716
5. Auto Theft	-494.8516 (801.1545)	0.0023 (0.1020)	0.0917 (0.1005)	0.0647
6. Burglary	-163.8852 (166.9771)	0.0139 (0.0213)	0.0417[a] (0.0210)	0.3176
7. Larceny	-115.5364 (115.8058)	-0.0169 (0.0147)	0.0324[a] (0.0145)	0.2264
8. Narcotics Law	410.4656 (633.4172)	0.2496[a] (0.0806)	-0.0456 (0.0795)	0.3947
9. Liquor Law	-63.7389 (450.6177)	0.1122[a] (0.0574)	0.0186 (0.0565)	0.2718
10. Prostitution	114.9665 (128.9082)	0.0382[a] (0.0164)	-0.0163 (0.0162)	0.2433

[a]Significant at the 0.05 level.

TABLE 58

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY AND AVERAGE FAMILY BUYING INCOME: 1969
(for crime types 11-"all")

Form of the Equation:

$$X_{i,n} = g_{5,i} + h_{5,i}Q_n + h_{6,i}Y_n \qquad (59)$$

Crime Type	$g_{5,i}$ (S.E.)	$h_{5,i}$ (S.E.)	$h_{6,i}$ (S.E.)	R^2
11. Gambling	16.7649 (154.2027)	0.0213 (0.0196)	0.0003 (0.0193)	0.0886
12. Sex Offenses	-123.1818 (200.9283)	0.0603[a] (0.0256)	0.0238 (0.0252)	0.4151
13. Family&Cldn	-115.1885 (117.1432)	0.0189 (0.0149)	0.0236 (0.0147)	0.3386
14. Drunkeness	50.3216 (37.5007)	0.0024 (0.0048)	-0.0006 (0.0047)	0.0156
15. Disord&Vag	112.5802[a] (46.6379)	0.0219[a] (0.0059)	-0.0084 (0.0059)	0.4499
16. D. W. I.	14.6275 (106.0223)	0.0249[a] (0.0135)	0.0086 (0.0133)	0.2914
17. Other Ntraf	120.8596 (73.0191)	0.0119 (0.0093)	-0.0064 (0.0092)	0.0877
Index	-7.6682 (129.2819)	-0.0019 (0.0165)	0.0219 (0.0162)	0.1195
Non-Index	75.8110 (32.5653)	0.0096 (0.0067)	-0.0012 (0.0066)	0.1281
All	36.9238 (65.6299)	0.0084 (0.0084)	0.0069 (0.0082)	0.1754

[a]Significant at the 0.05 level.

is gained and the number of types in which the null hypothesis is rejected falls.

For the second of these, we also accept the null hypothesis for both years. In 1968 (Tables 59 and 60), we reject the null hypothesis of independence for population density for "disord&vag"; for average family buying income for "agg. assault"; and for the zero-one dummy variable, for "drunkeness." In 1969 (Table 61 and 62), we reject independence for population density for "liquor law"; for average family buying income for "larceny" and "other ntraf"; and for the zero-one dummy variable, for "gambling" and "other ntraf." As in the previous test, no better explanatory power is gained, and cases of rejection of the null hypothesis of independence are reduced.

Operation of County and City Systems: Increasing and Decreasing Cost

The final phase of the analysis involves examining the relationship between unadjusted systems incremental cost and input to the criminal justice system in the form of true complaints. We are seeking to determine if either county or city systems are operating within a range of true complaints that result in increasing or decreasing incremental cost. We use the tool of rank correlation and calculate and test at the 0.05 level both Spearman and Kendall rank correlation coefficients. As previously done, we will restrict our discussion to the Kendall coefficients.

As a point of reference, we begin by performing the analysis for all counties and cities for both years (Tables 63 and 64). In

TABLE 59

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY, AVERAGE FAMILY BUYING INCOME AND ORGANIZATIONAL DUMMY VARIABLE: 1968 (for crime types 1-10)

Form of the Equation:

$$X_{i,n} = g_{8,i} + h_{8,i}Q_n + h_{9,i}Y_n + h_{10,i}Z_n \qquad (61)$$

Crime Type	$g_{8,i}$ (S.E.)	$h_{8,i}$ (S.E.)	$h_{9,i}$ (S.E.)	$h_{10,i}$ (S.E.)	R^2
1. Murder	2,180.9409 (3,679.8628)	-0.1686 (0.6293)	-0.2610 (0.5339)	2,399.3053 (2,752.5342)	0.1143
2. Rape	303.5947 (708.6731)	0.1087 (0.1212)	-0.0081 (0.1028)	63.7811 (30.0869)	0.2226
3. Robbery	45.5274 (787.5042)	0.1469 (0.1347)	0.0230 (0.1143)	-117.3550 (589.0525)	0.2047
4. Agg. Assault	712.7935[a] (302.3730)	-0.0285 (0.0517)	-0.0738[a] (0.0439)	230.0176 (226.1749)	0.1563
5. Auto Theft	198.5366 (380.5764)	-0.0145 (0.0651)	-0.0075 (0.0552)	128.2747 (284.6709)	0.0324
6. Burglary	-480.5752 (592.0476)	0.0086 (0.1012)	0.0920 (0.0859)	-48.3460 (442.8511)	0.1512
7. Larceny	-601.0266 (581.8530)	0.0297 (0.0995)	0.1086 (0.0844)	-601.0266 (581.8530)	0.1302
8. Narcotics Law	1,155.4336 (1,049.4800)	0.2443 (0.2410)	-0.1623 (0.2045)	114.4457 (1,054.2898)	0.2057
9. Liquor Law	130.3377 (375.1721)	0.0418 (0.0642)	0.0366 (0.0544)	-67.6013 (280.6284)	0.1357
10. Prostitution	2,528.7886 (3,084.5413)	-0.0624 (0.5275)	-0.3742 (0.4475)	2,204.0657 (2,307.2344)	0.1468

[a]Significant at the 0.05 level.

TABLE 60

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY, AVERAGE FAMILY BUYING INCOME AND ORGANIZATIONAL DUMMY VARIABLE: 1968 (for crime types 11-"all")

Form of the Equation:

$$X_{i,n} = g_{8,i} + h_{8,i}Q_n + h_{9,i}Y_n + h_{10,i}Z_n \qquad (61)$$

Crime Type	$g_{8,i}$ (S.E.)	$h_{8,i}$ (S.E.)	$h_{9,i}$ (S.E.)	$h_{10,i}$ (S.E.)	R^2
11. Gambling	126.7399 (95.4999)	-0.0018 (0.0163)	-0.0181 (0.0139)	98.1067 (71.4338)	0.2703
12. Sex Offenses	122.8415 (241.5542)	0.0367 (0.0413)	-0.0093 (0.0350)	130.9466 (180.6823)	0.4364
13. Family&Cldn	-15.5742 (147.6689)	-0.0004 (0.0253)	0.0122 (0.0214)	79.4036 (110.4562)	0.3328
14. Drunkeness	81.4332[a] (36.8411)	-0.0070 (0.0063)	-0.0064 (0.0053)	48.0820[a] (27.5571)	0.1905
15. Disord&Vag	64.4783 (55.1515)	0.0253[a] (0.0094)	-0.0025 (0.0080)	-31.0038 (41.2533)	0.4909
16. D. W. I.	212.3119 (153.1048)	0.0045 (0.0262)	-0.0168 (0.0222)	109.5394 (114.5223)	0.2390
17. Other Ntraf	144.9906[a] (68.0193)	-0.0033 (0.0116)	-0.0131 (0.0099)	61.9914 (50.8784)	0.1729
Index	-55.0532 (259.9690)	0.0054 (0.0445)	0.0305 (0.0377)	-26.6048 (197.4567)	0.0857
Non-Index	128.3180[a] (53.2824)	-0.0014 (0.0091)	-0.0105 (0.0077)	53.9808 (39.8552)	0.2484
All	124.0856 (73.7845)	-0.0044 (0.0126)	-0.0063 (0.0107)	60.0931 (55.1907)	0.1667

[a]Significant at the 0.05 level.

TABLE 61

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY, AVERAGE FAMILY BUYING INCOME AND ORGANIZATIONAL DUMMY VARIABLE: 1969 (for crime types 1-10)

Form of the Equation:

$$X_{i,n} = g_{8,i} + h_{8,i}Q_n + h_{9,i}Y_n + h_{10,i}Z_n \qquad (61)$$

Crime Type	$g_{8,i}$ (S.E.)	$h_{8,i}$ (S.E.)	$h_{9,i}$ (S.E.)	$h_{10,i}$ (S.E.)	R^2
1. Murder	-1,805.6567 (2,050.2800)	0.3437 (0.3634)	0.3044 (0.2759)	-216.2693 (1,538.6641)	0.3457
2. Rape	-348.8562 (507.9236)	0.0745 (0.0684)	0.0717 (0.0900)	46.7994 (381.1790)	0.3988
3. Robbery	219.1806 (953.1714)	0.1287 (0.1689)	0.0002 (0.1283)	69.8572 (715.3220)	0.1694
4. Agg. Assault	614.2932[a] (249.4714)	-0.0237 (0.0442)	-0.0555 (0.0336)	227.2374 (187.2196)	0.1498
5. Auto Theft	-438.1826 (1,046.7644)	-0.0111 (0.1855)	0.0833 (0.1409)	69.1803 (785.5603)	0.0652
6. Burglary	-150.6593 (218.1538)	0.0397 (0.0294)	0.0107 (0.0387)	16.1458 (163.7168)	0.3180
7. Larceny	-178.5370 (149.1607)	-0.0019 (0.0264)	0.0418[a] (0.0201)	-76.9096 (111.9399)	0.2486
8. Narcotics Law	717.1494 (818.3552)	0.1768 (0.1450)	-0.0911 (0.1101)	374.3923 (614.1472)	0.4085
9. Liquor Law	-398.3586 (592.9683)	0.1917[a] (0.1015)	0.0682 (0.0771)	-408.4961 (429.9927)	0.3107
10. Prostitution	92.2939 (168.2159)	0.0435 (0.0298)	-0.0130 (0.0226)	-27.6782 (26.2402)	0.2455

[a]Significant at the 0.05 level.

TABLE 62

INCREMENTAL SYSTEMS COST AS A FUNCTION OF POPULATION DENSITY, AVERAGE FAMILY BUYING INCOME AND ORGANIZATIONAL DUMMY VARIABLE: 1969 (for crime types 11-"all")

Form of the Equation:

$$X_{i,n} = g_{8,i} + h_{8,i}Q_n + h_{9,i}Y_n + h_{10,i}Z_n \qquad (61)$$

Crime Type	$g_{8,i}$ (S.E.)	$h_{8,i}$ (S.E.)	$h_{9,i}$ (S.E.)	$h_{10,i}$ (S.E.)	R^2
11. Gambling	240.3888 (179.8399)	-0.0329 (0.0319)	-0.0329 (0.0242)	272.9949[a] (134.9629)	0.2742
12. Sex Offenses	32.6298 (254.8308)	0.0232 (0.0452)	0.0007 (0.0343)	190.2113 (191.2417)	0.4492
13. Family&Cldn	-112.3142 (153.0885)	0.0182 (0.0271)	0.0232 (0.0206)	3.5089 (114.8876)	0.3386
14. Drunkeness	87.6676[a] (46.5965)	-0.0065 (0.6083)	-0.0062 (0.0063)	45.5912 (34.9890)	0.1101
15. Disord&Vag	126.1224[a] (60.7012)	0.0187 (0.0108)	-0.0104 (0.0082)	16.5319 (45.5541)	0.4544
16. D. W. I.	80.7802 (135.9224)	0.0092 (0.0241)	-0.0012 (0.0183)	80.7577 (102.0050)	0.3181
17. Other Ntraf	243.5950[a] (81.3334)	-0.0173 (0.0144)	-0.0246[a] (0.0109)	149.8326[a] (61.0379)	0.3373
Index	-4.8989 (168.9530)	-0.0026 (0.0299)	0.0215 (0.0227)	3.3808 (126.7933)	0.1195
Non-Index	153.3877[a] (61.0242)	-0.0089 (0.0108)	-0.0127[a] (0.0082)	94.7039 (45.7966)	0.3120
All	99.4083 (81.9202)	-0.0064 (0.0145)	-0.0064 (0.0145)	76.2796 (61.4783)	0.2478

[a]Significant at the 0.05 level.

TABLE 63

RANK CORRELATION OF INCREMENTAL SYSTEMS COST
AND TRUE COMPLAINTS FOR ALL COUNTIES
AND CITIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.1799	0.3286
2. Rape	0.6178[a]	0.7585[a]
3. Robbery	0.5345[a]	0.6777[a]
4. Agg. Assault	-0.1270	-0.1701
5. Auto Theft	0.0952	0.1400
6. Burglary	0.0421	0.0361
7. Larceny	-0.1217	-0.1693
8. Narcotics Law	0.8018[a]	0.8963[a]
9. Liquor Law	-0.0480	-0.0260
10. Prostitution	0.7523[a]	0.8631[a]
11. Gambling	0.7679[a]	0.9255[a]
12. Sex Offenses	0.2865[a]	0.3875[a]
13. Family&Cldn	0.4032[a]	0.5570[a]
14. Drunkeness	-0.0529	-0.1114
15. Disord&Vag	0.1008	0.1656
16. D. W. I.	-0.2493	-0.3278
17. Other Ntraf	-0.1596	-0.2082
Index	-0.0317	-0.0625
Non-Index	-0.1003	-0.1895
All	-0.0371	-0.0519

[a]Significant at the 0.05 level.

TABLE 64

RANK CORRELATION OF INCREMENTAL SYSTEMS COST
AND TRUE COMPLAINTS FOR ALL COUNTIES
AND CITIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.2019	0.3697[a]
2. Rape	0.6030[a]	0.7254[a]
3. Robbery	0.3517[a]	0.4767[a]
4. Agg. Assault	-0.1214	-0.1707
5. Auto Theft	0.1326	0.1687
6. Burglary	0.2211	0.2997
7. Larceny	-0.0211	-0.0556
8. Narcotics Law	0.6565[a]	0.8338[a]
9. Liquor Law	0.1202	0.2464
10. Prostitution	0.9259[a]	0.9883[a]
11. Gambling	0.7822[a]	0.4886[a]
12. Sex Offenses	0.3556[a]	0.4649[a]
13. Family&Cldn	0.3558[a]	0.3983[a]
14. Drunkeness	-0.0897	-0.2174
15. Disord&Vag	0.0423	0.0685
16. D. W. I.	-0.0053	-0.0011
17. Other Ntraf	-0.1479	-0.1789
Index	0.1058	0.1249
Non-Index	0.0106	-0.0241
All	0.0897	0.1572

[a]Significant at the 0.05 level.

1968, we reject the null hypothesis of independence for "rape," "robbery," "narcotics law," "prostitution," "gambling," "sex offenses," and "family&cldn" (all coefficients positive); in 1969, we reject the null hypothesis for the same types, with the same signs. This would seem to imply that for the system taken as a whole, the system is operating in ranges of increasing incremental cost (based on the 2 significant index and 5 significant non-index crimes).

For counties in 1968 (Table 65), we reject the null hypothesis for "rape," "robbery," "narcotics law," "prostitution," "gambling," "family&cldn," "drunkeness," and "D. W. I."; for 1969 (Table 66), we reject the null hypothesis for all of the same types except "robbery," "drunkeness," and "D. W. I." In addition, we reject it for "sex offenses." It is worth noting that for both significant index crimes and all of the significant non-index crimes except "drunkeness," "D. W. I.," and "other ntraf" are positive. These others are negative.

For cities, in 1968 (Table 67), we reject the null hypothesis for "rape," "narcotics law," "prostitution," and "gambling" (all positive), and in 1969 (Table 68), we reject it for "rape," "prostitution," "gambling," and "disord&vag." The sign of all but "disord&vag" are positive. Its sign is negative.

We find fewer instances of rejection for cities than for counties; but we increase rejection as measured by county types when we separate the two, and decrease the rejection as measured by types for the cities.

TABLE 65

RANK CORRELATION OF INCREMENTAL SYSTEMS COST AND TRUE COMPLAINTS FOR COUNTY SYSTEMS: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.2791	0.4356
2. Rape	0.5871[a]	0.7648[a]
3. Robbery	0.4857[a]	0.7379[a]
4. Agg. Assault	-0.1798	-0.2249
5. Auto Theft	-0.0899	-0.1155
6. Burglary	-0.0667	-0.1394
7. Larceny	0.0455	0.0244
8. Narcotics Law	0.9292[a]	0.9726[a]
9. Liquor Law	0.0682	0.2104
10. Prostitution	1.0000[a]	1.0000[a]
11. Gambling	0.8824[a]	0.9753[a]
12. Sex Offenses	0.2588	0.3477
13. Family&Cldn	0.5238[a]	0.6770[a]
14. Drunkeness	-0.4222[a]	-0.6606[a]
15. Disord&Vag	-0.1839	-0.1713
16. D. W. I.	-0.5243[a]	-0.7356[a]
17. Other Ntraf	-0.6293[a]	-0.7660[a]
Index	-0.1798	-0.2432
Non-Index	-0.4944[a]	-0.6748[a]
All	-0.4667[a]	-0.5636[a]

[a]Significant at the 0.05 level.

TABLE 66

RANK CORRELATION OF INCREMENTAL SYSTEMS COST AND TRUE COMPLAINTS FOR COUNTY SYSTEMS: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.2381	0.4037
2. Rape	0.4387[a]	0.5354[a]
3. Robbery	0.3846	0.6129[a]
4. Agg. Assault	-0.2444	-0.2848
5. Auto Theft	0.1840	0.2147
6. Burglary	0.1556	0.2727
7. Larceny	0.2889	0.3697
8. Narcotics Law	0.6132[a]	0.7808[a]
9. Liquor Law	0.2069	0.3425
10. Prostitution	1.0000[a]	1.0000[a]
11. Gambling	1.0000[a]	1.0000[a]
12. Sex Offenses	0.4126[a]	0.6343[a]
13. Family&Cldn	0.5583[a]	0.6708[a]
14. Drunkeness	-0.2889	-0.5273
15. Disord&Vag	0.0000	-0.0669
16. D. W. I.	-0.0222	0.0061
17. Other Ntraf	-0.5556[a]	-0.7333[a]
Index	0.2697	0.3830
Non-Index	-0.4046[a]	-0.5289
All	-0.3778	-0.4303

[a]Significant at the 0.05 level.

TABLE 67

RANK CORRELATION OF INCREMENTAL SYSTEMS COST AND TRUE COMPLAINTS FOR CITY SYSTEMS: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.2935	0.3964
2. Rape	0.5581[a]	0.6902[a]
3. Robbery	0.3778	0.4788
4. Agg. Assault	-0.0667	-0.1394
5. Auto Theft	-0.0899	-0.1033
6. Burglary	-0.0222	-0.1152
7. Larceny	-0.3333	-0.4303
8. Narcotics Law	0.6789[a]	0.8449[a]
9. Liquor Law	-0.2501	0.3171
10. Prostitution	0.6442[a]	0.8571[a]
11. Gambling	0.7143[a]	0.8759[a]
12. Sex Offenses	-0.0667	-0.0788
13. Family&Cldn	0.0449	0.1520
14. Drunkeness	0.0222	0.0182
15. Disord&Vag	-0.3333	-0.4424
16. D. W. I.	-0.2247	-0.2736
17. Other Ntraf	-0.1348	-0.1702
Index	-0.0449	-0.1155
Non-Index	-0.2000	-0.4424
All	-0.2444	-0.3455

[a]Significant at the 0.05 level.

TABLE 68

RANK CORRELATION OF INCREMENTAL SYSTEMS COST AND TRUE COMPLAINTS FOR CITY SYSTEMS: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.2935	0.4090
2. Rape	0.5583[a]	0.6503[a]
3. Robbery	0.0889	0.0486
4. Agg. Assault	-0.0667	-0.0667
5. Auto Theft	-0.1111	-0.1394
6. Burglary	0.0667	0.0667
7. Larceny	-0.2889	-0.4182
8. Narcotics Law	0.3449	0.4771
9. Liquor Law	-0.0909	0.0732
10. Prostitution	0.8333[a]	0.9450[a]
11. Gambling	0.7678[a]	0.8900[a]
12. Sex Offenses	-0.1194	-0.1501
13. Family&Cldn	-0.0222	-0.0424
14. Drunkeness	0.0222	0.0424
15. Disord&Vag	-0.4667[a]	-0.6121[a]
16. D. W. I.	-0.1798	-0.2918
17. Other Ntraf	-0.1556	-0.1758
Index	0.0667	-0.2121
Non-Index	-0.1556	-0.2727
All	-0.0222	-0.0667

[a]Significant at the 0.05 level.

Projections on the Criminal Justice System Model

This part of the analysis involves no direct hypothesis testing, but rather it is concerned with possible applications of the criminal justice system model for planning purposes. The basic model is used in two different areas: incremental cost and total systems cost.

As previously discussed, we may be interested in the effect of increased performance of law enforcement agencies on the incremental cost of the system. To examine this, we choose a 5 year planning horizon and assume that by whatever methods and at whatever direct cost to the law enforcement agencies, we are able to increase the clearance rate by 1 percent per year for the 5 year period. Higher increases in the clearance rates are of course possible; however, we feel that a 1 percent per year increase would be more within the realm of obtainable increases in the real world. Of course, once the clearance rate has reached 100 percent, the incremental cost projection ceases.

For each of the counties and cities, incremental cost is projected for the 5 year period, using equation (66), and assuming this 1 percent increase per year in the clearance rates. It is assumed, as previously discussed, that transitional probabilities and average cost per case per branch of the criminal justice system in each region remains the same over the period as they were in 1969. The projections to the year 1975 are presented in Tables 69 through 88.

TABLE 69

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

ACCOMACK

	1969	1970	1971	1972	1973	1974
MURDER	829.53	0.0	0.0	0.0	0.0	0.0
RAPE	740.50	0.0	0.0	0.0	0.0	0.0
ROBBERY	975.00	0.0	0.0	0.0	0.0	0.0
AS [illegible]	571.5[illegible]	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	209.40	0.0	0.0	0.0	0.0	0.0
BURGLARY	182.44	183.21	184.76	187.15	190.44	194.75
LARCENY	134.55	135.06	136.08	137.66	139.84	142.69
NARCOT LAW	250.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	124.32	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	82.30	0.0	0.0	0.0	0.0	0.0
FAMCHILDREN	56.00	0.0	0.0	0.0	0.0	0.0
DRUNKENNESS	57.00	0.0	0.0	0.0	0.0	0.0
DISORDERLY	54.00	0.0	0.0	0.0	0.0	0.0
D W I	121.74	0.0	0.0	0.0	0.0	0.0
OTHER MORAL	47.00	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 70

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

DINWIDDIE

	1969	1970	1971	1972	1973	1974
MURDER	212.50	212.87	213.64	214.81	216.42	218.54
RAPE	300.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	293.12	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	148.56	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	48.17	48.32	48.63	49.10	49.75	50.61
BURGLARY	91.61	92.05	92.94	94.30	96.18	98.63
LARCENY	50.62	51.00	51.36	51.92	52.69	53.69
NARCOT LAW	166.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	239.70	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0	0.0	0.0
FAMSCHILDABN	74.00	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	63.53	0.0	0.0	0.0	0.0	0.0
DISORDSVAG	61.62	0.0	0.0	0.0	0.0	0.0
D W I	165.15	0.0	0.0	0.0	0.0	0.0
OTHER STRAF	78.57	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 71

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

CAROLINE

	1969	1970	1971	1972	1973	1974
MURDER	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	352.00	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	187.06	187.86	189.49	191.99	0.0	0.0
AUTO THEFT	160.55	161.06	162.49	164.68	167.71	171.68
BURGLARY	178.61	179.60	181.60	184.68	188.93	194.48
LARCENY	89.52	89.84	90.48	91.46	92.82	94.60
NARCOS LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	177.76	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0	0.0	0.0
FAMCHILDREN	79.54	79.76	80.20	0.0	0.0	0.0
DRUNKENNESS	14.90	14.95	15.05	15.20	15.41	15.69
DISORDSVAG	57.68	57.80	58.03	58.40	58.90	59.56
D W I	85.19	0.0	0.0	0.0	0.0	0.0
OTHER NFAF	32.50	32.63	32.88	33.27	33.81	34.51

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 72

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

CARROLL

	1969	1970	1971	1972	1973	1974
MURDER	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	18.50	18.88	19.06	19.64	20.44	21.48
AUTO THEFT	100.00	0.0	0.0	0.0	0.0	0.0
BURGLARY	72.70	73.30	74.51	76.37	78.95	82.31
LARCENY	32.02	32.20	32.84	33.68	34.85	36.37
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	33.28	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	50.00	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	45.00	0.0	0.0	0.0	0.0	0.0
D W I	42.00	0.0	0.0	0.0	0.0	0.0
OTHER MINAF	36.24	0.0	0.0	0.0	0.0	0.0

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND SINCE THE VALUES FOR SUBSEQUENT YEARS FILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 73

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

CRAIG

	1969	1970	1971	1972	1973	1974
MURDER	1250.00	0.0	0.0	0.0	0.0	0.0
RAPE	500.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	155.17	156.09	157.94	160.78	164.71	169.85
AUTO THEFT	55.65	56.10	57.00	58.40	60.32	62.84
BURGLARY	210.14	210.73	211.93	213.77	216.32	219.65
LARCENY	305.72	306.76	308.93	312.23	316.78	322.74
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	41.00	41.41	42.24	43.52	45.29	47.60
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	29.95	30.00	30.10	30.25	30.47	30.75
FAM/CHILDREN	29.60	29.87	30.41	31.24	32.38	33.88
DRUNKENESS	4.10	4.13	4.19	4.29	4.42	4.60
DISORD/VAG	8.67	8.73	8.85	9.02	9.27	9.59
D W I	15.76	15.89	16.15	16.55	17.10	17.82
OTHER NFRAF	20.38	21.05	21.42	21.97	22.75	23.75

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 74

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

FAUQUIER

	1969	1970	1971	1972	1973	1974
MURDER	325.18	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	180.75	180.94	181.32	181.90	182.71	183.77
AG ASSAULT	180.68	181.09	181.91	183.18	184.94	187.23
AUTO THEFT	115.88	116.37	117.39	118.94	121.09	123.90
BURGLARY	187.48	188.16	189.53	191.63	194.54	198.34
LARCENY	141.08	141.37	141.96	142.87	144.12	0.0
NARCOT LAW	99.75	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	32.65	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	71.10	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	20.00	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	20.00	0.0	0.0	0.0	0.0	0.0
D W I	42.71	0.0	0.0	0.0	0.0	0.0
OTHER NTRAF	27.89	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 75

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

FRANKLIN

	1969	1970	1971	1972	1973	1974
MURDER	80.53	81.21	82.60	84.74	87.69	0.0
RAPE	117.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	300.00	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	76.17	76.53	77.27	78.40	79.96	81.99
AUTO THEFT	55.03	55.25	55.69	56.38	57.33	58.57
BURGLARY	57.41	57.59	57.94	58.46	59.23	60.21
LARCENY	42.56	42.64	42.79	43.03	43.35	43.78
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOS LAW	112.16	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	13.97	14.00	14.06	14.15	14.28	14.45
FAM&CHILDREN	62.80	63.21	64.03	65.31	67.06	69.36
DRUNKENESS	52.56	52.61	52.70	0.0	0.0	0.0
DISORD&VAG	37.33	37.44	37.64	37.97	38.41	0.0
D W I	43.36	43.47	43.70	44.06	44.55	45.19
OTHER NTRAF	22.64	22.67	22.72	22.80	22.92	23.06

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 76

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

HENRY

	1969	1970	1971	1972	1973	1974
MURDER	196.72	0.0	0.0	0.0	0.0	0.0
RAPE	294.46	0.0	0.0	0.0	0.0	0.0
ROBBERY	159.76	160.36	161.57	163.44	166.02	169.38
AG ASSAULT	114.67	115.21	116.30	117.97	120.28	123.31
AUTO THEFT	95.63	95.99	96.71	97.82	99.36	101.36
BURGLARY	128.65	129.09	129.70	130.78	132.27	134.23
LARCENY	150.20	150.53	151.21	152.24	153.67	155.54
NARCOT LAW	119.73	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	105.22	105.37	105.68	106.16	106.81	107.67
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	5.00	5.00	5.00	5.00	5.00	5.00
SEX OFFENSES	35.35	35.40	35.51	35.63	35.91	36.21
FAM&CHILDREN	232.13	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	42.47	42.53	0.0	0.0	0.0	0.0
DISORD&VAG	71.61	71.73	71.97	72.33	72.83	73.48
D W I	55.77	0.0	0.0	0.0	0.0	0.0
OTHER TRAF	59.36	59.50	59.77	60.18	60.76	61.51

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 77

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

NELSON

	1969	1970	1971	1972	1973	1974
MURDER	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	152.33	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	0.0	0.0	0.0	0.0	0.0	0.0
BURGLARY	202.55	204.15	207.38	212.36	219.24	228.23
LARCENY	167.49	168.04	169.17	170.90	173.29	176.42
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	154.60	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	58.77	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	86.14	0.0	0.0	0.0	0.0	0.0
D W I	148.21	0.0	0.0	0.0	0.0	0.0
OTHER STAT	107.66	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 78

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

SURREY

	1969	1970	1971	1972	1973	1974
MURDER	1300.00	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	500.00	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	733.50	0.0	0.0	0.0	0.0	0.0
BURGLARY	68.00	68.56	69.70	71.44	73.86	77.01
LARCENY	125.91	130.21	130.82	131.76	133.04	134.73
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	219.42	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENNESS	54.36	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	68.12	0.0	0.0	0.0	0.0	0.0
D W I	0.0	0.0	0.0	0.0	0.0	0.0
OTHER STRAF	205.44	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 79

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

CHARLOTTESVILLE

	1969	1970	1971	1972	1973	1974
MURDER	4356.70	0.0	0.0	0.0	0.0	0.0
RAPE	845.15	845.97	847.64	850.20	853.74	858.37
ROBBERY	2672.81	2673.42	2674.66	2676.55	2679.18	2682.60
AG ASSAULT	134.48	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	114.49	114.62	114.90	115.32	115.90	116.66
BURGLARY	667.16	667.36	667.77	668.40	669.27	670.41
LARCENY	153.91	153.96	154.06	154.21	154.42	154.70
NARCOT LAW	1434.46	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	829.38	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	623.77	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	356.43	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	30.29	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	61.78	0.0	0.0	0.0	0.0	0.0
D W I	79.05	0.0	0.0	0.0	0.0	0.0
OTHER MISAF	30.82	0.0	0.0	0.0	0.0	0.0

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 80

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

DANVILLE

	1969	1970	1971	1972	1973	1974
MURDER	2879.60	0.0	0.0	0.0	0.0	0.0
RAPE	794.25	0.0	0.0	0.0	0.0	0.0
ROBBERY	983.18	983.79	985.04	986.95	989.58	993.03
AG ASSAULT	499.88	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	169.19	169.71	170.75	172.34	174.55	177.43
BURGLARY	175.31	175.98	177.35	179.45	182.35	186.14
LARCENY	108.38	108.88	109.88	111.42	113.55	116.33
NARCOT LAW	2344.18	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	128.36	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	517.20	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	639.30	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	189.74	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	45.93	0.0	0.0	0.0	0.0	0.0
DISORDSVAG	107.87	0.0	0.0	0.0	0.0	0.0
D W I	179.45	0.0	0.0	0.0	0.0	0.0
OTHER STAT	192.43	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND SINCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 81

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

FREDERICKSBURG

	1969	1970	1971	1972	1973	1974
MURDER	100.00	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	67.80	68.18	68.95	70.13	71.75	73.88
AG ASSAULT	37.20	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	36.25	36.35	36.56	36.88	37.32	37.90
BURGLARY	31.16	31.23	31.35	31.54	31.81	32.16
LARCENY	28.30	28.33	28.40	28.50	28.64	28.83
NARCOT LAW	62.34	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	37.00	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	53.00	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	42.55	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	37.64	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	22.89	22.97	23.13	23.37	23.71	24.16
D W I	41.68	0.0	0.0	0.0	0.0	0.0
OTHER STRAF	39.45	39.65	40.04	40.65	41.49	42.53

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 82

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

LYNCHBURG

	1969	1970	1971	1972	1973	1974
MURDER	637.00	0.0	0.0	0.0	0.0	0.0
RAPE	665.00	666.66	668.00	670.06	672.90	676.62
ROBBERY	682.48	683.26	684.83	687.25	690.59	694.95
AG ASSAULT	355.40	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	291.08	291.98	293.81	296.62	300.50	305.58
BURGLARY	448.91	449.37	450.30	451.73	453.71	456.29
LARCENY	209.43	209.52	209.69	209.95	210.31	210.79
NARCOT LAW	200.37	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	148.57	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	142.00	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	156.50	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	89.30	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	43.09	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	25.74	25.83	26.00	26.28	26.65	27.15
D W I	197.24	0.0	0.0	0.0	0.0	0.0
OTHER NTRAF	113.29	0.0	0.0	0.0	0.0	0.0

---

[1]A VALUE OF $0.0 FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 83

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

PETERSBURG

	1969	1970	1971	1972	1973	1974
MURDER	2913.65	2919.59	2921.49	2924.41	2928.45	2933.72
RAPE	872.22	872.77	873.87	875.56	877.90	880.95
ROBBERY	757.73	758.02	758.60	759.50	760.74	762.36
AG ASSAULT	221.54	221.74	222.16	222.80	223.69	224.84
AUTO THEFT	62.48	62.55	62.68	62.88	63.16	63.53
BURGLARY	178.06	178.11	178.21	178.37	178.59	178.87
LARCENY	26.17	26.23	26.35	26.55	26.81	27.16
NARCOT LAW	949.16	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1008.94	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	500.00	0.0	0.0	0.0	0.0	0.0
GAMBLING	160.00	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	83.79	0.0	0.0	0.0	0.0	0.0
FAMCHILDREN	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	56.30	0.0	0.0	0.0	0.0	0.0
DISORDCVAG	118.04	0.0	0.0	0.0	0.0	0.0
D W I	202.40	0.0	0.0	0.0	0.0	0.0
OTHER MINAR	53.14	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 84

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

RADFORD

	1969	1970	1971	1972	1973	1974
MURDER	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	500.00	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	352.92	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	135.00	135.00	135.00	135.00	135.00	135.00
BURGLARY	297.10	297.41	298.04	299.01	300.35	302.10
LARCENY	330.72	331.38	332.71	334.76	337.60	341.30
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	179.70	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	339.00	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	123.19	123.26	123.41	123.63	123.94	0.0
DISORD&VAG	165.71	0.0	0.0	0.0	0.0	0.0
D & I	309.34	0.0	0.0	0.0	0.0	0.0
OTHER NTRAF	166.38	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 85

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

SALEM

	1969	1970	1971	1972	1973	1974
MURDER	2952.50	0.0	0.0	0.0	0.0	0.0
RAPE	500.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	200.00	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	108.23	108.44	108.87	109.53	110.45	111.64
AUTO THEFT	76.50	76.72	77.18	77.88	78.85	80.12
BURGLARY	119.16	119.40	119.89	120.65	121.69	123.05
LARCENY	65.77	65.94	66.00	66.24	66.58	67.02
NARCOT LAW	478.98	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	158.00	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	100.00	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	140.00	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	183.00	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	32.85	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	67.69	0.0	0.0	0.0	0.0	0.0
D W I	136.94	0.0	0.0	0.0	0.0	0.0
OTHER MISC	75.45	0.0	0.0	0.0	0.0	0.0

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 86

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

STAUNTON

	1969	1970	1971	1972	1973	1974
MURDER	4300.00	0.0	0.0	0.0	0.0	0.0
RAPE	1000.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	154.18	154.43	154.94	155.73	156.82	158.23
AG ASSAULT	275.03	275.74	277.16	279.34	282.36	286.31
AGG THEFT	2880.20	2880.84	2880.63	2881.07	2881.69	2882.48
BURGLARY	396.34	396.46	396.77	397.22	397.84	398.65
LARCENY	367.02	367.21	367.48	367.89	368.45	369.19
NARCOT LAW	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1542.00	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	353.75	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	154.80	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	113.00	0.0	0.0	0.0	0.0	0.0
DISORD&VAG	131.70	0.0	0.0	0.0	0.0	0.0
D W I	353.03	0.0	0.0	0.0	0.0	0.0
OTHER MISAF	116.93	0.0	0.0	0.0	0.0	0.0

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND SINCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLASSIFICATION RATE OF 100 PERCENT.

TABLE 87

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

SUFFOLK

	1969	1970	1971	1972	1973	1974
MURDER	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	683.40	685.23	688.96	694.68	702.58	712.92
ROBBERY	208.65	208.85	209.24	209.86	210.70	211.81
AG ASSAULT	168.77	168.85	169.01	169.25	169.58	170.02
AUTO THEFT	183.50	183.57	183.73	183.96	184.28	184.71
BURGLARY	208.11	208.70	209.51	210.65	212.22	214.27
LARCENY	87.80	87.83	87.86	88.12	88.50	88.98
NARCOT LAW	1050.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	266.00	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	400.00	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	221.39	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	27.76	0.0	0.0	0.0	0.0	0.0
DISORD&VAG.	187.17	0.0	0.0	0.0	0.0	0.0
D W I	176.96	0.0	0.0	0.0	0.0	0.0
OTHER NTRAF	133.14	0.0	0.0	0.0	0.0	0.0

---

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND IS NOT THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

TABLE 88

PROJECTED INCREMENTAL SYSTEM COST (IN $)[1]

VIRGINIA BEACH

	1969	1970	1971	1972	1973	1974
MURDER	1279.50	0.0	0.0	0.0	0.0	0.0
RAPE	961.68	0.0	0.0	0.0	0.0	0.0
ROBBERY	394.52	395.60	397.81	401.19	405.87	411.98
AG ASSAULT	109.15	109.35	109.76	110.39	111.25	112.39
AUTO THEFT	175.38	175.49	175.72	176.08	176.57	177.21
BURGLARY	321.85	321.96	322.18	322.51	322.98	323.59
LARCENY	86.25	86.28	86.34	86.45	86.59	86.77
NARCOT LAW	581.84	582.40	583.53	585.28	587.68	590.83
LIQUOR LAW	40.36	40.71	41.43	42.53	44.06	0.0
PROSTITUTION	35.88	0.0	0.0	0.0	0.0	0.0
GAMBLING	152.35	152.95	154.15	156.00	0.0	0.0
SEX OFFENSES	332.52	332.92	333.72	334.95	336.66	338.88
FAM&CHILDREN	125.08	125.82	127.32	129.63	132.83	137.00
DRUNKENESS	31.66	31.75	31.95	32.25	32.67	0.0
DISORD&VAG	57.29	57.63	58.33	59.40	0.0	0.0
D W I	74.56	74.81	75.35	76.18	0.0	0.0
OTHER NTRAF	102.35	0.0	0.0	0.0	0.0	0.0

[1]A VALUE OF ZERO FOR THE YEAR 1969 REFLECTS A ZERO INCREMENTAL COST FOR THAT YEAR, AND HENCE THE VALUES FOR SUBSEQUENT YEARS WILL ALSO BE ZERO. OTHER ZEROS REFLECT A CLEARANCE RATE OF 100 PERCENT.

We also may be interested in forecasting the total budget for the criminal justice system for some date in the future. By using equation (73), and selecting a 5 year time horizon, we make such a projection. In order to do so, we assume the case loads for each agency within a region change at the same rate each year of the 5 year period as they did between 1968 and 1969, and that transitional probabilities and average cost per case remain the same over the period as they were in 1969. We then predict, ceteribus paribus, the total budget required each year, given the specified rate of change of the case loads, to sustain average cost per case at the same level as it was in 1969.[14] The projections to the year 1975 are presented in Table 89.

It is possible, however, that case loads between 1968 and 1969 may have changed at more than 100 percent. For example, 1 robbery in 1968 and 6 robberies in 1969 could be recorded as a case load change of 500 percent. Using this rate of change per year could lead to highly unrealistic projected total system cost. Hence, the same projections are made for the same regions, but an upper limit of 100 percent per year is set. That is, if the case load for any crime type in any region exceeded 100 percent between 1968 and 1969, it is assigned the value of 100 percent. All other case load changes remain intact. The results of this projection are presented in Table 90.

---

[14] If, for any crime type, there were no occurrences in 1968 and any occurrences in 1969, the rate of change of the case load was set at 100 percent; if, on the other hand, there were case load occurrences in 1968 but none in 1969, the rate of change was set at -100 percent.

TABLE 89

PROJECTED TOTAL SYSTEMS COST (IN $)

Region	1969	1970	1971	1972	1973	1974
Counties:						
Accomack	75,137	135,690	315,740	918,089	3,220,818	12,993,505
Dinwiddie	49,207	74,092	220,557	1,061,644	6,095,308	36,771,904
Caroline	78,110	115,708	285,770	1,270,084	7,723,296	51,759,552
Carroll	9,192	13,658	26,081	60,943	161,828	463,177
Craig	55,317	69,281	94,812	140,377	223,147	377,157
Faquier	36,958	57,769	263,026	2,553,748	30,090,832	369,957,888
Franklin	79,678	77,605	88,766	128,736	251,260	640,997
Henry	154,370	197,357	356,868	1,203,549	7,182,001	55,353,984
Nelson	45,084	383,391	15,163,261	734,731,776	36,272,783,360	1,794,818,179,072
Surrey	27,297	36,926	78,066	220,820	775,451	3,170,066
Cities:						
Charlottesville	472,167	577,760	806,728	1,361,653	3,113,162	10,299,533
Danville	684,048	689,730	964,270	2,235,975	10,891,140	82,372,448
Fredericksburg	66,149	80,539	124,893	265,538	768,981	2,742,136
Lynchburg	846,661	1,029,019	1,490,698	3,017,398	9,600,915	44,543,712
Petersburg	476,069	563,271	931,994	2,502,807	9,854,623	45,689,144
Radford	120,410	144,110	212,182	351,790	624,200	1,158,228
Salem	101,388	135,232	198,790	326,402	600,594	1,225,461
Staunton	353,714	1,231,542	10,394,098	126,205,040	1,720,486,400	24,358,338,560
Suffolk	185,581	223,712	307,720	482,046	862,095	1,753,515
Virginia Beach	1,319,859	1,706,684	2,783,306	6,883,235	28,410,208	169,116,336

TABLE 90

PROJECTED TOTAL SYSTEMS COST (IN $) WHEN CASE LOAD PERCENT CHANGE NOT PERMITTED TO EXCEED 100 PERCENT

Region	1969	1970	1971	1972	1973	1974
Counties:						
Accomack	75,137	113,996	192,228	344,635	640,546	1,217,093
Dinwiddie	49,207	55,769	75,304	114,294	188,201	327,874
Caroline	78,110	98,667	139,320	212,728	344,738	585,503
Carroll	9,192	12,033	17,942	29,712	52,889	98,484
Craig	55,317	69,058	93,865	137,356	214,568	354,290
Faquier	26,958	40,646	51,677	73,882	116,232	197,082
Franklin	79,678	76,034	80,647	96,044	129,230	194,700
Henry	154,370	183,250	242,401	354,006	561,078	945,945
Nelson	45,084	63,920	108,000	197,342	374,888	726,888
Surrey	27,297	32,853	52,989	96,072	182,547	354,561
Cities:						
Charlottesville	472,167	566,456	740,966	1,041,867	1,563,156	2,485,697
Danville	684,048	674,169	828,298	1,139,493	1,707,224	2,785,697
Fredericksburg	66,149	76,214	98,741	140,944	216,699	351,932
Lynchburg	846,661	983,664	1,215,770	1,616,259	2,330,409	3,645,063
Petersburg	476,069	519,062	626,222	816,440	1,147,508	1,730,618
Radford	120,410	143,155	207,908	337,300	580,064	1,030,703
Salem	101,388	132,023	183,785	273,346	432,465	721,940
Staunton	353,714	501,434	815,781	1,445,334	2,691,602	5,156,967
Suffolk	185,581	219,762	288,445	410,559	623,276	995,773
Virginia Beach	1,319,859	1,581,844	2,027,954	2,796,634	4,162,772	6,668,805

In order to allow these total cost projections to be placed in a proper frame of reference, one additional projection is made, assuming that the case loads change at 1 percent per year. We feel that this projection yields a sort of floor to anticipated systems cost over the 5 year period. That is, it is expected that the various case loads will actually change at some rate between their 1968-1969 rate and a rate of 1 percent, but it is not expected that the rate of change would fall below the 1 percent level. The results of this projection are presented in Table 91.

TABLE 91

PROJECTED TOTAL SYSTEMS COST (IN $) WHEN CASE LOADS CHANGE AT 1 PERCENT PER YEAR

Region	1969	1970	1971	1972	1973	1974
Counties:						
Accomack	75,137	75,888	76,647	77,413	78,187	78,969
Dinwiddie	49,207	49,699	50,196	50,698	51,205	51,717
Caroline	78,110	78,891	79,680	80,476	81,281	82,094
Carroll	9,192	9,284	9,377	9,470	9,565	9.661
Craig	55,317	55,870	56,429	56,993	57,563	58,138
Faquier	26,958	37,328	37,701	38,078	38,458	38,843
Franklin	79,678	80,475	81,279	82,092	82,913	83,742
Henry	154,370	155,913	157,472	159,047	160,637	162,243
Nelson	45,084	45,535	45,990	46,450	46,914	47,383
Surrey	27,297	27,570	27,846	28,124	28,405	28,689
Cities:						
Charlottesville	472,167	476,888	481,656	486,472	491,336	496,248
Danville	684,048	690,887	697,795	704,772	711,819	718,936
Fredericksburg	66,149	66,810	67,478	68,153	68,835	69,523
Lynchburg	846,661	855,126	863,676	872,312	881,034	889,843
Petersburg	476,069	480,829	485,636	490,492	495,396	500,350
Radford	120,410	121,614	122,830	124,058	125,298	126,551
Salem	101,388	102,402	103,425	104,460	105,504	106,559
Staunton	353,714	357,250	360,822	364,430	368,074	371,754
Suffolk	185,581	187,436	189,310	191,203	193,115	195,046
Virginia Beach	1,319,859	1,333,052	1,346,380	1,359,842	1,373,439	1,387,169

CHAPTER V

SUMMARY OF RESULTS AND CONCLUSIONS

The purpose of this dissertation was to construct a systems analytic model of the criminal justice system of Virginia and to determine relative systems cost and efficiency properties of the system in counties and cities of Virginia for 1968 and 1969. Specifically: (1) the relative effectiveness of sheriff and police organizations and of county and city criminal justice systems was examined; (2) the influence of certain factors on the effectiveness of both law enforcement agencies and criminal justice systems was investigated; (3) utilizing the criminal justice system model, projections were made, under certain conditions, for the total systems cost from 1969 to 1974; and (4) projections were made for the same period for the incremental systems cost that would result from a 1 percent per year rate of increase in the clearance rates of law enforcement agencies.

In this chapter, the results of the preceding analysis are summarized. The models are evaluated with respect to what they do and do not reveal about the criminal justice system of Virginia, and to what extent they hold predictive value for criminal justice planning. As in the previous chapters, the discussion begins with law enforcement, proceeds to the criminal justice system, and, finally, to the projections on the system. The final portion of this chapter is devoted to an overview and evaluation of the dissertation as a whole.

Law Enforcement

The question of relative law enforcement effectiveness in Virginia was examined through an analysis of police and sheriff relative performance and efficiency.

The measure of performance used was the clearance rate--arrests divided by true complaints. It was assumed that given a true complaint, the objective of a law enforcement agency is to "get their man." Based on this measure, using an analysis of means and variance, the data revealed that for 1968 and 1969, sheriff performance exceeded police for 43 and 57 percent respectively of the index crime types. Further, the situation was never reversed. For non-index crime types, there was almost no apparent difference in relative performance.

The measure of efficiency used was a combination of performance and adjusted average cost per true complaint. In Chapter III, the nine possible combinations of these variables were set out, and it was shown that relative efficiency was determinate in seven of these nine combinations.

Adjusted average cost data showed that for 1968 and 1969, the mean sheriff adjusted average cost was lower than police for 25 and 66 percent of the comparable crime types. Police mean adjusted average cost was never less than that of the sheriff.

When average cost data was used in conjunction with clearance rates to determine relative efficiency, sheriffs were found to be more efficient than police for 38 percent of the comparable crime types in 1968 and 66 percent of the comparable types in 1969. The direction of

relative efficiency was never reversed, and only for the heterogeneous category, "other non-traffic" in 1969, was relative efficiency indeterminate.

Seven factors in three separate parts of the analysis were tested in order to determine their effect on performance. In the first part, the individual linear relationships between clearance rates and population, land area, population density, average family buying income, and a zero-one organizational dummy variable were examined. Also, a linear combination of population density and average family buying income, and a linear combination of both of these and the organizational dummy variable were similarly examined with respect to the clearance rate.

The data showed population density to be significant for approximately 30 percent of the crime types, and in these, it exhibited a negative sign for index and a positive sign for non-index crime types.

Average family buying income in 1969 was significant for approximately 35 percent of the crime types. The signs of these coefficients indicated a tendency toward a positive relationship for crimes against person and a negative one for crimes against property.

The zero-one organizational dummy variable was significant for more crime types than either of the two variables previously discussed. In 1969, the relationship was significant in 47 percent of the categories. Interestingly enough, significant coefficients were negative for index crimes and positive for non-index crimes.

The linear combinations of these variables reduced the number of significant crime types without increasing the explanatory power of the relationship. In general, for these as well as the individual variables, the hypothesis of a linear relationship was rejected.

The sixth factor examined with respect to performance was returns to manpower. Here, the relationship was examined for sheriff and police agencies separately, as well as in a combined sample. Utilizing linear, logarithmic, and rank correlation techniques, it was found that manpower and clearance rates were related in a non-linear fashion. Further, the rank correlation technique yielded the largest number of significant crime types. For sheriffs in 1969, 35 percent of the categories were significant; for police, in the same year, 30 percent were significant. The sign of the significant coefficients were positive for index crimes and mixed for non-index crimes for both agency types. In the combined sample of all law enforcement agencies for 1969, 41 percent of the categories were significant, but the sign for significant index types became mixed, and the sign for significant non-index types became positive.

Due to these mixed results, not much can be said about the relative effect of returns to manpower on differences in sheriff and police clearance rates. For the combined sample of all law enforcement agencies, however, a tendency toward increasing returns to manpower with respect to clearance rates for index crimes against persons, decreasing returns with respect to index crimes against property, and increasing returns with respect to non-index crimes was found.

The seventh and final factor examined as a determinant of performance was returns to size. Here, the clearance rate was examined as a function of true complaints. It was hypothesized that sheriffs might have exhibited better performance simply because of fewer true complaints, or police, worse performance because of a larger number of true complaints. The data, however, did not support this hypothesized relationship. In fact, only when the combined sample of all law enforcement agencies was used did one instance occur where a lower clearance rate for sheriffs was coupled with a significant negative relationship between true complaints and the clearance rate.

From all of this analysis, it can be concluded that in Virginia, for the two year period studied, there is a definite difference in performance and efficiency for police and sheriffs agencies, for certain crime types; and, further, sheriffs perform better and more efficiently than police for these types. In addition, the relative performance of these agencies is influenced in a non-linear fashion by certain factors beyond the control of these agencies. Also, for the most part, any differences in relative performance cannot be explained on the basis of returns to size or returns to manpower.

The factor that exerted the greatest influence on relative performance appeared to be whether or not a law enforcement agency was a sheriff or a police type in form. If it can be assumed that police and sheriff data were equally accurate, then differences inherent in the sheriff form (such as election, community rapport, etc.) exerted a much stronger influence on performance than previously thought. Further analysis is therefore suggested along these lines. Perhaps if these

differences can be isolated, they may be of use in improving the general performance of all law enforcement agencies.

The Criminal Justice System

What differences exist in the relative efficiency of county and city criminal justice systems in Virginia? In an attempt to answer this question, a model of the system, to the sentencing stage, was developed, and an adjusted incremental systems cost was calculated. These costs were compared with clearance rates using the same methodology and combinations used in the law enforcement analysis.

When the mean values of adjusted incremental systems cost were compared, it was found that while counties had significant lower values for some crime types, the reverse was never true for cities. In 1968, counties had significant lower values for 13 percent of the comparable crime types, and in 1969, this relationship held for 60 percent of the comparable types.

Examination of clearance rates and adjusted incremental systems cost data showed counties to be more efficient for certain crime types. As in the case above, the reverse was never true. County systems were more efficient in 30 percent of the comparable types in 1968 and 80 percent in 1969. In one type for 1969 (6.7 of the comparable types), the results were indeterminate.

Attention was then focused upon five factors which might influence systems incremental cost, and hence, might aid in explaining some of the differences that were found. These five factors were

population, land area, population density, average family buying income, and a zero-one organizational dummy variable. In a linear form, the relationship between each of these factors to unadjusted incremental systems cost was examined. In addition, this cost was related to a linear combination of population density and average family buying income, and a linear combination of both of these and the zero-one organizational dummy variable.

Population density was significant in at least as many crime types as population or land area. In 1969, a significant and positive relationship was found for this variable in 58 percent of the crime types. For the same year, the organizational dummy variable was also significant and positive in 58 percent of the types. Average family buying income, in 1969, was significant and positive in 53 percent of types. None of the relationships were found to be linear in form, and the linear combinations tested reduced the number of significant types without increasing the explanatory power of the relationship between the variables.

In the final part of this analysis, the relationship between unadjusted incremental systems cost and the number of true complaints entering the system was examined via a rank correlation technique. This relationship was examined to determine whether or not either system was operating within a range of increasing or decreasing incremental systems cost with respect to the volume of true complaints.

For county systems, this analysis revealed a significant relationship between these two variables in 53 percent of the crime types in

1968, and in 41 percent in 1969. For city systems for both 1968 and 1969, a significant relationship was found in 24 percent of the types. In a combined sample of both systems, 41 percent of the crime types were significant in each year.

This analysis further showed that for all significant crime types, the combined sample exhibited positive coefficients. When county and city systems were examined separately, significant coefficients for index crimes were positive, while both positive and negative signs were found for significant non-index crimes. Hence, criminal justice systems in general appear to be operating within a range of increasing incremental systems cost. At the same time, county and city systems appear to be operating within a range of increasing incremental cost for index crimes and both increasing and decreasing incremental cost for non-index crimes.

From all of this analysis, it may be concluded that for Virginia, for 1968 and 1969, county criminal justice systems appear to be more efficient than city systems. These differences can be explained, in part, by factors outside the control of the system. Factors associated with a particular type of system, however, also exert a strong influence on relative efficiency. In addition, while both types of systems are operating within a range of both increasing and decreasing incremental cost, the criminal justice systems on the whole, are operating within a range of increasing incremental cost.

Projections on the Criminal Justice System Model

This part of the analysis was devoted to examining possible applications of the criminal justice system models for planning purposes. Both incremental and total systems cost were projected.

The incremental system cost projection of a 1 percent per year increase in the clearance rate presented somewhat surprising results. For all of the crime types for all of the regions, the largest increase in incremental systems cost between 1969 and 1974 was less than $30.00. These projections, although they were for incremental (the increment to average) cost, were much lower than was expected. It must be remembered, however, that a 1 percent increase per year in the clearance rate is very small;[1] and further, that no queuing costs, costs of the correctional system, or scale factors were directly considered.

It would appear, therefore, that for long period analyses, this type of projection would not be very useful. But perhaps, for shorter periods, it might be of some assistance in examining trade-offs between different target clearance rates and community goals with respect to the criminal justice system.

Somewhat better results were found in using the projection model for total systems cost. This model projected the total systems cost

---

[1] In another test, the clearance rate was increased by 10 percent per year. The result was that the upper bound of the increase in projected incremental cost between 1969 and 1974 increased to $140.00; however, fewer of the crime types could be projected for 5 years, as clearance rates of 100 percent were reached much sooner.

required to maintain the same average cost per case for each agency in a region, given certain case load increases. It was observed, however, that constraints needed to be placed on the system to permit the projection to be more meaningful.

The projections on the basis of the 1968-1969 percent changes in case loads showed, for example, that Nelson county's system cost went from $45,084 in 1969 to $1,794,818,179,072 in 1974. This was due to the county having several case load changes between 1968 and 1969 of greater than 100 percent.

When the same projection was made limiting the case load percent changes to no more than 100 percent, and allowing those less than 100 percent to remain unaffected, Nelson county's system cost went from $45,084 in 1969 to $726,088 in 1974.

In the last projection on this model, when all case load changes were fixed at 1 percent per year, it was found that Nelson county's system cost went from $45,084 in 1969 to $47,383 in 1974. This may be interpreted as saying that if it were possible to hold the case load increases of the respective agencies in the county to 1 percent per year, an additional $2,299 would be needed to maintain the same average cost per case per agency in 1974.

These projected systems costs neglect scale factors and correctional costs, and admittedly, any attempt to make a long period projection on the basis of a single rate, whether a target rate or a past rate of change in a two year period, is always dangerous. But, even with these shortcomings, this projection method would appear to be a useful aid in criminal justice planning.

Overview and Evaluation of the Dissertation as a Whole

Perhaps the best way to put this dissertation in its proper perspective is to ask ourselves two questions: What do we know now that we did not know before, and, can the benefits of this type of analysis be justified in terms of the high cost involved?

Very little is known about resource allocation and effectiveness in criminal justice systems. At the same time, we are faced with rising incidents of crime, increasing public fear, and skyrocketing costs. And there are few, if any, answers.

There has always been speculation about which types of criminal justice systems performed more efficiently, and what sorts of factors affected efficiency. In many cities, sheriffs were thought to be very inefficient when compared with police. In fact, in several Virginia counties, sheriffs have been given the duties of a jailor and process server, and police have assumed the law enforcement duties of the county. It was assumed that if sheriffs had higher clearance rates, it could be explained in terms of fewer crimes occurring in their jurisdiction.

From our analysis, we were able to dispell at least some speculation in these areas, and replace it with more hard core facts.[2] For

[2]For another application of a similar methodology which yielded indeterminate results, see Elinor Ostrom, Rober B. Parks, and Gordon P. Whitaker, "The Effect of Size and Community Control on the Provision of Police Services: A Comparative Study of Three Independent Communities and Three Matched City Neighborhoods Within One Metropolitan Area" (paper presented at the meeting of the Public Choice Society, Blacksburg, Virginia, April 22-24, 1971.

law enforcement, we also raised a serious question about organizational form.

Further, our models appear to be logically sound and empirically relevant and useful for criminal justice system planning. However, more work on defining some of the parameters and interactional determinants of the transitional probabilities and scale factors is suggested in order to allow the criminal justice system model to have more predictive value. Also, as data become available, the correctional portion of the criminal justice system should be analyzed and be made an integral part of the model.

Yet, this type of analysis is very costly. It is extremely expensive to collect and organize data of the detailed level of aggregation necessary to perform the analysis. As the results showed, the aggregation of crime types into "index" and "non-index" crimes, or "all" crimes, reveals very little. Detailed analysis is important.

The data, part of Virginia's criminal justice data base, was collected under funding from the Law Enforcement Assistance Administration, and Virginia's Division of Justice and Crime Prevention. It was the first such data to be collected under the terms of the Omnibus Crime Control and Safe Streets Act of 1968; and in being a first, there are many problems to be found with it. There were, in our analysis, several instances of highly questionable clearance rates and case loads, and the cost figures by crime type were, at best, only based on best estimates by the local officials surveyed.

Certainly, empirical analysis in the real world is only as good as the data used. If society is interested in coming to terms with its

crime problems, it would appear that reliable, consistent data are a must. As more efficient data reporting procedures and reporting networks are established, perhaps the high cost of data collection and assembly could be expected to fall.

This dissertation is an attempt to investigate an area about which little is known, and in which little empirical work has been done. Perhaps we know more now than when we began; or, perhaps we have only raised more questions.

BIBLIOGRAPHY

Books

Dixon, Wilfred J., and Massey, Frank J., Jr. Introduction to Statistical Analysis. 2nd ed. New York: McGraw-Hill, 1957.

Gardner, John A. Traffic and the Police: Variations in Law Enforcement Policy. Cambridge, Mass.: Harvard University Press, 1969.

Johnston, J. Econometric Methods. New York: McGraw-Hill, 1963.

McIntyre, Donald M. Law Enforcement in the Metropolis. Chicago: American Bar Foundation, 1967.

Tullock, Gordon. The Logic of Law. New York: Basic Books, Inc., forthcoming 1971.

Wilson, James Q. Varieties of Police Behavior. Cambridge, Mass.: Harvard University Press, 1968.

Yamane, Taro. Statistics: An Introductory Analysis. New York: Harper and Row, 1964.

Articles

Becker, Gary S. "Crime and Punishment: An Economic Approach." Journal of Political Economy 76 (March/April, 1968): 169-217.

Blumstein, A., Christensen, R., Johnson, S., and Larson, R. "Analysis of Crime and the Overall Criminal Justice System." Task Force Report: Science and Technology, President's Commission on Crime and Administration of Justice. Washington, D. C.: Government Printing Office, 1967.

Blumstein, Alfred, and Larson, Richard. "Models of a Total Criminal Justice System." Operations Research 17 (March-April, 1969): 199-232.

Hazard, Geoffrey C. "The Sequence of Criminal Prosecution." Proceedings of the National Symposium on Science and Criminal Justice. Washington, D. C.: Government Printing Office, 1967.

Katzman, Martin T. "The Economics of Defense Against Crime in the Streets." Land Economics 44 (November, 1968): 431-40.

Roy, Robert H. "An Outline for Research in Penology." Operations Research 12 (January-February, 1964): 1-12.

Stigler, George. "The Optimum Enforcement of the Laws." Journal of Political Economy 78 (May/June, 1970): 526-36.

Papers and Dissertations

Cobb, William E. "The Economics of Crime: A Case Study of Norfolk." Paper presented at the meeting of the Southern Economic Association, Atlanta, Georgia, November, 1970.

Erlich, Isaac. "The Effect of Deterrence on Crime." Paper presented at the meeting of the Southern Economic Association, Atlanta, Georgia, November, 1970.

Giertz, J. Fred. "An Economic Approach to the Allocation of Police Resources." Unpublished Ph.D. dissertation, Northwestern University, 1970.

Larson, Richard. "Models for the Allocation of Urban Police Patrol Forces." Technical Report Number 44, Operations Research Center, Massachusetts Institute of Technology, November, 1969.

Ostrom, Elinor; Parks, Roger B.; and Whitaker, Gordon P. "The Effects of Size and Community Control on the Provision of Police Services: A Comparative Study of Three Independent Communities and Three Matched City Neighborhoods Within One Metropolitan Area." Paper presented at the meeting of the Public Choice Society, Blacksburg, Virginia, April, 1971.

Schotta, Charles. "Some Economic Aspects of Criminal Activity." Paper presented at the meeting of the Western Economic Association, August, 1969.

Miscellaneous

Commercial Atlas and Marketing Guide. New York: Rand McNalley, 1970.

"Covered Employment and Wages." Quarterly Reports for 1968 and 1969, Virginia Employment Commission, Manpower Research Division, Richmond, Virginia.

U. S. Department of Commerce. 1970 Census of Population: Final Population Counts Advance Report. Washington, D. C.: Government Printing Office, December 1970.

Police Functions in Virginia: Report of the Virginia Commission to Study Coordination of Police Functions in Virginia to the Governor and General Assembly of Virginia. Richmond: Division of Purchase and Printing, 1950.

"Sales Management: Survey of Buying Power." June 10, 1969.

"Sales Management: Survey of Buying Power." June 10, 1970.

Task Force Report: Science and Technology, President's Commission on Crime and Administration of Justice. Washington, D. C.: Government Printing Office, 1967.

Report of the Secretary of the Commonwealth to the Governor and General Assembly of Virginia, 1968-1969. Richmond, Virginia, 1969.

Virginia Codes.

"Virginia Council on Criminal Justice State Comprehensive Plan, Fiscal 1970." Division of Crime Prevention and Criminal Justice, Richmond, Virginia.

APPENDIX 1

COURTS OF RECORD IN VIRGINIA

Courts of Record in Virginia[1]

Circuit Courts

1st Circuit

Chesapeake City

2nd Circuit

Isle of Wight
Nansemond
Southampton
Suffolk City

3rd Circuit

Brunswick
Greensville
Prince George
Surrey
Sussex
Hopewell City

4th Circuit

Amelia
Dinwiddie
Nottoway
Powhatan
Petersburg City (no criminal jurisdiction)

5th Circuit

Appomattox
Buckingham
Charlotte
Cumberland
Prince Edward

6th Circuit

Bedford
Campbell
Lynchburg City (no criminal jurisdiction)

---

[1]Supreme Court of Appeals, Richmond, Virginia.

7th Circuit

Henry
Patrick

8th Circuit

Albemarle
Fluvanna
Greene
Madison

9th Circuit

Culpepper
Goochland
Louisa
Orange

10th Circuit

Henrico
Richmond City (no criminal jurisdiction for misdemeanors)

11th Circuit

Hampton City

12th Circuit

Essex
Lancaster
Northumberland
Richmond
Westmoreland

13th Circuit

Gloucester
King and Queen
King William
Mathews
Middlesex

14th Circuit

Charles City County
New Kent
York
Williamsburg and
James City County

15th Circuit

Caroline
Hanover

16th Circuit

Fairfax
Prince William
Alexandria City (no criminal jurisdiction)

17th Circuit

Clarke
Frederick
Shenandoah
Warren

18th Circuit

Augusta
Highland
Rockbridge
Buena Vista City
Staunton City

19th Circuit

Alleghany
Bath
Botetourt
Craig
Clifton Forge City

20th Circuit

Roanoke
Roanoke City (no criminal jurisdiction)
Salem City

21st Circuit

Carroll
Grayson
Pulaski
Wythe

7th Circuit

Henry
Patrick

8th Circuit

Albemarle
Fluvanna
Greene
Madison

9th Circuit

Culpepper
Goochland
Louisa
Orange

10th Circuit

Henrico
Richmond City (no criminal jurisdiction for misdemeanors)

11th Circuit

Hampton City

12th Circuit

Essex
Lancaster
Northumberland
Richmond
Westmoreland

13th Circuit

Gloucester
King and Queen
King William
Mathews
Middlesex

14th Circuit

Charles City County
New Kent
York
Williamsburg and
James City County

15th Circuit

Caroline
Hanover

16th Circuit

Fairfax
Prince William
Alexandria City (no criminal jurisdiction)

17th Circuit

Clarke
Frederick
Shenandoah
Warren

18th Circuit

Augusta
Highland
Rockbridge
Buena Vista City
Staunton City

19th Circuit

Alleghany
Bath
Botetourt
Craig
Clifton Forge City

20th Circuit

Roanoke
Roanoke City (no criminal jurisdiction)
Salem City

21st Circuit

Carroll
Grayson
Pulaski
Wythe

22nd Circuit

Bland
Giles
Tazewell

23rd Circuit

Smyth
Washington
Bristol City (no criminal jurisdiction)

24th Circuit

Lee
Scott

25th Circuit

Page
Rockingham

26th Circuit

Fauquier
Loudoun
Rappahannock

27th Circuit

Buchanan
Dickenson
Russell

28th Circuit

Virginia Beach City

29th Circuit

Amherst
Nelson
Waynesboro City

30th Circuit

Franklin
Pittsylvania

31st Circuit

Accomack
Northampton

32nd Circuit

Norfolk City (no criminal jurisdiction)

33rd Circuit

Wise

34th Circuit

Halifax
Lunenburg
Mecklenburg

35th Circuit

Arlington

36th Circuit

Floyd
Montgomery
Radford City

37th Circuit

Chesterfield
Colonial Heights City

38th Circuit

Portsmouth City (no criminal jurisdiction)

39th Circuit

King George
Spotsylvania
Stafford
Fredericksburg City

40th Circuit

Newport News City

City Courts

Alexandria Corporation
Bristol Corporation
Charlottesville Corporation
Chesapeake Corporation (no criminal jurisdiction)
Danville Corporation
Hampton Law and Chancery
Lynchburg Corporation
Martinsville Corporation
Newport News Corporation
Newport News Hustings
Norfolk Corporation (no jurisdiction on equity cases)
Norfolk Corporation Part II (no civil jurisdiction)
Norfolk Law and Chancery (no criminal jurisdiction)
Petersburg Hustings
Portsmouth Hustings
Richmond Chancery (no criminal jurisdiction)
Richmond Hustings (no jurisdiction in equity cases)
Richmond Hustings Part II
Richmond Law and Equity (no criminal jurisdiction)
Roanoke Hustings
Roanoke Law and Chancery (no criminal jurisdiction)

APPENDIX 2

REGIONAL JUVENILE AND DOMESTIC RELATIONS

COURTS IN VIRGINIA

Regional Juvenile and Domestic Relations Courts in Virginia[1]

1st Region

King George County
Spotsylvania County
Stafford County
Fredericksburg City

2nd Region

Halifax County
Mecklenburg County
Pittsylvania County
South Boston City

3rd Region

Floyd County
Montgomery County
Radford City

4th Region

Augusta County
Staunton City
Waynesboro City

5th Region

Amherst County
Campbell County
Charlotte County
Nelson County

6th Region

Henry County
Patrick County
Martinsville City

7th Region

Frederick County
Winchester City

8th Region

Madison County
Green County
Albemarle County
Fluvanna County
Charlottesville City

9th Region

Rockingham County
Harrisonburg City

---

[1]Crime Prevention Systems Corporation, Charlottesville, Virginia.

APPENDIX 3

COUNTIES, CITIES AND TOWNS IN VIRGINIA

BY PLANNING DISTRICT

Counties, Cities and Towns in Virginia by Planning District[1]

District 1

Lee County

- Town of Jonesville
- Town of Pennington Gap
- Town of St. Charles

Scott County

- Town of Clinchport
- Town of Duffield
- Town of Dungannon
- Town of Gate City
- Town of Nickelsville
- Town of Weber City

Wise County

- Town of Appalachia
- Town of Big Stone Gap
- Town of Coeburn
- Town of Pound
- Town of St. Paul
- Town of Wise

City of Norton

District 2

Buchanan County

- Town of Grundy
  - Harmon Maxie (u)

Dickenson County

- Town of Clintwood
- Town of Haysi

Russell County

- Town of Cleveland
- Town of Honaker
- Town of Lebanon
  - Dante (u)

Tazewell County

- Town of Bluefield
- Town of Cedar Bluff
- Town of North Tazewell
- Town of Pocahontas
- Town of Tazewell
- Town of Richlands

District 3

Bland County

Carroll County

- Town of Hillsville

Grayson County

- Town of Fries
- Town of Independence
- Town of Troutdale

Smyth County

- Town of Chilhowie
- Town of Marion
- *Town of Saltville (pt)

Washington County

- Town of Abingdon
- Town of Damascus
- Town of Glade Spring
- *Town of Saltville (pt)

---

[1]Division of Justice and Crime Prevention, Richmond, Virginia.

District 3--Continued

Wythe County

- Town of Rural Retreat
- Town of Wytheville

City of Bristol

City of Galax

District 4

Floyd County

- Town of Floyd

Giles County

- Town of Glen Lyn
- Town of Narrows
- Town of Pearisburg
- Town of Pembroke
- Town of Rich Creek

Montgomery County

- Town of Blacksburg
- Town of Cambria
- Town of Christiansburg

Pulaski County

- Town of Dublin
- Town of Draper
- Town of Pulaski
  - Fairlawn (u)
  - North Pulaski (u)

City of Radford

District 5

Alleghany County

- Town of Iron Gate

Botetourt County

- Town of Buchanan
- Town of Fincastle
- Town of Troutville

Craig County

Roanoke County

- Town of Vinton

City of Clifton Forge

City of Covington

City of Roanoke

City of Salem

District 6

Augusta County

- Town of Craigsville
- *Town of Grottoes (pt)

Bath County

Highland County

- Town of McDowell
- Town of Monterey

Rockbridge County

- Town of Glasgow
- Town of Goshen

Rockingham County

- Town of Bridgewater
- Town of Broadway
- Town of Dayton
- Town of Elkton
- *Town of Grottoes (pt)
- Town of Mount Crawford
- Town of Singers Glen
- Town of Timberville

District 6--Continued

City of Buena Vista

City of Harrisonburg

City of Lexington

City of Staunton

City of Waynesboro

District 7

Clarke County

Town of Berryville
Town of Boyce

Frederick County

Town of Middletown
Town of Stephens City

Page County

Town of Luray
Town of Shenandoah
Town of Stanley

Shenandoah County

Town of Edinburg
Town of Mount Jackson
Town of New Market
Town of Strasburg
Town of Toms Brook
Town of Woodstock

Warren County

Town of Front Royal

City of Winchester

District 8

Arlington County

Fairfax County

Town of Clifton
Town of Herndon
Town of Vienna

Springfield (u)

Loudoun County

Town of Hamilton
Town of Hillsboro
Town of Leesburg
Town of Lovettsville
Town of Middleburg
Town of Purcellville
Town of Round Hill

Prince William County

Dumfries (u)
Triangle (u)

Town of Haymarket
Town of Manassas
Town of Manassas Park
Town of Occoquan
Town of Quantico

City of Alexandria

City of Fairfax

City of Falls Church

District 9

Culpepper County

Town of Culpepper

Fauquier County

Town of Remington
Town of The Plains
Town of Warrenton

District 9--Continued

Madison County

Town of Madison

Orange County

Town of Gordonsville
Town of Orange

Rappahannock County

Town of Washington

District 10

Albemarle County

*Town of Scottsville (pt)

Fluvanna County

Town of Columbia
*Town of Scottsville (pt)

Greene County

Town of Stanardsville

Louisa County

Town of Louisa
Town of Mineral

Nelson County

City of Charlottesville

District 11

Amherst County

Town of Amherst

Appomattox County

Town of Appomattox
*Town of Pamplin City (pt)

Bedford County

Campbell County

Town of Altavista
Town of Brookneal

City of Lynchburg

City of Bedford

District 12

Franklin County

Town of Boones Mill
Town of Rocky Mount

Henry County

Bassetts (u)
Collinsville (u)
Fieldale (u)

Town of Ridgeway

Patrick County

Town of Stuart

Pittsylvania County

Town of Chatham
Town of Gretna
Town of Hurt

Glenwood (u)

City of Danville

City of Martinsville

District 13

Brunswick County

Town of Alberta
*Town of Brodnax (pt)
Town of Lawrenceville

District 13--Continued

Halifax County

Town of Clover
Town of Halifax
Town of Scottsburg
Town of Virgilina

Mecklenburg County

Town of Boydton
*Town of Brodnax (pt)
Town of Chase City
Town of Clarksville
Town of La Crosse
Town of South Hill

City of South Boston

District 14

Amelia County

Buckingham County

Town of Buckingham
Town of Dillwyn

Charlotte County

Town of Charlotte Courthouse
Town of Drakes Branch
Town of Keysville
Town of Phenix

Cumberland County

Lunenburg County

Town of Kenbridge
Town of Victoria

Nottoway County

Town of Blackstone
Town of Burkeville
Town of Crewe

Prince Edward County

Town of Farmville
*Town of Pamplin City (pt)

District 15

Charles City County

Chesterfield County

Chester (u)
Ettrick (u)

Goochland County

Hanover County

Town of Ashland

Henrico County

Lewis Gardens (u)

New Kent County

Powhatan County

City of Richmond

District 16

Caroline County

Town of Bowling Green
Town of Port Royal

King George County

Spotsylvania County

Stafford County

Falmouth (u)

City of Fredericksburg

District 17

Lancaster County

Town of Irvington
*Town of Kilmarnock (pt)
Town of White Stone

Northumberland County

*Town of Kilmarnock (pt)

Richmond County

Town of Warsaw

Westmoreland County

Town of Colonial Beach
Town of Montross

District 18

Essex County

Town of Tappahannock

Gloucester County

King and Queen County

King William

Town of Westpoint

Mathews County

Middlesex County

Town of Urbanna

District 19

Dinwiddie County

Town of McKenney

Greensville County

*Town of Jarratt (pt)

Prince George County

Surrey County

Town of Claremont
Town of Dendron
Town of Surrey

Sussex County

*Town of Jarratt (pt)
Town of Stony Creek
Town of Wakefield
Town of Waverly

City of Colonial Heights

City of Emporia

City of Hopewell

City of Petersburg

District 20

Nansemond County

Jericho (u)
Lloyd Place (u)
Pleasant Hill (u)
Saratoga Place (u)

Town of Holland
Town of Whaleyville

Isle of Wight County

Town of Smithfield
Town of Windsor

Southampton County

Town of Boykins
Town of Branchville
Town of Capron
Town of Courtland
Town of Ivor
Town of Newsoms

City of Chesapeake

District 20--Continued

City of Franklin

City of Norfolk

City of Portsmouth

City of Suffolk

City of Virginia Beach

District 21

James City County

York County

Town of Poquoson
Town of Yorktown

City of Hampton

City of Newport News

City of Williamsburg

District 22

Accomack County

Town of Accomac
Town of Belle Haven
Town of Bloxom
Town of Chincoteague
Town of Hallwood
Town of Keller
Town of Melfa
Town of Olney
Town of Onancock
Town of Painter
Town of Parksley
Town of Saxis
Town of Tangier
Town of Wachapreague

Northampton County

Town of Cape Charles
Town of Cheriton
Town of Eastville
Town of Exmore
Town of Nassawadox

APPENDIX 4

REFERENCE DATA

TABLE 92

TOWN POLICE COVERAGE BY COUNTY

County	Towns Having a Police Chief[1]	Percent of 1970 County Population[2]
Accomack	Chincoteague	6.4
Caroline	None	
Carroll	Hillsville	5.0
Craig	None	
Dinwiddie	None	
Fauquier	The Plains	1.6
	Warrenton	15.3
Franklin	Rocky Mount	14.9
Henry	None	
Nelson	None	
Surrey	None	

[1]Report of the Secretary of the Commonwealth to the Governor and General Assembly of Virginia, 1968-1969, Richmond, Virginia, 1969.

[2]Calculated from: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population, Final Population Counts, Advance Report (Washington, D. C.: Government Printing Office, December, 1970).

TABLE 93

1969 JAIL EXPENDITURES AS A PERCENTAGE OF TOTAL BUDGET FOR SHERIFFS AGENCIES[1]

County	Percent
1. Accomack	0.2369
2. Dinwiddie	0.0970
3. Caroline[2]	------
4. Carroll	0.0967
5. Craig	0.3525
6. Fauquier	0.2495
7. Franklin	0.2944
8. Henry	0.2618
9. Nelson	0.2111
10. Surrey[2]	------

[1]Data obtained from the Commonwealth of Virginia, Division of Justice and Crime Prevention, Richmond, Virginia.

[2]Did not maintain jail facilities in 1969.

TABLE 94

LAW ENFORCEMENT AGENCY MANPOWER
FOR 1968 AND 1969[1]

Region	Manpower[2] 1968	Manpower[3] 1969
Accomack	7	8
Caroline	6	9
Carroll	8	8
Craig	2	3
Dinwiddie	7	8
Fauquier	15	17
Franklin	9	10
Henry	15	22
Nelson	4	4
Surrey	3	7
Charlottesville	70	67
Danville	116	116
Fredericksburg	32	32
Lynchburg	106	117
Petersburg	65	74
Radford	19	19
Salem	25	27
Staunton	48	57
Suffolk	30	31
Virginia Beach	199	223

[1]Figures include all full time employees of the agencies other than janitors and those assigned to the operation of the jail (in the case of sheriff's departments).

[2]Data obtained via telephone conversations with the individual law enforcement agencies and personnel departments.

[3]Data obtained from the Division of Justice and Crime Prevention, Richmond, Virginia.

TABLE 95

LAND AREA, ESTIMATED POPULATION, ESTIMATED
POPULATION DENSITY, AND AVERAGE FAMILY
BUYING INCOME: 1968

Region	Land Area[1] (Sq. Miles)	Population[2]	Population Density[3]	Avg. Family Buying Income[4]
Accomack	602.0	29,348	48.7	$ 5,756
Caroline	549.0	13,679	24.9	7,184
Carroll	496.0	23,104	46.6	6,410
Craig	336.0	3,490	10.4	5,863
Dinwiddie	506.4	24,468	48.3	8,143
Fauquier	660.0	25,919	39.3	7,788
Franklin	721.0	26,651	37.0	6,835
Henry	394.0	48,789	123.0	8,639
Nelson	471.0	11,910	25.3	5,898
Surrey	306.0	5,953	19.5	4,986
Charlottesville	10.4	36,990	3,556.7	9,034
Danville	16.0	45,180	2,823.7	8,176
Fredericksburg	6.0	14,280	2,380.0	9,535
Lynchburg	25.0	54,220	2,168.8	9,408
Petersburg	8.0	36,221	4,527.6	7,588
Radford	5.0	11,151	2,230.2	9,148
Salem	8.0	20,795	2,599.4	10,080
Staunton	9.0	24,055	2,672.8	10,343
Suffolk	2.0	10,415	5,027.5	7,975
Virginia Beach	259,0	139,327	537.9	$ 9,834

[1]Land area for the counties was obtained from Report of the Secretary of the Commonwealth to the Governor and General Assembly of Virginia, 1968-1969, Richmond, Virginia, 1969. Land area for the cities (except Charlottesville) was obtained from the Commercial Atlas and Marketing Guide (New York: Rand McNally, 1970). The land area for Charlottesville was obtained via a telephone conversation with the Department of City Planning.

[2]Estimated by using: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population, Final Population Counts, Advance Report, (Washington, D. C.: Government Printing Office, December, 1970). The 1970-1960 percent change in population was calculated per year, and these rates were used to make the estimate.

[3]Based on the land area and estimated population figures above.

[4]"Sales Management: Survey of Buying Power," June 10, 1969. Figures for Carroll county include the city of Galax; figures for Dinwiddie county include the city of Petersburg; figures for Henry county include the city of Martinsville; and figures for the city of Radford include Montgomery county.

TABLE 96

LAND AREA, ESTIMATED POPULATION, ESTIMATED POPULATION DENSITY, AND AVERAGE FAMILY BUYING INCOME: 1969

Region	Land Area[1] (Sq. Miles)	Population[2]	Population Density[3]	Avg. Family Buying Income[4]
Accomack	602.0	29,174	48.5	$ 6,355
Caroline	549.0	13,794	25.1	7,516
Carroll	496.0	23,090	46.6	6,788
Craig	336.0	3,507	10.4	6,086
Dinwiddie	506.4	24,756	48.9	10,062
Fauquier	660.0	26,136	39.6	7,981
Franklin	721.0	26,755	37.1	7,301
Henry	394.0	49,854	126.5	8,644
Nelson	471.0	11,808	25.1	6,454
Surrey	306.0	5,915	19.3	5,421
Charlottesville	10.4	37,931	3,647.2	10,254
Danville	16.0	44,901	2,806.3	8,705
Fredericksburg	6.0	14,362	2,393.7	9,743
Lynchburg	25.0	54,149	2,166.0	10,189
Petersburg	8.0	36,155	4,519.4	8,398
Radford	5.0	11,370	2,274.0	9,631
Salem	8.0	21,389	2,673.6	10,793
Staunton	9.0	24,277	2,697.4	11,059
Suffolk	2.0	10,138	5,069.0	8,571
Virginia Beach	259.0	155,670	601.0	10,412

[1]Land area for the counties was obtained from: Report of the Secretary of the Commonwealth to the Governor and General Assembly of Virginia, 1968-1969, Richmond, Virginia, 1969. Land area for the cities (except Charlottesville) was obtained from the Commercial Atlas and Marketing Guide (New York: Rand McNally, 1970). The land area for Charlottesville was obtained via a telephone conversation with the Department of City Planning.

[2]Estimated by using: U.S. Department of Commerce, Bureau of the Census, 1970 Census of Population, Final Population Counts, Advance Report (Washington, D. C.: Government Printing Office, December, 1970). The 1970-1960 percent change in population was calculated per year, and these rates were used to make the estimates.

[3]Based on the land area and estimated population figures above.

[4]"Sales Management: Survey of Buying Power," June 10, 1970. Figures for Carroll county include the city of Galax; figures for the city of Radford include Montgomery county.

TABLE 97

INDICES OF AVERAGE ANNUAL WAGE PER WORKER: 1968 AND 1969[1]

Region	Avg. Annual Wage Per Worker, 1968	Avg. Annual Wage Per Worker, 1969
Commonwealth of Virginia	1.00	1.00
Accomack	0.71	0.69
Caroline	0.78	0.75
Carroll	0.72	0.73
Craig	0.66	0.62
Dinwiddie	0.68	0.68
Fauquier	0.89	0.87
Franklin	0.84	0.87
Henry	1.10	1.06
Nelson	0.94	0.97
Surrey	1.32	1.78
Charlottesville	0.86	0.84
Danville	0.84	0.83
Fredericksburg	0.86	0.85
Lynchburg	1.03	1.02
Petersburg	0.89	0.89
Radford	1.04	0.97
Salem	1.10	1.10
Staunton	0.88	0.98
Suffolk	0.81	0.80
Virginia Beach	0.78	0.78

[1]These indices were calculated by use of "Covered Employment and Wages," Quarterly Reports for 1968 and 1969, Virginia Employment Commission, Manpower Research Division, Richmond, Virginia. Quarterly data for average weekly wage per worker were averaged to obtain average annual wages per worker for each of the test regions and for the Commonwealth as a whole. The indices were then constructed by calculating the ratio of the region to the Commonwealth.

APPENDIX 5

ADDITIONAL TESTS OF MANPOWER-CLEARANCE

RATE RELATIONSHIP

TABLE 98

CLEARANCE RATE AS AN EXPONENTIAL FUNCTION OF MANPOWER: 1968 AND 1969

Form of the Equation: $PA_{i,n} = a_{11,i} L_n^{b_{11,i}}$

Crime Type	$a_{11,i}$	$b_{11,i}$ (S.E.)	R^2
Law Enforcement Agencies: 1968			
Index	-0.3198	-0.2361 (0.1238)	0.1680
Non-Index	-0.2034	0.0239 (0.0369)	0.0229
All	-0.1588	-0.0574 (0.0438)	0.0870
Sheriff Agencies: 1968			
Index	-1.0228	0.1850 (0.2558)	0.0613
Non-Index	0.0464	-0.1308 (0.1396)	0.0988
All	-0.0804	-0.1018 (0.1331)	0.0682
Police Agencies: 1968			
Index	-0.4644	-0.2195 (0.3832)	0.0394
Non-Index	-0.0010	-0.0174 (0.0399)	0.0231
All	-0.2166	-0.0419 (0.1166)	0.0159
Law Enforcement Agencies: 1969			
Index	-0.2053	-0.2848[a] (0.1006)	0.3082[a]
Non-Index	-0.2725	0.0452 (0.0387)	0.0703
All	-0.2143	-0.0500 (0.0442)	0.0650
Sheriff Agencies: 1969			
Index	-0.9521	0.1019 (0.2611)	0.0187
Non-Index	-0.0317	-0.0871 (0.1547)	0.0382
All	-0.3061	-0.0115 (0.1436)	0.0008
Police Agencies: 1969			
Index	-0.3820	-0.2583 (0.2528)	0.1159
Non-Index	0.0178	-0.0168 (.)	0.0318
All	0.3779	-0.1095 (0.0994)	0.1318

[a]Significant at the 0.05 level.

TABLE 99

RANK CORRELATION OF CLEARANCE RATES AND MANPOWER FOR ALL LAW ENFORCEMENT AGENCIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	-0.0134	-0.0137
2. Rape	0.0242	0.0600
3. Robbery	0.1041	0.1725
4. Agg. Assault	-0.0805	-0.0603
5. Auto Theft	-0.2379	-0.2876
6. Burglary	-0.1341	-0.2221
7. Larceny	-0.1333	-0.1977
8. Narcotics Law	0.1410	0.1786
9. Liquor Law	0.1220	0.1453
10. Prostitution	0.3528[a]	0.4439[a]
11. Gambling	0.5532[a]	0.6484[a]
12. Sex Offenses	0.1907	0.2281
13. Family&Cldn	0.3275[a]	0.3952[a]
14. Drunkeness	0.0806	0.1030
15. Disord&Vag	-0.0197	-0.1461
16. D. W. I.	-0.0496	-0.0545
17. Other Ntraf	0.0439	0.0626
Index	-0.2080	-0.3073
Non-Index	0.0059	-0.0312
All	-0.1702	-0.2794

[a]Significant at the 0.05 level.

TABLE 100

RANK CORRELATION OF CLEARANCE RATES AND MANPOWER FOR ALL LAW ENFORCEMENT AGENCIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.3288[a]	0.4025[a]
2. Rape	0.1796	0.2753
3. Robbery	0.0169	0.0827
4. Agg. Assault	-0.0714	-0.0925
5. Auto Theft	-0.3406[a]	-0.4443[a]
6. Burglary	-0.2850[a]	-0.4036[a]
7. Larceny	-0.2306	-0.3063
8. Narcotics Law	0.4171[a]	0.5324[a]
9. Liquor Law	0.1989	0.2585
10. Prostitution	0.3584[a]	0.4256[a]
11. Gambling	0.6082[a]	0.7607[a]
12. Sex Offenses	0.4376[a]	0.5414[a]
13. Family&Cldn	0.2356	0.2904
14. Drunkeness	0.1176	0.1198
15. Disord&Vag	-0.1036	-0.1396
16. D. W. I.	0.1398	0.1810
17. Other Ntraf	0.1586	0.1999
Index	-0.3422[a]	-0.4855
Non-Index	0.1007	0.1319
All	-0.0963	-0.1252

[a]Significant at the 0.05 level.

TABLE 101

RANK CORRELATION OF CLEARANCE RATES AND MANPOWER
FOR SHERIFF AGENCIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.4134[a]	0.5125
2. Rape	0.4047[a]	0.4648
3. Robbery	0.1887	0.2507
4. Agg. Assault	-0.2226	-0.2304
5. Auto Theft	0.0471	0.0494
6. Burglary	0.1839	0.2599
7. Larceny	0.2759	0.3517
8. Narcotics Law	0.4047[a]	0.4648
9. Liquor Law	0.0000	-0.0150
10. Prostitution	-0.1525	-0.1714
11. Gambling	0.4438[a]	0.5526[a]
12. Sex Offenses	-0.0990	-0.1294
13. Family&Cldn	-0.2157	-0.2309
14. Drunkeness	0.3898	-0.5015
15. Disord&Vag	-0.3341	-0.4809
16. D. W. I.	-0.2219	-0.2393
17. Other Ntraf	-0.3867	-0.4683
Index	0.1628	0.2331
Non-Index	-0.1221	-0.2045
All	-0.2501	-0.3537

[a]Significant at the 0.05 level.

TABLE 102

RANK CORRELATION OF CLEARANCE RATES AND MANPOWER
FOR SHERIFF AGENCIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.4364[a]	0.4978
2. Rape	0.6929[a]	0.7914[a]
3. Robbery	0.3492	0.5432[a]
4. Agg. Assault	-0.1752	-0.2350
5. Auto Theft	-0.1235	-0.2076
6. Burglary	-0.0235	0.0000
7. Larceny	0.0714	0.1925
8. Narcotics Law	0.5669[a]	0.6475[a]
9. Liquor Law	0.3152	0.4094
10. Prostitution	1.0000[a]	1.0000[a]
11. Gambling	0.4629[a]	0.5287
12. Sex Offenses	0.2315	0.2758
13. Family&Cldn	0.1286	0.1411
14. Drunkeness	-0.1972	-0.2903
15. Disord&Vag	-0.2535	-0.3180
16. D. W. I.	0.0630	0.0679
17. Other Ntraf	-0.4226[a]	-0.5115
Index	0.0920	0.1411
Non-Index	-0.1565	-0.2160
All	0.0000	0.0307

[a]Significant at the 0.05 level.

TABLE 103

RANK CORRELATION OF CLEARANCE RATES AND MANPOWER
FOR POLICE AGENCIES: 1968

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.1023	0.1297
2. Rape	0.1630	0.2884
3. Robbery	0.3300	0.4692
4. Agg. Assault	0.2148	0.3439
5. Auto Theft	0.1137	0.1037
6. Burglary	0.2697	0.2310
7. Larceny	0.0449	-0.0243
8. Narcotics Law	0.0277	0.0335
9. Liquor Law	-0.4472[a]	-0.5232
10. Prostitution	0.4877[a]	0.6381[a]
11. Gambling	0.7454[a]	0.8704[a]
12. Sex Offenses	-0.4700[a]	-0.5449[a]
13. Family&Cldn	0.4472[a]	0.5222
14. Drunkeness	0.0362	0.0778
15. Disord&Vag	-0.1089	-0.1707
16. D. W. I.	-0.4472[a]	-0.5222
17. Other Ntraf	0.0000	0.0683
Index	0.0667	-0.0182
Non-Index	-0.1260	-0.1487
All	0.1798	0.1702

[a]Significant at the 0.05 level.

TABLE 104

RANK CORRELATION OF CLEARANCE RATES AND MANPOWER
FOR POLICE AGENCIES: 1969

Crime Type	Kendall Correlation Coefficient	Spearman Correlation Coefficient
1. Murder	0.4041[a]	0.4869
2. Rape	0.1935	0.2948
3. Robbery	-0.0899	-0.2675
4. Agg. Assault	0.1534	0.1816
5. Auto Theft	0.0449	0.0608
6. Burglary	0.0899	0.0790
7. Larceny	-0.1556	-0.1758
8. Narcotics Law	0.0933	0.1423
9. Liquor Law	0.1554	0.2247
10. Prostitution	0.1627	0.1899
11. Gambling	0.4706[a]	0.6298[a]
12. Sex Offenses	-0.4472[a]	-0.5222
13. Family&Cldn	-0.3977	-0.4930
14. Drunkeness	0.0362	0.0778
15. Disord&Vag	-0.3651	-0.4698
16. D. W. I.	-0.4472[a]	-0.5222
17. Other Ntraf	0.1491	0.1741
Index	-0.0899	-0.1277
Non-Index	-0.1633	-0.2595
All	-0.0460	-0.0675

[a]Significant at the 0.05 level.

APPENDIX 6

CLEARANCE RATE AND ADJUSTED AVERAGE COST

PER TRUE COMPLAINT DATA FOR LAW

ENFORCEMENT AGENCIES

BY COUNTY AND CITY

TABLE 105

CLEARANCE RATE FOR SHERIFF AGENCIES BY COUNTY: 1968[a]

Crime Type	1	2	3	4	5
1. Murder	1.00	1.00	1.00	----	1.00
2. Rape	1.00	1.00	1.00	----	1.00
3. Robbery	1.00	1.00	----	----	1.00
4. Agg. Assault	1.00	1.00	0.88	----	0.65
5. Auto Theft	1.00	0.29	0.47	----	0.50
6. Burglary	0.51	0.24	0.33	0.50	0.50
7. Larceny	0.53	0.38	0.52	0.50	0.50
8. Narcotics Law	0.00	1.00	1.00	0.00	----
9. Liquor Law	----	1.00	1.00	1.00	0.22
10. Prostitution	----	1.00	----	----	----
11. Gambling	----	----	----	----	----
12. Sex Offenses	1.00	----	1.00	1.00	0.30
13. Family&Cldn	1.00	1.00	0.05	1.00	----
14. Drunkeness	1.00	1.00	0.33	1.00	0.40
15. Disord&Vag	1.00	1.00	0.80	1.00	0.55
16. D. W. I.	1.00	1.00	1.00	1.00	0.96
17. Other Ntraf	1.00	1.00	0.50	1.00	0.67
Index	0.64	0.46	0.46	0.50	0.56
Non-Index	1.00	1.00	0.49	1.00	0.59
All	0.88	0.84	0.49	0.95	0.58

Crime Type	6	7	8	9	10
1. Murder	1.00	0.88	1.00	1.00	----
2. Rape	----	1.00	1.00	----	----
3. Robbery	0.89	0.00	0.63	----	----
4. Agg. Assault	0.84	0.38	0.84	1.00	1.00
5. Auto Theft	0.88	0.42	0.81	1.00	1.00
6. Burglary	0.82	0.15	0.60	1.00	0.05
7. Larceny	0.73	0.20	0.55	1.00	----
8. Narcotics Law	1.00	1.00	0.00	----	0.00
9. Liquor Law	1.00	1.00	0.50	----	1.00
10. Prostitution	----	0.00	----	----	----
11. Gambling	----	1.00	0.08	----	----
12. Sex Offenses	0.50	0.70	0.61	----	1.00
13. Family&Cldn	----	0.50	1.00	1.00	----
14. Drunkeness	1.00	0.95	0.92	1.00	1.00
15. Disord&Vag	1.00	0.87	0.82	1.00	1.00
16. D. W. I.	1.00	0.34	1.00	1.00	1.00
17. Other Ntraf	1.00	0.46	0.63	1.00	0.93
Index	0.82	0.23	0.86	1.00	0.23
Non-Index	1.01	0.64	0.80	1.00	0.94
All	0.99	0.57	0.77	1.00	0.78

[a]For notes applicable to this table and all others in Appendix 6, see last page of Appendix.

TABLE 106

CLEARANCE RATE FOR SHERIFF AGENCIES BY COUNTY: 1969

Crime Type	1	2	3	4	5
1. Murder	1.00	0.75	----	----	1.00
2. Rape	1.00	1.00	----	----	1.00
3. Robbery	1.00	1.00	1.00	----	----
4. Agg. Assault	1.00	1.00	0.93	0.50	0.42
5. Auto Theft	1.00	0.17	0.50	1.00	0.50
6. Burglary	0.61	0.22	0.33	0.50	0.33
7. Larceny	0.64	0.30	0.50	0.50	0.49
8. Narcotics Law	1.00	1.00	----	----	----
9. Liquor Law	1.00	1.00	1.00	----	0.50
10. Prostitution	----	----	----	----	----
11. Gambling	----	----	----	----	----
12. Sex Offenses	1.00	----	----	----	0.15
13. Family&Cldn	1.00	1.00	0.96	1.00	0.10
14. Drunkeness	1.00	1.00	0.33	1.00	0.40
15. Disord&Vag	1.00	1.00	0.73	1.00	0.50
16. D. W. I.	1.00	1.00	1.00	1.00	0.49
17. Other Ntraf	1.00	1.00	0.66	1.00	0.76
Index	0.69	0.46	0.47	0.52	0.44
Non-Index	1.00	1.00	0.55	1.00	0.54
All	0.91	0.84	0.53	0.86	0.52

	6	7	8	9	10
1. Murder	1.00	0.88	1.00	----	1.00
2. Rape	1.00	1.00	1.00	----	----
3. Robbery	0.75	1.00	0.67	----	----
4. Agg. Assault	0.84	0.47	0.84	1.00	1.00
5. Auto Theft	0.50	0.33	0.80	----	1.00
6. Burglary	0.71	0.15	0.43	0.50	0.08
7. Larceny	0.90	0.13	0.56	0.50	0.15
8. Narcotics Law	1.00	----	1.00	----	----
9. Liquor Law	1.00	1.00	0.40	----	1.00
10. Prostitution	----	----	----	----	----
11. Gambling	----	----	0.08	----	----
12. Sex Offenses	1.00	0.11	0.40	1.00	----
13. Family&Cldn	----	0.50	1.00	----	0.00
14. Drunkeness	1.00	0.96	0.98	1.00	1.00
15. Disord&Vag	1.00	0.89	0.80	1.00	1.00
16. D. W. I.	1.00	0.35	1.00	1.00	----
17. Other Ntraf	1.00	0.34	0.61	1.00	1.00
Index	0.84	0.24	0.62	0.67	0.22
Non-Index	1.00	0.61	0.78	1.00	0.82
All	0.98	0.57	0.73	0.83	0.60

TABLE 107

CLEARANCE RATE FOR POLICE AGENCIES BY CITY: 1968[a]

Crime Type	11	12	13	14	15
1. Murder	1.00	1.00	0.50	0.75	1.00
2. Rape	0.60	0.67	1.00	0.50	0.60
3. Robbery	0.50	0.50	0.50	0.38	0.38
4. Agg. Assault	1.00	0.80	1.00	1.00	0.73
5. Auto Theft	0.32	0.55	0.32	0.34	0.16
6. Burglary	0.24	0.53	0.24	0.23	0.12
7. Larceny	0.22	0.82	0.18	0.30	0.16
8. Narcotics Law	0.00	----	1.00	1.00	1.00
9. Liquor Law	1.00	1.00	1.00	1.00	1.00
10. Prostitution	1.00	1.00	----	----	1.00
11. Gambling	1.00	1.00	----	1.00	1.00
12. Sex Offenses	0.85	1.00	1.00	1.00	1.00
13. Family&Cldn	1.00	1.00	1.00	1.00	1.00
14. Drunkeness	1.00	1.00	1.00	1.00	1.00
15. Disord&Vag	1.00	1.00	0.58	0.35	1.00
16. D. W. I.	1.00	1.00	1.00	1.00	1.00
17. Other Ntraf	1.00	0.94	0.81	1.00	1.00
Index	0.27	0.69	0.28	0.31	0.21
Non-Index	1.00	0.96	0.86	0.80	1.00
All	0.73	0.94	0.69	0.68	0.71

	16	17	18	19	20
1. Murder	1.00	----	----	1.00	0.83
2. Rape	----	----	1.00	0.50	0.30
3. Robbery	0.00	----	1.00	0.27	0.36
4. Agg. Assault	0.50	0.24	1.00	0.27	0.33
5. Auto Theft	0.22	0.21	1.00	0.21	0.04
6. Burglary	0.08	0.10	1.00	0.11	0.04
7. Larceny	0.44	0.12	1.00	0.18	0.04
8. Narcotics Law	----	1.00	0.00	----	0.29
9. Liquor Law	1.00	1.00	1.00	1.00	0.83
10. Prostitution	----	----	----	----	0.36
11. Gambling	----	----	----	----	1.00
12. Sex Offenses	1.00	1.00	1.00	1.00	0.31
13. Family&Cldn	0.56	1.00	1.00	1.00	1.00
14. Drunkeness	0.91	1.00	1.00	1.00	0.99
15. Disord&Vag	0.91	1.00	1.00	1.00	0.88
16. D. W. I.	1.00	1.00	1.00	1.00	0.94
17. Other Ntraf	0.66	1.00	1.00	1.00	0.86
Index	0.37	0.13	1.00	0.18	0.05
Non-Index	0.85	1.00	1.00	1.00	0.88
All	0.68	0.56	1.00	0.60	0.41

TABLE 108

CLEARANCE RATE FOR POLICE AGENCIES BY CITY: 1969[a]

Crime Type	11	12	13	14	15
1. Murder	1.00	1.00	1.00	1.00	0.38
2. Rape	0.73	1.00	----	0.44	0.45
3. Robbery	0.38	0.44	0.60	0.49	0.34
4. Agg. Assault	1.00	1.00	1.00	1.00	0.62
5. Auto Theft	0.36	0.41	0.29	0.30	0.08
6. Burglary	0.29	0.44	0.20	0.21	0.08
7. Larceny	0.18	0.79	0.17	0.30	0.23
8. Narcotics Law	1.00	1.00	1.00	1.00	1.00
9. Liquor Law	1.00	1.00	----	1.00	1.00
10. Prostitution	----	----	----	----	1.00
11. Gambling	1.00	1.00	1.00	1.00	1.00
12. Sex Offenses	1.00	1.00	1.00	1.00	1.00
13. Family&Cldn	1.00	1.00	1.00	1.00	----
14. Drunkeness	1.00	1.00	1.00	1.00	1.00
15. Disord&Vag	1.00	1.00	0.59	0.46	1.00
16. D. W. I.	1.00	1.00	1.00	1.00	1.00
17. Other Ntraf	1.00	1.00	0.78	1.00	1.00
Index	0.25	0.63	0.23	0.31	0.21
Non-Index	1.00	1.00	0.85	0.83	1.00
All	0.68	0.93	0.61	0.68	0.68

	16	17	18	19	20
1. Murder	----	1.00	1.00	----	1.00
2. Rape	----	1.00	1.00	0.50	1.00
3. Robbery	1.00	1.00	0.18	0.22	0.59
4. Agg. Assault	1.00	0.26	0.50	0.26	0.29
5. Auto Theft	0.29	0.18	0.20	0.15	0.13
6. Burglary	0.16	0.14	0.15	0.16	0.10
7. Larceny	0.67	0.26	0.14	0.20	0.04
8. Narcotics Law	----	1.00	----	1.00	0.55
9. Liquor Law	----	1.00	1.00	1.00	0.89
10. Prostitution	----	1.00	----	----	1.00
11. Gambling	----	----	----	----	0.94
12. Sex Offenses	1.00	1.00	1.00	1.00	0.54
13. Family&Cldn	1.00	1.00	1.00	1.00	0.83
14. Drunkeness	0.87	1.00	1.00	1.00	0.89
15. Disord&Vag	1.00	1.00	1.00	1.00	0.94
16. D. W. I.	1.00	1.00	1.00	1.00	0.94
17. Other Ntraf	1.00	1.00	1.00	1.00	1.00
Index	0.47	0.22	0.17	0.21	0.07
Non-Index	0.94	1.00	1.00	1.00	0.91
All	0.80	0.62	0.77	0.66	0.38

TABLE 109

ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR SHERIFF AGENCIES BY COUNTY: 1968[a]

Crime Type	1	2	3	4	5
1. Murder	249.00	299.00	1,736.00	0.00	367.00
2. Rape	309.00	256.00	694.00	0.00	294.00
3. Robbery	309.00	320.00	0.00	0.00	441.00
4. Agg. Assault	312.00	157.00	147.00	0.00	84.00
5. Auto Theft	211.00	73.00	122.00	0.00	24.00
6. Burglary	161.00	73.00	114.00	75.00	30.00
7. Larceny	123.00	59.00	88.00	75.00	332.00
8. Narcotics Law	0.00	256.00	277.00	0.00	0.00
9. Liquor Law	160.00	149.00	171.00	0.00	7.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	0.00	0.00	0.00	0.00
12. Sex Offenses	70.00	0.00	162.00	0.00	73.00
13. Family&Cldn	93.00	74.00	82.00	21.00	0.00
14. Drunkeness	77.00	76.00	14.00	22.00	1.00
15. Disord&Vag	77.00	77.00	64.00	22.00	4.00
16. D. W. I.	159.00	153.00	88.00	21.00	8.00
17. Other Ntraf	78.00	74.00	22.00	18.00	4.00
Index	173.00	108.00	141.00	97.00	183.00
Non-Index	89.00	87.00	32.00	20.00	6.00
All	117.00	93.00	54.00	27.00	48.00

	6	7	8	9	10
1. Murder	154.00	59.00	58.00	0.00	0.00
2. Rape	0.00	119.00	111.00	0.00	0.00
3. Robbery	118.00	0.00	68.00	0.00	0.00
4. Agg. Assault	85.00	26.00	47.00	48.00	101.00
5. Auto Theft	70.00	29.00	45.00	0.00	25.00
6. Burglary	84.00	30.00	100.00	248.00	10.00
7. Larceny	57.00	42.00	92.00	224.00	46.00
8. Narcotics Law	56.00	119.00	0.00	0.00	0.00
9. Liquor Law	0.00	69.00	100.00	0.00	25.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	36.00	4.00	0.00	0.00
12. Sex Offenses	28.00	23.00	35.00	0.00	75.00
13. Family & Cldn	0.00	16.00	110.00	53.00	0.00
14. Drunkeness	12.00	33.00	25.00	49.00	21.00
15. Disord&Vag	25.00	31.00	43.00	42.00	9.00
16. D.W.I.	25.00	24.00	27.00	70.00	18.00
17. Other Ntraf	12.00	16.00	35.00	35.00	52.00
Index	83.00	33.00	77.00	104.00	34.00
Non-Index	14.00	25.00	37.00	43.00	47.00
All	22.00	27.00	49.00	61.00	44.00

TABLE 110

ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR SHERIFF AGENCIES
BY COUNTY: 1969[a]

Crime Type	1	2	3	4	5
1. Murder	248.00	233.00	0.00	0.00	735.00
2. Rape	253.00	266.00	0.00	0.00	588.00
3. Robbery	253.00	288.00	332.00	0.00	0.00
4. Agg. Assault	260.00	152.00	146.00	0.00	94.00
5. Auto Theft	188.00	44.00	123.00	0.00	16.00
6. Burglary	154.00	65.00	110.00	21.00	222.00
7. Larceny	122.00	44.00	79.00	8.00	294.00
8. Narcotics Law	289.00	222.00	0.00	0.00	0.00
9. Liquor Law	126.00	147.00	167.00	0.00	0.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	0.00	0.00	0.00	0.00
12. Sex Offenses	72.00	0.00	0.00	0.00	36.00
13. Family&Cldn	62.00	80.00	79.00	14.00	4.00
14. Drunkeness	63.00	74.00	13.00	52.00	1.00
15. Disord&Vag	63.00	74.00	63.00	40.00	5.00
16. D. W. I.	127.00	149.00	82.00	20.00	4.00
17. Other Ntraf	63.00	74.00	27.00	28.00	4.00
Index	155.00	96.00	121.00	12.00	198.00
Non-Index	69.00	95.00	30.00	37.00	5.00
All	94.00	95.00	48.00	30.00	54.00

	6	7	8	9	10
1. Murder	292.00	14.00	70.00	0.00	730.00
2. Rape	0.00	57.00	141.00	0.00	0.00
3. Robbery	186.00	229.00	94.00	0.00	0.00
4. Agg. Assault	160.00	45.00	57.00	42.00	140.00
5. Auto Theft	76.00	38.00	56.00	0.00	280.00
6. Burglary	138.00	45.00	89.00	44.00	6.00
7. Larceny	128.00	40.00	110.00	115.00	56.00
8. Narcotics Law	57.00	0.00	94.00	0.00	0.00
9. Liquor Law	24.00	102.00	84.00	0.00	56.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	0.00	5.00	0.00	0.00
12. Sex Offenses	57.00	12.00	28.00	103.00	0.00
13. Family&Cldn	0.00	26.00	140.00	0.00	0.00
14. Drunkeness	24.00	55.00	34.00	46.00	26.00
15. Disord&Vag	22.00	31.00	56.00	48.00	32.00
16. D. W. I.	47.00	36.00	34.00	88.00	0.00
17. Other Ntraf	23.00	22.00	43.00	40.00	97.00
Index	147.00	43.00	84.00	47.00	72.00
Non-Index	27.00	38.00	43.00	48.00	57.00
All	41.00	38.00	55.00	48.00	63.00

TABLE 111

ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR POLICE AGENCIES
BY CITY: 1968[a]

Crime Type	11	12	13	14	15
1. Murder	2,151.00	744.00	29.00	533.00	2,654.00
2. Rape	1.720.00	992.00	29.00	533.00	853.00
3. Robbery	2,165.00	952.00	29.00	394.00	816.00
4. Agg. Assault	187.00	183.00	27.00	350.00	167.00
5. Auto Theft	104.00	179.00	25.00	117.00	80.00
6. Burglary	357.00	162.00	25.00	158.00	145.00
7. Larceny	249.00	86.00	27.00	104.00	21.00
8. Narcotics Law	0.00	0.00	0.00	64.00	4,232.00
9. Liquor Law	723.00	166.00	29.00	209.00	40.00
10. Prostitution	4,302.00	8,809.00	0.00	0.00	65.00
11. Gambling	0.00	220.00	0.00	135.00	171.00
12. Sex Offenses	661.00	415.00	29.00	139.00	34.00
13. Family&Cldn	374.00	240.00	29.00	69.00	0.00
14. Drunkeness	23.00	53.00	26.00	70.00	57.00
15. Disord&Vag	50.00	87.00	15.00	24.00	82.00
16. D. W. I.	55.00	91.00	25.00	350.00	177.00
17. Other Ntraf	15.00	39.00	21.00	70.00	15.00
Index	294.00	154.00	26.00	135.00	106.00
Non-Index	42.00	65.00	22.00	75.00	48.00
All	134.00	74.00	23.00	90.00	69.00

	16	17	18	19	20
1. Murder	8,942.00	0.00	0.00	832.00	683.00
2. Rape	0.00	0.00	454.00	679.00	906.00
3. Robbery	192.00	0.00	482.00	394.00	399.00
4. Agg. Assault	182.00	93.00	27.00	285.00	116.00
5. Auto Theft	85.00	71.00	968.00	269.00	235.00
6. Burglary	179.00	106.00	1,737.00	160.00	383.00
7. Larceny	179.00	50.00	1,725.00	98.00	114.00
8. Narcotics Law	0.00	118.00	0.00	0.00	769.00
9. Liquor Law	96.00	97.00	965.00	97.00	2.00
10. Prostitution	0.00	0.00	0.00	0.00	349.00
11. Gambling	0.00	0.00	0.00	0.00	21.00
12. Sex Offenses	86.00	90.00	204.00	648.00	374.00
13. Family&Cldn	102.00	90.00	69.00	192.00	154.00
14. Drunkeness	81.00	29.00	69.00	32.00	35.00
15. Disord&Vag	82.00	58.00	69.00	230.00	31.00
16. D. W. I.	182.00	117.00	207.00	255.00	42.00
17. Other Ntraf	58.00	58,00	69.00	171.00	29.00
Index	217.00	73.00	751.00	153.00	180.00
Non-Index	85.00	54.00	82.00	145.00	53.00
All	132.00	63.00	172.00	149.00	125.00

TABLE 112

ADJUSTED AVERAGE COST PER TRUE COMPLAINT FOR POLICE AGENCIES BY CITY: 1969[a]

Crime Type	11	12	13	14	15
1. Murder	5,000.00	3,253.00	0.00	392.00	3,174.00
2. Rape	909.00	783.00	0.00	588.00	919.00
3. Robbery	3,110.00	1,111.00	35.00	593.00	819.00
4. Agg. Assault	200.00	481.00	31.00	165.00	226.00
5. Auto Theft	120.00	142.00	31.00	197.00	63.00
6. Burglary	770.00	130.00	30.00	395.00	195.00
7. Larceny	177.00	72.00	30.00	197.00	22.00
8. Narcotics Law	1,666.00	2,597.00	39.00	24.00	1,018.00
9. Liquor Law	963.00	109.00	0.00	108.00	1,022.00
10. Prostitution	0.00	0.00	0.00	0.00	337.00
11. Gambling	0.00	579.00	29.00	75.00	159.00
12. Sex Offenses	714.00	687.00	19.00	56.00	64.00
13. Family&Cldn	416.00	184.00	29.00	35.00	0.00
14. Drunkeness	32.00	51.00	30.00	38.00	51.00
15. Disord&Vag	62.00	91.00	17.00	16.00	104.00
16. D. W. I.	65.00	105.00	29.00	179.00	202.00
17. Other Ntraf	30.00	178.00	23.00	79.00	23.00
Index	289.00	134.00	30.00	261.00	117.00
Non-Index	63.00	114.00	25.00	49.00	63.00
All	159.00	119.00	27.00	108.00	86.00

Crime Type	16	17	18	19	20
1. Murder	0.00	2,454.00	4,285.00	0.00	1,111.00
2. Rape	0.00	272.00	714.00	625.00	860.00
3. Robbery	309.00	181.00	132.00	236.00	367.00
4. Agg. Assault	274.00	79.00	209.00	201.00	114.00
5. Auto Theft	139.00	49.00	2,925.00	220.00	211.00
6. Burglary	274.00	87.00	389.00	216.00	399.00
7. Larceny	274.00	53.00	361.00	99.00	107.00
8. Narcotics Law	0.00	97.00	0.00	1,312.00	675.00
9. Liquor Law	0.00	98.00	1,472.00	333.00	7.00
10. Prostitution	0.00	90.00	0.00	0.00	20.00
11. Gambling	0.00	0.00	0.00	0.00	120.00
12. Sex Offenses	103.00	77.00	320.00	375.00	376.00
13. Family&Cldn	274.00	70.00	104.00	201.00	66.00
14. Drunkeness	119.00	24.00	105.00	26.00	28.00
15. Disord&Vag	136.00	49.00	104.00	215.00	30.00
16. D. W. I.	274.00	98.00	315.00	192.00	61.00
17. Other Ntraf	136.00	49.00	105.00	131.00	32.00
Index	260.00	72.00	470.00	155.00	173.00
Non-Index	149.00	51.00	130.00	114.00	69.00
All	181.00	61.00	225.00	131.00	136.00

NOTES FOR APPENDIX 6

Tables 105 through 112

[a]Integer headings refer to counties and cities listed on page 82. Dashes indicate crime types for which there were no true complaints. Values of 0.00 indicate crime types in which there were true complaints, but in which no arrests were made.

APPENDIX 7

ADJUSTED INCREMENTAL SYSTEMS COST DATA

BY COUNTY AND CITY SYSTEMS

TABLE 113

ADJUSTED INCREMENTAL SYSTEM COST BY COUNTY: 1968[a]

Crime Type	1	2	3	4	5
1. Murder	1,040.00	584.00	2,048.00	0.00	1,323.00
2. Rape	845.00	384.00	879.00	0.00	919.00
3. Robbery	1,042.00	402.00	0.00	0.00	1,102.00
4. Agg. Assault	1,048.00	204.00	258.00	0.00	289.00
5. Auto Theft	774.00	81.00	174.00	0.00	134.00
6. Burglary	271.00	134.00	214.00	202.00	165.00
7. Larceny	169.00	78.00	150.00	151.00	454.00
8. Narcotics Law	0.00	256.00	416.00	0.00	0.00
9. Liquor Law	221.00	312.00	241.00	75.00	62.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	0.00	0.00	0.00	0.00
12. Sex Offenses	140.00	0.00	261.00	75.00	117.00
13. Family&Cldn	187.00	98.00	108.00	64.00	0.00
14. Drunkeness	93.00	90.00	21.00	59.00	20.00
15. Disord&Vag	95.00	104.00	93.00	64.00	41.00
16. D. W. I.	206.00	256.00	142.00	97.00	105.00
17. Other Ntraf	104.00	98.00	40.00	52.00	33.00
Index	403.00	136.00	226.00	206.00	362.00
Non-Index	124.00	116.00	50.00	61.00	45.00
All	216.00	126.00	91.00	74.00	130.00

Crime Type	6	7	8	9	10
1. Murder	229.00	137.00	120.00	106.00	0.00
2. Rape	0.00	198.00	190.00	0.00	0.00
3. Robbery	146.00	0.00	125.00	0.00	0.00
4. Agg. Assault	134.00	52.00	117.00	84.00	360.00
5. Auto Theft	100.00	79.00	56.00	106.00	252.00
6. Burglary	134.00	42.00	142.00	411.00	10.00
7. Larceny	73.00	56.00	117.00	352.00	46.00
8. Narcotics Law	112.00	119.00	0.00	0.00	0.00
9. Liquor Law	0.00	87.00	128.00	0.00	233.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	47.00	6.00	0.00	0.00
12. Sex Offenses	28.00	38.00	39.00	0.00	75.00
13. Family&Cldn	0.00	45.00	213.00	72.00	0.00
14. Drunkeness	13.00	39.00	31.00	60.00	32.00
15. Disord&Vag	20.00	51.00	54.00	52.00	18.00
16. D. W. I.	35.00	37.00	51.00	125.00	132.00
17. Other Ntraf	21.00	21.00	51.00	128.00	88.00
Index	121.00	50.00	117.00	189.00	90.00
Non-Index	20.00	36.00	55.00	70.00	87.00
All	32.00	42.00	69.00	107.00	91.00

[a]For notes for Tables 113-116, see last page of Appendix 7.

TABLE 114

ADJUSTED INCREMENTAL SYSTEM COST BY COUNTY: 1969[a]

Crime Type	1	2	3	4	5
1. Murder	1,200.00	283.00	0.00	0.00	1,838.00
2. Rape	1,074.00	400.00	0.00	0.00	735.00
3. Robbery	1,413.00	390.00	484.00	0.00	0.00
4. Agg. Assault	830.00	199.00	257.00	30.00	227.00
5. Auto Theft	434.00	63.00	220.00	161.00	82.00
6. Burglary	265.00	123.00	247.00	118.00	310.00
7. Larceny	198.00	68.00	124.00	52.00	448.00
8. Narcotics Law	362.00	222.00	0.00	0.00	0.00
9. Liquor Law	181.00	319.00	245.00	0.00	61.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	0.00	0.00	0.00	0.00
12. Sex Offenses	120.00	0.00	0.00	0.00	44.00
13. Family&Cldn	82.00	99.00	109.00	54.00	44.00
14. Drunkeness	85.00	90.00	20.00	82.00	6.00
15. Disord&Vag	78.00	84.00	80.00	72.00	14.00
16. D. W. I.	177.00	221.00	117.00	68.00	23.00
17. Other Ntraf	70.00	104.00	45.00	60.00	32.00
Index	350.00	133.00	215.00	80.00	330.00
Non-Index	86.00	121.00	46.00	70.00	25.00
All	166.00	129.00	87.00	73.00	109.00

	6	7	8	9	10
1. Murder	374.00	93.00	186.00	0.00	730.00
2. Rape	0.00	134.00	277.00	0.00	0.00
3. Robbery	208.00	344.00	150.00	0.00	0.00
4. Agg. Assault	207.00	87.00	108.00	158.00	280.00
5. Auto Theft	134.00	63.00	90.00	0.00	411.00
6. Burglary	216.00	65.00	121.00	209.00	38.00
7. Larceny	162.00	48.00	142.00	173.00	73.00
8. Narcotics Law	114.00	0.00	113.00	0.00	0.00
9. Liquor Law	38.00	130.00	99.00	0.00	122.00
10. Prostitution	0.00	0.00	0.00	0.00	0.00
11. Gambling	0.00	0.00	5.00	0.00	0.00
12. Sex Offenses	82.00	16.00	33.00	159.00	0.00
13. Family&Cldn	0.00	73.00	220.00	0.00	0.00
14. Drunkeness	25.00	62.00	41.00	61.00	31.00
15. Disord&Vag	22.00	44.00	68.00	89.00	38.00
16. D. W. I.	51.00	50.00	53.00	155.00	0.00
17. Other Ntraf	34.00	26.00	56.00	112.00	116.00
Index	194.00	65.00	123.00	166.00	126.00
Non-Index	36.00	49.00	59.00	102.00	74.00
All	56.00	56.00	76.00	102.00	86.00

TABLE 115

ADJUSTED INCREMENTAL SYSTEM COST BY CITY: 1968[a]

Crime Type	11	12	13	14	15
1. Murder	2,325.00	910.00	116.00	606.00	2,826.00
2. Rape	1,912.00	1,095.00	67.00	533.00	915.00
3. Robbery	2,278.00	1.065.00	52.00	461.00	850.00
4. Agg. Assault	215.00	278.00	39.00	463.00	186.00
5. Auto Theft	131.00	252.00	32.00	218.00	88.00
6. Burglary	379.00	234.00	34.00	205.00	152.00
7. Larceny	258.00	171.00	32.00	115.00	26.00
8. Narcotics Law	0.00	0.00	0.00	226.00	4,325.00
9. Liquor Law	752.00	220.00	29.00	237.00	55.00
10. Prostitution	4,302.00	8,809.00	0.00	0.00	76.00
11. Gambling	17.00	229.00	0.00	125.00	187.00
12. Sex Offenses	682.00	460.00	41.00	201.00	53.00
13. Family&Cldn	392.00	286.00	59.00	116.00	51.00
14. Drunkeness	29.00	59.00	38.00	74.00	65.00
15. Disord&Vag	66.00	124.00	23.00	28.00	109.00
16. D. W. I.	89.00	191.00	52.00	375.00	195.00
17. Other Ntraf	26.00	100.00	42.00	97.00	36.00
Index	307.00	236.00	32.00	160.00	113.00
Non-Index	54.00	100.00	40.00	89.00	66.00
All	149.00	118.00	38.00	106.00	86.00

	16	17	18	19	20
1. Murder	9,182.00	0.00	0.00	1,130.00	953.00
2. Rape	0.00	0.00	625.00	851.00	1,035.00
3. Robbery	192.00	0.00	596.00	427.00	473.00
4. Agg. Assault	222.00	130.00	81.00	292.00	141.00
5. Auto Theft	85.00	102.00	1,081.00	282.00	246.00
6. Burglary	196.00	118.00	1,884.00	178.00	390.00
7. Larceny	219.00	54.00	1,796.00	105.00	119.00
8. Narcotics Law	0.00	136.00	0.00	0.00	824.00
9. Liquor Law	192.00	97.00	994.00	220.00	53.00
10. Prostitution	0.00	0.00	0.00	0.00	360.00
11. Gambling	0.00	0.00	0.00	0.00	45.00
12. Sex Offenses	144.00	212.00	256.00	680.00	402.00
13. Family&Cldn	183.00	187.00	125.00	249.00	310.00
14. Drunkeness	90.00	38.00	78.00	40.00	47.00
15. Disord&Vag	105.00	76.00	89.00	248.00	65.00
16. D. W. I.	271.00	155.00	271.00	293.00	65.00
17. Other Ntraf	77.00	80.00	100.00	202.00	109.00
Index	254.00	83.00	829.00	162.00	187.00
Non-Index	113.00	79.00	108.00	168.00	97.00
All	162.00	83.00	208.00	168.00	154.00

TABLE 116

ADJUSTED INCREMENTAL SYSTEM COST BY CITY: 1969[a]

Crime Type	11	12	13	14	15
1. Murder	5,187.00	3,469.00	117.00	625.00	3,277.00
2. Rape	1,006.00	957.00	0.00	653.00	979.00
3. Robbery	3,181.00	1,186.00	80.00	670.00	851.00
4. Agg. Assault	220.00	602.00	45.00	348.00	249.00
5. Auto Theft	136.00	203.00	43.00	284.00	70.00
6. Burglary	795.00	211.00	37.00	440.00	201.00
7. Larceny	184.00	132.00	34.00	206.00	29.00
8. Narcotics Law	1,078.00	2,824.00	98.00	196.00	1,086.00
9. Liquor Law	989.00	155.00	0.00	146.00	1,134.00
10. Prostitution	0.00	0.00	0.00	0.00	561.00
11. Gambling	0.00	623.00	44.00	140.00	180.00
12. Sex Offenses	743.00	771.00	63.00	154.00	95.00
13. Family&Cldn	424.00	229.00	51.00	87.00	0.00
14. Drunkeness	37.00	58.00	45.00	42.00	63.00
15. Disord&Vag	74.00	130.00	27.00	25.00	133.00
16. D. W. I.	94.00	218.00	50.00	194.00	227.00
17. Other Ntraf	37.00	241.00	47.00	111.00	60.00
Index	298.00	215.00	35.00	284.00	127.00
Non-Index	72.00	151.00	43.00	65.00	91.00
All	170.00	164.00	40.00	127.00	109.00

Crime Type	16	17	18	19	20
1. Murder	0.00	2,684.00	4,387.00	0.00	1,642.00
2. Rape	0.00	454.00	1,020.00	854.00	1,234.00
3. Robbery	515.00	181.00	157.00	260.00	507.00
4. Agg. Assault	365.00	98.00	281.00	211.00	140.00
5. Auto Theft	139.00	70.00	2,939.00	230.00	226.00
6. Burglary	305.00	109.00	404.00	262.00	413.00
7. Larceny	342.00	60.00	374.00	110.00	111.00
8. Narcotics Law	0.00	435.00	0.00	1,312.00	747.00
9. Liquor Law	0.00	143.00	1,574.00	333.00	53.00
10. Prostitution	0.00	90.00	0.00	0.00	46.00
11. Gambling	0.00	0.00	0.00	0.00	195.00
12. Sex Offenses	185.00	128.00	361.00	500.00	427.00
13. Family&Cldn	350.00	167.00	159.00	278.00	161.00
14. Drunkeness	127.00	30.00	115.00	35.00	41.00
15. Disord&Vag	172.00	62.00	135.00	234.00	74.00
16. D. W. I.	319.00	124.00	367.00	222.00	97.00
17. Other Ntraf	171.00	69.00	119.00	167.00	133.00
Index	310.00	85.00	488.00	172.00	182.00
Non-Index	181.00	77.00	154.00	134.00	128.00
All	224.00	82.00	250.00	155.00	167.00

NOTES FOR APPENDIX 7

Tables 113 through 116

[a]Integer headings refer to counties and cities listed on page 82. Values of 0.00 indicate crime types in which there were true complaints, but in which no arrests were made.

APPENDIX 8

ADJUSTED AVERAGE COST PER CASE

BY REGION AND AGENCY:

1968 AND 1969

TABLE 117

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

ACCOMACK

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	249.00	140.00	1746.00	80.00
RAPE	309.00	140.00	1056.00	46.00
ROBBERY	309.00	140.00	1032.00	70.00
AG ASSAULT	312.00	760.00	704.00	281.00
AUTO THEFT	211.00	633.00	422.00	0.0
BURGLARY	161.00	112.00	422.00	20.00
LARCENY	123.00	45.00	492.00	18.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	160.00	40.00	0.0	20.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	70.00	35.00	0.0	35.00
FAM&CHILDREN	93.00	46.00	0.0	46.00
DRUNKENESS	77.00	0.0	0.0	16.00
DISCRD&VAG	77.00	0.0	0.0	18.00
D W I	159.00	18.00	281.00	19.00
OTHER NTRAF	78.00	16.00	382.00	1.00
INDEX	173.00	151.00	918.00	49.00
NON INDEX	89.00	62.00	369.00	11.00
ALL	117.00	108.00	767.00	18.00

TABLE 118

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

ACCOMACK

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	248.00	72.00	1835.00	181.00
RAPE	253.00	72.00	2173.00	144.00
ROBBERY	253.00	72.00	1086.00	0.0
AG ASSAULT	260.00	376.00	434.00	227.00
AUTO THEFT	188.00	62.00	376.00	28.00
BURGLARY	154.00	83.00	414.00	9.00
LARCENY	122.00	64.00	521.00	16.00
NARCOT LAW	289.00	144.00	0.0	0.0
LIQUOR LAW	126.00	36.00	0.0	20.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	72.00	24.00	0.0	28.00
FAM&CHILDREN	62.00	10.00	0.0	10.00
DRUNKENESS	63.00	0.0	0.0	21.00
DISORD&VAG	63.00	0.0	0.0	15.00
D W I	127.00	13.00	362.00	17.00
OTHER NTRAF	63.00	14.00	318.00	0.0
INDEX	155.00	99.00	655.00	40.00
NON INDEX	69.00	32.00	289.00	7.00
ALL	94.00	72.00	592.00	13.00

TABLE 119

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

CAROLINE

CRIME TYPE	LAW ENFORCE..	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	299.00	42.00	363.00	42.00
RAPE	256.00	64.00	0.0	64.00
ROBBERY	320.00	9.00	256.00	11.00
AG ASSAULT	157.00	11.00	256.00	18.00
AUTO THEFT	73.00	25.00	384.00	16.00
BURGLARY	73.00	25.00	352.00	0.0
LARCENY	59.00	12.00	358.00	16.00
NARCOT LAW	256.00	0.0	0.0	0.0
LIQUOR LAW	149.00	12.00	219.00	42.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	64.00	0.0	18.00
FAM&CHILDREN	74.00	192.00	384.00	15.00
DRUNKENESS	76.00	5.00	384.00	3.00
DISORD&VAG	77.00	8.00	384.00	15.00
D W I	153.00	14.00	333.00	47.00
OTHER NTRAF	74.00	14.00	213.00	12.00
INDEX	108.00	14.00	296.00	17.00
NON INDEX	87.00	10.00	283.00	13.00
ALL	93.00	12.00	291.00	14.00

TABLE 120

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

CAROLINE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	233.00	56.00	0.0	0.0
RAPE	266.00	133.00	0.0	0.0
ROBBERY	288.00	6.00	577.00	17.00
AG ASSAULT	152.00	12.00	511.00	20.00
AUTO THEFT	49.00	19.00	1333.00	54.00
BURGLARY	65.00	33.00	933.00	0.0
LARCENY	44.00	11.00	453.00	32.00
NARCOT LAW	222.00	0.0	0.0	0.0
LIQUOR LAW	147.00	19.00	466.00	26.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	66.00	0.0	0.0
FAM&CHILDREN	80.00	0.0	0.0	19.00
DRUNKENESS	74.00	5.00	466.00	3.00
DISORD&VAG	74.00	8.00	0.0	2.00
D W I	149.00	13.00	466.00	36.00
OTHER NTRAF	74.00	9.00	433.00	12.00
INDEX	96.00	14.00	716.00	27.00
NON INDEX	95.00	9.00	458.00	14.00
ALL	95.00	11.00	615.00	17.00

TABLE 121

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

CARROLL

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	1736.00	111.00	555.00	55.00
RAPE	694.00	138.00	0.0	69.00
ROBBERY	0.0	69.00	555.00	0.0
AG ASSAULT	147.00	27.00	268.00	29.00
AUTO THEFT	122.00	41.00	416.00	34.00
BURGLARY	114.00	57.00	539.00	52.00
LARCENY	88.00	29.00	272.00	26.00
NARCOT LAW	277.00	69.00	0.0	69.00
LIQUOR LAW	171.00	30.00	277.00	24.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	162.00	26.00	277.00	24.00
FAM&CHILDREN	82.00	15.00	0.0	12.00
DRUNKENESS	14.00	12.00	0.0	13.00
DISORD&VAG	64.00	14.00	277.00	13.00
D W I	88.00	13.00	131.00	14.00
OTHER NTRAF	22.00	12.00	129.00	13.00
INDEX	141.00	41.00	392.00	34.00
NON INDEX	32.00	14.00	148.00	14.00
ALL	54.00	22.00	288.00	18.00

TABLE 122

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

CARROLL

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	410.00	0.0	136.00
RAPE	0.0	410.00	0.0	136.00
ROBBERY	352.00	45.00	593.00	45.00
AG ASSAULT	146.00	31.00	293.00	24.00
AUTO THEFT	123.00	34.00	450.00	40.00
BURGLARY	118.00	41.00	592.00	47.00
LARCENY	79.00	22.00	292.00	23.00
NARCOT LAW	0.0	91.00	0.0	45.00
LIQUOR LAW	167.00	19.00	273.00	22.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	45.00	410.00	34.00
FAM&CHILDREN	79.00	11.00	136.00	11.00
DRUNKENESS	13.00	6.00	136.00	11.00
DISORD&VAG	63.00	10.00	0.0	12.00
D W I	82.00	11.00	136.00	12.00
OTHER NTRAF	27.00	8.00	146.00	10.00
INDEX	121.00	37.00	462.00	33.00
NON INDEX	33.00	9.00	170.00	13.00
ALL	46.00	16.00	341.00	16.00

TABLE 123

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

CRAIG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	0.0	0.0	0.0	0.0
AUTO THEFT	0.0	0.0	0.0	0.0
BURGLARY	75.00	75.00	378.00	75.00
LARCENY	75.00	50.00	151.00	0.0
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	75.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	75.00
FAM&CHILDREN	21.00	21.00	0.0	21.00
DRUNKENESS	22.00	18.00	0.0	18.00
DISORD&VAG	22.00	20.00	0.0	20.00
D W I	21.00	37.00	101.00	16.00
OTHER NTRAF	18.00	15.00	151.00	17.00
INDEX	97.00	67.00	265.00	75.00
NON INDEX	20.00	19.00	113.00	19.00
ALL	27.00	21.00	189.00	20.00

TABLE 124

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

CRAIG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	0.0	40.00	0.0	20.00
AUTO THEFT	0.0	80.00	0.0	80.00
BURGLARY	21.00	64.00	376.00	67.00
LARCENY	8.00	29.00	161.00	35.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0
FAMILY&CH	14.00	13.00	161.00	14.00
DRUNKENESS	57.00	15.00	0.0	15.00
DISORD&VAG	40.00	19.00	0.0	12.00
D W I	26.00	32.00	0.0	16.00
OTHER NTRAF	20.00	12.00	107.00	16.00
INDEX	12.00	49.00	290.00	46.00
NON INDEX	37.00	15.00	121.00	15.00
ALL	30.00	21.00	215.00	20.00

TABLE 125

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

DINWIDDIE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	367.00	220.00	1470.00	220.00
RAPE	294.00	220.00	882.00	147.00
ROBBERY	441.00	294.00	882.00	147.00
AG ASSAULT	84.00	118.00	294.00	176.00
AUTO THEFT	24.00	171.00	0.0	49.00
BURGLARY	30.00	155.00	294.00	24.00
LARCENY	332.00	117.00	294.00	38.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	7.00	114.00	294.00	49.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	49.00	0.0	0.0
SEX OFFENSES	73.00	0.0	294.00	73.00
FAM&CHILDREN	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	49.00	0.0	41.00
DISORD&VAG	4.00	73.00	294.00	42.00
D W I	8.00	63.00	294.00	42.00
OTHER NTRAF	4.00	61.00	349.00	17.00
INDEX	183.00	136.00	383.00	99.00
NON INDEX	6.00	70.00	316.00	29.00
ALL	48.00	111.00	363.00	42.00

TABLE 126

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

DINWIDDIE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	735.00	147.00	1911.00	147.00
RAPE	588.00	147.00	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	94.00	213.00	330.00	19.00
AUTO THEFT	16.00	98.00	294.00	16.00
BURGLARY	222.00	98.00	333.00	14.00
LARCENY	294.00	131.00	333.00	14.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	98.00	0.0	24.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	36.00	49.00	0.0	0.0
FAM&CHILDREN	4.00	49.00	343.00	0.0
DRUNKENESS	1.00	36.00	0.0	8.00
DISORD&VAG	5.00	36.00	294.00	7.00
D W I	4.00	49.00	294.00	9.00
OTHER NTRAF	4.00	49.00	318.00	4.00
INDEX	193.00	151.00	364.00	13.00
NON INDEX	5.00	51.00	320.00	6.00
ALL	54.00	110.00	352.00	8.00

TABLE 127

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

FAUQUIER

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	154.00	24.00	131.00	14.00
RAPE	0.0	0.0	0.0	0.0
ROBBERY	118.00	19.00	112.00	6.00
AG ASSAULT	85.00	23.00	63.00	11.00
AUTO THEFT	70.00	8.00	112.00	0.0
BURGLARY	84.00	16.00	140.00	6.00
LARCENY	57.00	17.00	56.00	5.00
NARCOT LAW	56.00	0.0	112.00	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	28.00	0.0	0.0	0.0
FAM&CHILDREN	0.0	0.0	0.0	0.0
DRUNKENESS	12.00	0.0	0.0	0.0
DISORD&VAG	25.00	0.0	56.00	3.00
D W I	25.00	1.00	28.00	6.00
OTHER NTRAF	12.00	4.00	33.00	4.00
INDEX	83.00	18.00	104.00	7.00
NON INDEX	14.00	2.00	33.00	3.00
ALL	22.00	3.00	75.00	3.00

TABLE 128

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

FAUQUIER

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	292.00	26.00	158.00	10.00
RAPE	0.0	0.0	0.0	0.0
ROBBERY	186.00	28.00	0.0	0.0
AG ASSAULT	160.00	26.00	82.00	7.00
AUTO THEFT	76.00	38.00	344.00	0.0
BURGLARY	138.00	31.00	172.00	10.00
LARCENY	128.00	24.00	80.00	10.00
NARCOT LAW	57.00	28.00	114.00	0.0
LIQUOR LAW	24.00	5.00	0.0	9.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	57.00	16.00	0.0	11.00
FAM&CHILDREN	0.0	0.0	0.0	0.0
DRUNKENESS	24.00	0.0	0.0	0.0
DISORD&VAG	22.00	0.0	0.0	0.0
D W I	47.00	1.00	28.00	1.00
OTHER NTRAF	23.00	5.00	40.00	5.00
INDEX	147.00	25.00	122.00	8.00
NON INDEX	27.00	4.00	43.00	4.00
ALL	41.00	6.00	94.00	4.00

TABLE 129

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

FRANKLIN

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	59.00	29.00	102.00	29.00
RAPE	119.00	59.00	59.00	0.0
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	26.00	28.00	49.00	49.00
AUTO THEFT	29.00	119.00	0.0	0.0
BURGLARY	30.00	27.00	119.00	41.00
LARCENY	42.00	21.00	46.00	59.00
NARCOT LAW	119.00	0.0	0.0	0.0
LIQUOR LAW	69.00	5.00	44.00	6.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	36.00	3.00	23.00	4.00
SEX OFFENSES	23.00	11.00	23.00	0.0
FAM&CHILDREN	16.00	68.00	79.00	19.00
DRUNKENESS	33.00	0.0	20.00	3.00
DISORD&VAG	31.00	15.00	26.00	3.00
D W I	24.00	11.00	48.00	14.00
OTHER NTRAF	16.00	3.00	24.00	6.00
INDEX	33.00	26.00	76.00	51.00
NON INDEX	25.00	6.00	33.00	6.00
ALL	27.00	9.00	51.00	13.00

TABLE 130

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

FRANKLIN

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	14.00	43.00	95.00	43.00
RAPE	57.00	57.00	57.00	0.0
ROBBERY	229.00	114.00	0.0	0.0
AG ASSAULT	45.00	38.00	52.00	45.00
AUTO THEFT	33.00	28.00	57.00	57.00
BURGLARY	45.00	67.00	119.00	91.00
LARCENY	40.00	24.00	47.00	53.00
NARCOT LAW	0.0	86.00	0.0	0.0
LIQUOR LAW	102.00	14.00	49.00	5.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	22.00	22.00	0.0
SEX OFFENSES	12.00	11.00	38.00	16.00
FAM&CHILDREN	26.00	94.00	104.00	36.00
DRUNKENESS	55.00	0.0	24.00	4.00
DISORD&VAG	31.00	6.00	24.00	5.00
D W I	36.00	11.00	48.00	13.00
OTHER NTRAF	22.00	3.00	24.00	4.00
INDEX	43.00	43.00	80.00	60.00
NON INDEX	34.00	8.00	36.00	7.00
ALL	33.00	12.00	50.00	14.00

TABLE 131

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

HENRY

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	58.00	45.00	60.00	27.00
RAPE	111.00	30.00	90.00	90.00
ROBBERY	68.00	90.00	0.0	0.0
AG ASSAULT	47.00	61.00	59.00	28.00
AUTO THEFT	45.00	12.00	0.0	0.0
BURGLARY	100.00	30.00	60.00	52.00
LARCENY	92.00	32.00	61.00	12.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	100.00	4.00	60.00	19.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	4.00	0.0	68.00	0.0
SEX OFFENSES	35.00	0.0	0.0	6.00
FAM&CHILDREN	110.00	0.0	54.00	107.00
DRUNKENESS	25.00	2.00	60.00	2.00
DISORD&VAG	43.00	2.00	60.00	6.00
D W I	27.00	5.00	61.00	3.00
OTHER NTRAF	35.00	2.00	59.00	18.00
INDEX	77.00	36.00	60.00	23.00
NON INDEX	37.00	2.00	60.00	16.00
ALL	49.00	7.00	60.00	16.00

TABLE 132

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

HENRY

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	70.00	62.00	115.00	31.00
RAPE	141.00	53.00	125.00	31.00
ROBBERY	94.00	62.00	94.00	24.00
AG ASSAULT	57.00	49.00	83.00	30.00
AUTO THEFT	56.00	12.00	125.00	31.00
BURGLARY	89.00	28.00	112.00	46.00
LARCENY	110.00	26.00	113.00	19.00
NARCOT LAW	94.00	0.0	94.00	0.0
LIQUOR LAW	84.00	5.00	54.00	6.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	5.00	0.0	0.0	0.0
SEX OFFENSES	28.00	0.0	94.00	10.00
FAM&CHILDREN	140.00	3.00	54.00	84.00
DRUNKENESS	34.00	5.00	28.00	3.00
DISORD&VAG	56.00	3.00	29.00	10.00
D W I	24.00	6.00	27.00	4.00
OTHER NTRAF	45.00	3.00	30.00	20.00
INDEX	84.00	32.00	109.00	26.00
NON INDEX	43.00	3.00	33.00	16.00
ALL	55.00	9.00	56.00	18.00

TABLE 133

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

NELSON

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	106.00	0.0	0.0
RAPE	0.0	106.00	0.0	0.0
ROBBERY	0.0	106.00	212.00	0.0
AG ASSAULT	48.00	22.00	79.00	8.00
AUTO THEFT	0.0	35.00	70.00	0.0
BURGLARY	248.00	122.00	65.00	16.00
LARCENY	224.00	74.00	70.00	26.00
NARCOT LAW	0.0	0.0	106.00	0.0
LIQUOR LAW	0.0	35.00	42.00	10.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0
FAM&CHILDREN	53.00	10.00	106.00	5.00
DRUNKENESS	49.00	1.00	106.00	6.00
DISORD&VAG	42.00	2.00	35.00	6.00
D W I	70.00	40.00	53.00	10.00
OTHER NTRAF	35.00	55.00	48.00	0.0
INDEX	104.00	53.00	82.00	12.00
NON INDEX	43.00	14.00	53.00	6.00
ALL	61.00	27.00	67.00	8.00

TABLE 134

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

NELSON

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	257.00
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	42.00	53.00	82.00	71.00
AUTO THEFT	0.0	51.00	0.0	103.00
BURGLARY	44.00	229.00	89.00	515.00
LARCENY	115.00	73.00	61.00	51.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	77.00	0.0	11.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	103.00	0.0	0.0	61.00
FAM&CHILDREN	0.0	4.00	103.00	69.00
DRUNKENESS	46.00	1.00	103.00	12.00
DISORD&VAG	46.00	4.00	51.00	37.00
D W I	68.00	38.00	55.00	18.00
OTHER NTRAF	46.00	95.00	54.00	63.00
INDEX	47.00	95.00	97.00	107.00
NON INDEX	43.00	17.00	60.00	42.00
ALL	43.00	26.00	72.00	46.00

TABLE 135

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

SURREY

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	101.00	239.00	303.00	12.00
AUTO THEFT	25.00	227.00	0.0	0.0
BURGLARY	10.00	0.0	0.0	0.0
LARCENY	46.00	227.00	0.0	0.0
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	25.00	126.00	189.00	37.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	75.00	0.0	0.0	0.0
FAM&CHILDREN	0.0	0.0	0.0	0.0
DRUNKENESS	21.00	0.0	0.0	10.00
DISORD&VAG	9.00	0.0	0.0	9.00
D W I	18.00	94.00	0.0	18.00
OTHER NTRAF	52.00	22.00	151.00	17.00
INDEX	34.00	234.00	303.00	12.00
NON INDEX	47.00	24.00	170.00	16.00
ALL	44.00	40.00	196.00	16.00

TABLE 136

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

SURREY

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	730.00	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	140.00	112.00	168.00	0.0
AUTO THEFT	280.00	112.00	0.0	28.00
BURGLARY	6.00	224.00	168.00	0.0
LARCENY	56.00	89.00	168.00	18.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	56.00	42.00	112.00	11.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.0	0.0	0.0
FAM&CHILDREN	0.0	28.00	0.0	0.0
DRUNKENESS	26.00	0.0	0.0	4.00
DISORD&VAG	32.00	0.0	0.0	11.00
D W I	0.0	28.00	0.0	0.0
OTHER NTRAF	97.00	11.00	0.0	11.00
INDEX	72.00	220.00	168.00	16.00
NON INDEX	57.00	18.00	84.00	9.00
ALL	65.00	25.00	131.00	10.00

TABLE 137

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

CHARLOTTESVILLE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	2151.00	23.00	465.00	0.0
RAPE	1720.00	29.00	465.00	0.0
ROBBERY	2165.00	38.00	415.00	14.00
AG ASSAULT	187.00	18.00	174.00	9.00
AUTO THEFT	104.00	23.00	155.00	14.00
BURGLARY	357.00	30.00	268.00	21.00
LARCENY	249.00	17.00	171.00	10.00
NARCOT LAW	0.0	38.00	0.0	0.0
LIQUOR LAW	723.00	14.00	0.0	14.00
PROSTITUTION	4302.00	0.0	0.0	0.0
GAMBLING	0.0	8.00	0.0	8.00
SEX OFFENSES	661.00	7.00	116.00	15.00
FAM&CHILDREN	374.00	8.00	116.00	15.00
DRUNKENESS	23.00	9.00	77.00	4.00
DISORD&VAG	50.00	8.00	306.00	8.00
D W I	55.00	8.00	81.00	18.00
OTHER NTRAF	15.00	9.00	174.00	6.00
INDEX	294.00	19.00	231.00	10.00
NON INDEX	42.00	9.00	177.00	7.00
ALL	134.00	15.00	213.00	8.00

TABLE 138

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

CHARLOTTESVILLE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	5000.00	23.00	297.00	0.0
RAPE	909.00	22.00	386.00	19.00
ROBBERY	3110.00	28.00	264.00	17.00
AG ASSAULT	200.00	14.00	142.00	6.00
AUTO THEFT	125.00	19.00	119.00	9.00
BURGLARY	770.00	32.00	189.00	9.00
LARCENY	177.00	15.00	131.00	7.00
NARCOT LAW	1666.00	26.00	0.0	17.00
LIQUOR LAW	963.00	15.00	119.00	7.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	714.00	6.00	198.00	7.00
FAM&CHILD-EN	416.00	6.00	0.0	5.00
DRUNKENESS	32.00	8.00	79.00	3.00
DISORD&VAG	62.00	9.00	183.00	7.00
D W I	65.00	8.00	71.00	16.00
OTHER NTRAF	30.00	7.00	129.00	4.00
INDEX	259.00	17.00	175.00	7.00
NON INDEX	63.00	8.00	135.00	5.00
ALL	139.00	13.00	164.00	5.00

TABLE 139

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

DANVILLE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	744.00	49.00	238.00	47.00
RAPE	992.00	39.00	238.00	85.00
ROBBERY	952.00	66.00	238.00	59.00
AG ASSAULT	183.00	29.00	234.00	47.00
AUTO THEFT	179.00	21.00	238.00	95.00
BURGLARY	162.00	25.00	232.00	102.00
LARCENY	86.00	22.00	233.00	34.00
NARCOT LAW	0.0	39.00	0.0	238.00
LIQUOR LAW	166.00	10.00	119.00	12.00
PROSTITUTION	8809.00	0.0	0.0	0.0
GAMBLING	220.00	4.00	0.0	4.00
SEX OFFENSES	415.00	12.00	238.00	23.00
FAM&CHILDREN	240.00	7.00	59.00	44.00
DRUNKENESS	53.00	1.00	15.00	3.00
DISORD&VAG	87.00	8.00	234.00	20.00
D W I	91.00	21.00	234.00	16.00
OTHER NTRAF	39.00	12.00	234.00	35.00
INDEX	154.00	26.00	234.00	48.00
NON INDEX	65.00	7.00	143.00	18.00
ALL	74.00	9.00	170.00	21.00

TABLE 142

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

DANVILLE

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	3253.00	80.00	240.00	60.00
RAPE	783.00	40.00	240.00	60.00
ROBBERY	1111.00	54.00	261.00	40.00
AG ASSAULT	461.00	30.00	249.00	42.00
AUTO THEFT	142.00	36.00	249.00	76.00
BURGLARY	130.00	40.00	251.00	50.00
LARCENY	72.00	16.00	251.00	34.00
NARCOT LAW	2597.00	49.00	502.00	40.00
LIQUOR LAW	169.00	18.00	240.00	10.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	579.00	21.00	0.0	24.00
SEX OFFENSES	687.00	18.00	256.00	20.00
FAM&CHILDREN	184.00	7.00	87.00	42.00
DRUNKENESS	51.00	1.00	17.00	3.00
DISORD&VAG	91.00	8.00	251.00	20.00
D W I	105.00	23.00	251.00	15.00
OTHER NTRAF	176.00	11.00	252.00	35.00
INDEX	143.00	25.00	251.00	40.00
NON INDEX	114.00	7.00	160.00	16.00
ALL	119.00	9.00	183.00	20.00

TABLE 141

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

FREDERICKSBURG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	29.00	58.00	77.00	0.0
RAPE	29.00	0.0	0.0	38.00
ROBBERY	29.00	0.0	116.00	0.0
AG ASSAULT	27.00	6.00	116.00	9.00
AUTO THEFT	25.00	8.00	0.0	18.00
BURGLARY	25.00	8.00	116.00	14.00
LARCENY	27.00	7.00	130.00	9.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	29.00	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	29.00	12.00	0.0	0.0
FAM&CHILDREN	29.00	8.00	116.00	29.00
DRUNKENESS	26.00	7.00	77.00	4.00
DISORD&VAG	15.00	7.00	116.00	4.00
D W I	25.00	7.00	99.00	3.00
OTHER NTRAF	21.00	7.00	108.00	13.00
INDEX	26.00	7.00	116.00	10.00
NON INDEX	22.00	7.00	98.00	11.00
ALL	23.00	7.00	106.00	11.00

TABLE 142

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

FREDERICKSBURG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	0.0	235.00	0.0
RAPE	0.0	0.0	0.0	0.0
ROBBERY	35.00	10.00	141.00	0.0
AG ASSAULT	31.00	10.00	117.00	8.00
AUTO THEFT	31.00	8.00	117.00	23.00
BURGLARY	30.00	7.00	117.00	14.00
LARCENY	30.00	7.00	176.00	9.00
NARCOT LAW	39.00	11.00	117.00	14.00
LIQUOR LAW	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	29.00	14.00	0.0	0.0
SEX OFFENSES	19.00	14.00	117.00	0.0
FAM&CHILDREN	29.00	6.00	235.00	20.00
DRUNKENESS	30.00	7.00	117.00	7.00
DISORD&VAG	17.00	8.00	117.00	6.00
D R I	29.00	6.00	117.00	5.00
OTHER NTRAF	23.00	8.00	134.00	19.00
INDEX	33.00	8.00	141.00	9.00
NON INDEX	25.00	7.00	126.00	13.00
ALL	27.00	8.00	134.00	12.00

TABLE 143

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

LYNCHBURG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	533.00	194.00	194.00	13.00
RAPE	533.00	0.0	0.0	0.0
ROBBERY	394.00	116.00	355.00	69.00
AG ASSAULT	350.00	102.00	102.00	68.00
AUTO THEFT	117.00	97.00	97.00	339.00
BURGLARY	158.00	202.00	210.00	82.00
LARCENY	104.00	9.00	106.00	10.00
NARCOT LAW	64.00	145.00	48.00	145.00
LIQUOR LAW	209.00	97.00	64.00	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	135.00	0.0	0.0	0.0
SEX OFFENSES	139.00	97.00	97.00	48.00
FAM&CHILDREN	69.00	121.00	97.00	44.00
DRUNKENESS	70.00	21.00	53.00	3.00
DISORD&VAG	24.00	48.00	48.00	10.00
D W I	350.00	48.00	53.00	11.00
OTHER NTRAF	70.00	33.00	62.00	25.00
INDEX	135.00	72.00	135.00	36.00
NON INDEX	75.00	46.00	58.00	14.00
ALL	90.00	61.00	103.00	16.00

TABLE 144

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

LYNCHBURG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	392.00	196.00	257.00	12.00
RAPE	588.00	196.00	245.00	73.00
ROBBERY	593.00	189.00	128.00	32.00
AG ASSAULT	165.00	98.00	253.00	78.00
AUTO THEFT	197.00	58.00	212.00	383.00
BURGLARY	395.00	168.00	285.00	115.00
LARCENY	197.00	82.00	14.00	10.00
NARCOT LAW	24.00	49.00	98.00	245.00
LIQUOR LAW	138.00	98.00	60.00	2.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	75.00	0.0	0.0	65.00
SEX OFFENSES	56.00	98.00	98.00	49.00
FAM&CHILDREN	35.00	32.00	130.00	51.00
DRUNKENESS	38.00	49.00	61.00	3.00
DISORD&VAG	16.00	0.0	0.0	19.00
O M I	172.00	47.00	62.00	9.00
OTHER NTRAF	79.00	46.00	67.00	27.00
INDEX	261.00	108.00	99.00	32.00
NON INDEX	49.00	51.00	67.00	16.00
ALL	103.00	64.00	55.00	13.00

TABLE 145

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

PETERSBURG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	2654.00	187.00	74.00	64.00
RAPE	853.00	157.00	28.00	48.00
ROBBERY	816.00	88.00	74.00	23.00
AG ASSAULT	167.00	33.00	67.00	22.00
AUTO THEFT	80.00	56.00	56.00	23.00
BURGLARY	145.00	59.00	56.00	34.00
LARCENY	21.00	64.00	112.00	20.00
NARCOT LAW	4232.00	56.00	112.00	28.00
LIQUOR LAW	40.00	56.00	96.00	7.00
PROSTITUTION	65.00	44.00	67.00	6.00
GAMBLING	171.00	49.00	0.0	6.00
SEX OFFENSES	34.00	49.00	84.00	12.00
FAM&CHILDREN	0.0	0.0	74.00	51.00
DRUNKENESS	57.00	56.00	0.0	7.00
DISORD&VAG	82.00	44.00	70.00	22.00
D W I	177.00	56.00	112.00	6.00
OTHER NTRAF	15.00	61.00	63.00	15.00
INDEX	106.00	65.00	67.00	23.00
NON INDEX	48.00	53.00	69.00	14.00
ALL	69.00	59.00	68.00	16.00

TABLE 146

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

PETERSBURG

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	3174.00	355.00	67.00	93.00
RAPE	919.00	397.00	168.00	56.00
ROBBERY	819.00	68.00	120.00	34.00
AG ASSAULT	226.00	38.00	74.00	32.00
AUTO THEFT	63.00	52.00	97.00	48.00
BURGLARY	195.00	90.00	95.00	48.00
LARCENY	22.00	112.00	66.00	21.00
NARCOT LAW	1013.00	48.00	80.00	18.00
LIQUOR LAW	1022.00	179.00	44.00	42.00
PROSTITUTION	527.00	168.00	0.0	56.00
GAMBLING	159.00	51.00	0.0	10.00
SEX OFFENSES	64.00	28.00	0.0	26.00
FAM&CHILDREN	0.0	0.0	0.0	56.00
DRUNKENESS	51.00	22.00	67.00	11.00
DISORD&VAG	104.00	56.00	87.00	26.00
D W I	202.00	22.00	56.00	11.00
OTHER NTRAF	23.00	85.00	98.00	19.00
INDEX	117.66	85.00	86.00	32.00
NON INDEX	63.00	53.00	83.00	21.00
ALL	86.00	68.00	85.00	25.00

TABLE 147

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

RADFORD

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	8942.00	96.00	288.00	96.00
RAPE	0.0	0.0	0.0	0.0
ROBBERY	192.00	0.0	0.0	0.0
AG ASSAULT	182.00	82.00	0.0	26.00
AUTO THEFT	85.00	0.0	0.0	0.0
BURGLARY	179.00	64.00	288.00	64.00
LARCENY	179.00	76.00	144.00	24.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	96.00	64.00	0.0	32.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	86.00	96.00	96.00	42.00
FAM&CHILDREN	102.00	0.0	0.0	144.00
DRUNKENESS	81.00	24.00	96.00	5.00
DISORD&VAG	82.00	26.00	72.00	20.00
D W I	182.00	48.00	144.00	22.00
OTHER NTRAF	58.00	25.00	72.00	22.00
INDEX	217.00	76.00	216.00	27.00
NON INDEX	85.00	33.00	104.00	24.00
ALL	132.00	56.00	132.00	24.00

TABLE 148

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

RADFORD

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0
ROBBERY	369.00	108.00	0.0	108.00
AG ASSAULT	274.00	72.00	0.0	19.00
AUTO THEFT	139.00	0.0	0.0	0.0
BURGLARY	274.00	68.00	1237.00	44.00
LARCENY	274.00	75.00	309.00	28.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	103.00	68.00	0.0	51.00
FAM&CHILDREN	274.00	0.0	0.0	75.00
DRUNKENESS	119.00	22.00	0.0	6.00
DISORD&VAG	136.00	34.00	206.00	23.00
D W I	274.00	41.00	309.00	21.00
OTHER NTRAF	136.00	54.00	154.00	31.00
INDEX	260.00	75.00	425.00	28.00
NON INDEX	149.00	33.00	257.00	27.00
ALL	131.00	64.00	353.00	27.00

TABLE 149

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

SALEM

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	127.00	181.00	45.00
RAPE	0.0	0.0	0.0	90.00
ROBBERY	0.0	0.0	0.0	0.0
AG ASSAULT	93.00	90.00	181.00	36.00
AUTO THEFT	71.00	0.0	0.0	145.00
BURGLARY	106.00	60.00	0.0	163.00
LARCENY	50.00	14.00	90.00	19.00
NARCOT LAW	118.00	0.0	0.0	45.00
LIQUOR LAW	97.00	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	90.00	109.00	0.0	30.00
FAM&CHILDREN	90.00	0.0	0.0	96.00
DRUNKENESS	29.00	5.00	90.00	2.00
DISORD&VAG	58.00	9.00	60.00	8.00
D W I	117.00	19.00	64.00	10.00
OTHER NTRAF	58.00	5.00	242.00	7.00
INDEX	73.00	40.00	181.00	35.00
NON INDEX	54.00	9.00	181.00	11.00
ALL	63.00	16.00	181.00	15.00

TABLE 150

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

SALEM

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	2454.00	139.00	181.00	45.00
RAPE	272.00	90.00	181.00	90.00
ROBBERY	161.00	0.0	0.0	0.0
AG ASSAULT	79.00	136.00	136.00	25.00
AUTO THEFT	49.00	18.00	90.00	159.00
BURGLARY	87.00	100.00	90.00	115.00
LARCENY	53.00	8.00	66.00	19.00
NARCOT LAW	97.00	212.00	145.00	181.00
LIQUOR LAW	48.00	0.0	0.0	45.00
PROSTITUTION	97.00	0.0	0.0	0.0
GAMBLING	0.0	90.00	0.0	90.00
SEX OFFENSES	77.00	45.00	0.0	30.00
FAM&CHILDREN	70.00	363.00	0.0	90.00
DRUNKENESS	24.00	2.00	90.00	3.00
DISORD&VAG	49.00	4.00	0.0	10.00
D W I	38.00	7.00	54.00	18.00
OTHER NTRAF	49.00	2.00	195.00	7.00
INDEX	72.00	52.00	90.00	31.00
NON INDEX	51.00	7.00	157.00	14.00
ALL	61.00	12.00	123.00	17.00

TABLE 151

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

STAUNTON

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	227.00	454.00	0.0
RAPE	454.00	113.00	227.00	0.0
ROBBERY	482.00	68.00	227.00	37.00
AG ASSAULT	27.00	34.00	373.00	21.00
AUTO THEFT	968.00	34.00	90.00	27.00
BURGLARY	1737.00	72.00	247.00	82.00
LARCENY	1725.00	31.00	238.00	37.00
NARCOT LAW	0.0	113.00	340.00	0.0
LIQUOR LAW	965.00	28.00	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	204.00	0.0	227.00	37.00
FAM&CHILDREN	69.00	28.00	170.00	48.00
DRUNKENESS	69.00	0.0	0.0	9.00
DISORD&VAG	69.00	0.0	0.0	19.00
D W I	207.00	32.00	243.00	7.00
OTHER NTRAF	69.00	33.00	75.00	27.00
INDEX	751.00	44.00	252.00	35.00
NON INDEX	82.00	31.00	156.00	20.00
ALL	172.00	37.00	214.00	23.00

TABLE 152

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

STAUNTON

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	4235.00	204.00	0.0	0.0
RAPE	714.00	102.00	204.00	0.0
ROBBERY	132.00	68.00	163.00	40.00
AG ASSAULT	209.00	23.00	224.00	51.00
AUTO THEFT	2925.00	20.00	61.00	56.00
BURGLARY	889.00	45.00	170.00	69.00
LARCENY	561.00	25.00	153.00	46.00
NARCOT LAW	0.0	102.00	0.0	102.00
LIQUOR LAW	1472.00	102.00	0.0	27.00
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	320.00	25.00	0.0	34.00
FAM&CHILDREN	104.00	14.00	102.00	47.00
DRUNKENESS	105.00	0.0	0.0	10.00
DISORD&VAG	104.00	0.0	0.0	30.00
D W I	315.00	24.00	158.00	10.00
OTHER MTRAF	105.00	25.00	54.00	12.00
INDEX	470.00	38.00	161.00	52.00
NON INDEX	130.00	30.00	87.00	18.00
ALL	225.00	31.00	126.00	21.00

CONTINUED

4 OF 5

TABLE 153

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

SUFFOLK

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	823.00	67.00	534.00	61.00
RAPE	679.00	67.00	432.00	246.00
ROBBERY	394.00	61.00	164.00	20.00
AG ASSAULT	285.00	65.00	52.00	12.00
AUTO THEFT	269.00	0.0	61.00	0.0
BURGLARY	160.00	64.00	158.00	61.00
LARCENY	98.00	0.0	56.00	28.00
NARCOT LAW	0.0	0.0	0.0	0.0
LIQUOR LAW	97.00	123.00	61.00	123.00
PROSTITUTION	0.0	20.00	0.0	61.00
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	648.00	14.00	0.0	61.00
FAM&CHILDREN	192.00	17.00	92.00	0.0
DRUNKENESS	32.00	20.00	49.00	4.00
DISORD&VAG	230.00	18.00	51.00	8.00
D W I	255.00	37.00	49.00	4.00
OTHER NTRAF	171.00	16.00	51.00	14.00
INDEX	153.00	65.00	145.00	17.00
NON INDEX	145.00	20.00	52.00	10.00
ALL	149.00	39.00	71.00	12.00

TABLE 154

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

SUFFOLK

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	0.0	125.00	625.00	31.00
RAPE	625.00	125.00	475.00	343.00
ROBBERY	236.00	85.00	187.00	83.00
AG ASSAULT	201.00	130.00	50.00	17.00
AUTO THEFT	225.00	0.0	62.00	0.0
BURGLARY	216.00	131.00	177.00	125.00
LARCENY	99.00	133.00	58.00	17.00
NARCOT LAW	1312.00	0.0	0.0	0.0
LIQUOR LAW	333.00	0.0	0.0	0.0
PROSTITUTION	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	0.0
SEX OFFENSES	375.00	125.00	0.0	62.00
FAM&CHILDREN	201.00	41.00	41.00	7.0
DRUNKENESS	28.00	28.00	62.00	5.00
DISORDERLY	215.00	31.00	62.00	9.00
D W I	192.00	31.00	58.00	8.00
OTHER NTRAF	131.00	34.00	60.00	17.00
INDEX	156.00	128.00	160.00	26.00
NON INDEX	114.00	34.00	60.00	8.00
ALL	131.00	77.00	85.00	13.00

TABLE 155

ADJUSTED AVERAGE COST PER CASE (IN $): 1968

VIRGINIA BEACH

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	683.00	164.00	427.00	58.00
RAPE	906.00	157.00	1602.00	239.00
ROBBERY	399.00	128.00	284.00	81.00
AG ASSAULT	116.00	86.00	160.00	56.00
AUTO THEFT	235.00	109.00	183.00	117.00
BURGLARY	383.00	104.00	488.00	62.00
LARCENY	114.00	118.00	132.00	71.00
NARCOT LAW	769.00	117.00	349.00	43.00
LIQUOR LAW	2.00	121.00	128.00	18.00
PROSTITUTION	349.00	128.00	320.00	12.00
GAMBLING	21.00	0.0	256.00	9.00
SEX OFFENSES	374.00	113.00	160.00	53.00
FAM&CHILDREN	154.00	115.00	349.00	134.00
DRUNKENESS	35.00	128.00	64.00	11.00
DISORD&VAG	31.00	109.00	32.00	38.00
D W I	42.00	106.00	62.00	8.00
OTHER NTRAF	29.00	147.00	111.00	63.00
INDEX	180.00	113.00	341.00	68.00
NON INDEX	53.00	131.00	118.00	35.00
ALL	125.00	121.00	187.00	41.00

TABLE 156

ADJUSTED AVERAGE COST PER CASE (IN $): 1969

VIRGINIA BEACH

CRIME TYPE	LAW ENFORCE.	COMM. ATTORNEY	COURT OF RECORD	COURT NOT OF RECORD
MURDER	1111.00	164.00	641.00	91.00
RAPE	560.00	144.00	320.00	185.00
ROBBERY	307.00	113.00	213.00	86.00
AG ASSAULT	114.00	109.00	80.00	73.00
AUTO THEFT	211.00	98.00	91.00	82.00
BURGLARY	399.00	107.00	171.00	75.00
LARCENY	107.00	102.00	91.00	67.00
NARCOT LAW	675.00	126.00	150.00	59.00
LIQUOR LAW	7.00	104.00	65.00	18.00
PROSTITUTION	20.00	91.00	213.00	15.00
GAMBLING	120.00	0.0	170.00	25.00
SEX OFFENSES	376.00	98.00	320.00	42.00
FAM&CHILDREN	66.00	112.00	81.00	120.00
DRUNKENESS	28.00	109.00	213.00	10.00
DISORD&VAG	30.00	106.00	128.00	45.00
D W I	41.00	113.00	55.00	11.00
OTHER NTRAF	32.00	110.00	123.00	77.00
INDEX	173.00	111.00	166.00	75.00
NON INDEX	69.00	131.00	115.00	47.00
ALL	136.00	120.00	141.00	53.00

APPENDIX 9

TRANSITIONAL PROBABILITIES BY REGION:

1968 AND 1969

TABLE 157

TRANSITIONAL PROBABILITIES: 1968

ACCOMACK

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.54	0.86	0.42	0.58	0.54	0.46	0.92	0.38	0.54
RAPE	1.00	0.60	1.00	0.40	0.60	0.60	0.40	1.00	0.40	0.60
ROBBERY	1.00	0.60	1.00	0.60	0.40	0.60	0.40	1.00	0.60	0.40
AG ASSAULT	1.00	0.56	0.60	0.29	0.71	0.56	0.44	0.78	0.22	0.56
AUTO THEFT	1.00	0.67	0.50	0.50	0.50	0.67	0.33	0.67	0.33	0.33
BURGLARY	0.51	0.71	0.93	0.30	0.70	0.37	0.15	0.49	0.15	0.34
LARCENY	0.53	0.91	0.97	0.06	0.94	0.48	0.05	0.52	0.03	0.48
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
FAM&CHILDREN	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
DRUNKENESS	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
DISORD&VAG	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
D W I	1.00	1.00	1.00	0.03	0.97	1.00	0.0	1.00	0.03	0.97
OTHER NTRAF	1.00	0.14	1.00	0.06	0.94	0.14	0.86	1.00	0.06	0.94
INDEX	0.64	0.73	0.91	0.25	0.75	0.47	0.17	0.60	0.15	0.45
NON INDEX	1.00	0.22	1.00	0.03	0.97	0.22	0.78	1.00	0.03	0.97
ALL	0.88	0.34	0.95	0.08	0.92	0.30	0.58	0.87	0.07	0.80

TABLE 158

TRANSITIONAL PROBABILITIES: 1969

ACCOMACK

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.86	1.00	0.43	0.57	0.86	0.14	1.00	0.43	0.57
RAPE	1.00	0.67	0.50	0.50	0.50	0.67	0.33	0.67	0.33	0.33
ROBBERY	1.00	1.00	1.00	1.00	0.0	1.00	0.0	1.00	1.00	0.0
AG ASSAULT	1.00	0.71	0.93	0.46	0.54	0.71	0.29	0.93	0.43	0.50
AUTO THEFT	1.00	0.70	1.00	0.50	0.50	0.70	0.30	1.00	0.50	0.50
BURGLARY	0.61	0.69	0.94	0.30	0.70	0.42	0.19	0.58	0.18	0.40
LARCENY	0.64	0.87	0.87	0.10	0.90	0.56	0.08	0.57	0.06	0.51
NARCOT LAW	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
LIQUOR LAW	1.00	1.00	0.88	0.0	1.00	1.00	0.0	0.88	0.0	0.88
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	0.83	0.0	1.00	1.00	0.0	0.83	0.0	0.83
FAM&CHILDREN	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
DRUNKENESS	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
DISORD&VAG	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
D W I	1.00	0.94	1.00	0.06	0.94	0.94	0.06	1.00	0.06	0.94
OTHER NTRAF	1.00	0.04	1.00	0.02	0.98	0.04	0.96	1.00	0.02	0.98
INDEX	0.69	0.78	0.91	0.29	0.71	0.54	0.15	0.64	0.19	0.45
NON INDEX	1.00	0.16	0.97	0.02	0.98	0.16	0.84	1.00	0.02	0.98
ALL	0.91	0.30	0.93	0.08	0.92	0.27	0.64	0.89	0.07	0.82

TABLE 159

TRANSITIONAL PROBABILITIES: 1968

CAROLINE

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P23	P3T	P3A	P3B
MURDER	1.00	0.67	1.00	0.67	0.33	0.67	0.33	1.00	0.67	0.33
RAPE	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
ROBBERY	1.00	0.39	0.71	0.31	0.69	0.39	0.61	0.89	0.28	0.61
AG ASSAULT	1.00	0.64	0.83	0.11	0.89	0.64	0.36	0.89	0.10	0.80
AUTO THEFT	0.29	0.24	0.66	0.02	0.97	0.07	0.22	0.27	0.01	0.27
BURGLARY	0.24	0.83	0.89	0.80	0.20	0.20	0.04	0.20	0.16	0.04
LARCENY	0.38	0.52	0.91	0.08	0.92	0.20	0.19	0.37	0.03	0.33
NARCOT LAW	1.00	1.00	0.91	0.0	0.0	1.00	0.0	0.91	0.0	0.0
LIQUOR LAW	1.00	0.91	0.90	0.70	0.30	0.91	0.09	0.91	0.64	0.27
PROSTITUTION	1.00	1.00	1.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	0.14	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	1.00	0.01	1.00	0.01	0.99	0.01	0.99	1.00	0.01	0.99
DRUNKENESS	1.00	0.94	0.97	1.02	0.98	0.94	0.06	0.97	0.02	0.95
DISORD&VAG	1.00	0.60	0.84	0.02	0.98	0.60	0.40	0.96	0.02	0.88
D W I	1.00	1.00	1.00	0.14	0.86	1.00	0.0	1.00	0.14	0.86
OTHER NTRAF	1.00	0.45	0.94	0.03	0.97	0.45	0.55	0.98	0.03	0.95
INDEX	0.46	0.54	0.84	0.14	0.86	0.25	0.21	0.42	0.06	0.36
NON INDEX	1.00	0.52	0.94	0.04	0.96	0.52	0.48	0.97	0.04	0.93
ALL	0.84	0.53	0.90	0.07	0.93	0.44	0.40	0.80	0.06	0.74

TABLE 160

TRANSITIONAL PROBABILITIES: 1969

CAROLINE

CRIME TYPE	PA	PS	PP	P2A	P2B	P2	P23	P3T	P3A	P3B
MURDER	0.75	1.00	0.0	0.0	0.0	0.75	0.0	0.0	0.0	0.0
RAPE	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
ROBBERY	1.00	0.95	0.85	0.17	0.83	0.95	0.05	0.86	0.14	0.71
AG ASSAULT	1.00	0.70	0.70	0.05	0.95	0.70	0.30	0.84	0.04	0.80
AUTO THEFT	0.17	0.84	0.71	0.06	0.94	0.11	0.06	0.14	0.01	0.13
BURGLARY	0.22	1.00	0.75	0.23	0.67	0.22	0.0	0.16	0.05	0.11
LARCENY	0.30	0.68	0.88	0.11	0.89	0.20	0.09	0.27	0.03	0.24
NARCOT LAW	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.29	0.71	1.00	0.0	1.00	0.29	0.71
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
DRUNKENESS	1.00	0.98	0.96	0.02	0.98	0.98	0.02	0.96	0.02	0.94
DISORD&VAG	1.00	0.97	0.79	0.0	1.00	0.97	0.03	0.80	0.0	0.80
D W I	1.00	1.00	1.00	0.05	0.95	1.00	0.0	1.00	0.05	0.95
OTHER NTRAF	1.00	0.87	0.93	0.06	0.97	0.87	0.13	0.94	0.02	0.92
INDEX	0.40	0.72	0.78	0.08	0.92	0.38	0.13	0.39	0.03	0.36
NON INDEX	1.00	0.89	0.93	0.02	0.98	0.60	0.40	0.96	0.02	0.94
ALL	0.64	0.83	0.88	0.03	0.97	0.53	0.31	0.77	0.02	0.75

TABLE 161

TRANSITIONAL PROBABILITIES: 1968

CARROLL

CRIME TYPE	PA	PS	PP	PCA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.63	1.00	0.38	0.63	0.63	0.38	1.00	0.38	0.63
RAPE	1.00	1.00	0.67	0.0	1.00	1.00	0.0	0.67	0.0	0.67
ROBBERY	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.83	0.76	0.91	0.35	0.65	0.67	0.21	0.82	0.29	0.53
AUTO THEFT	0.47	1.00	0.90	0.11	0.89	0.47	0.0	0.42	0.05	0.38
BURGLARY	0.83	0.68	0.68	0.47	0.53	0.23	0.11	0.31	0.14	0.16
LARCENY	0.52	0.85	1.00	0.27	0.73	0.44	0.08	0.52	0.14	0.38
NARCOT LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
LIQUOR LAW	1.00	1.00	1.00	0.06	0.94	1.00	0.0	1.00	0.06	0.94
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	1.00	0.19	0.81	1.00	0.0	1.00	0.19	0.81
FAM&CHILDREN	0.95	1.00	1.00	0.0	1.00	0.95	0.0	0.95	0.0	0.95
DRUNKENESS	0.33	0.50	0.97	0.0	1.00	0.17	0.17	0.33	0.0	0.33
DISORD&VAG	0.80	1.00	0.98	0.03	0.97	0.80	0.0	0.79	0.02	0.76
D U I	1.00	1.00	0.99	0.22	0.78	1.00	0.0	0.99	0.22	0.77
OTHER NTRAF	0.60	0.57	0.97	0.15	0.85	0.29	0.22	0.49	0.07	0.42
INDEX	0.46	0.79	0.94	0.35	0.65	0.36	0.16	0.44	0.15	0.29
NON INDEX	0.49	0.72	0.98	0.09	0.91	0.35	0.14	0.49	0.04	0.44
ALL	0.49	0.74	0.97	0.16	0.84	0.36	0.13	0.48	0.07	0.40

TABLE 162

TRANSITIONAL PROBABILITIES: 1969

CARROLL

CRIME TYPE	PA	P5	PP	P8A	P8B	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.50	0.0	1.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	1.00	1.00	1.00	0.11	0.89	1.00	0.0	1.00	0.11	0.89
AG ASSAULT	0.93	1.00	0.97	0.24	0.76	0.93	0.0	0.90	0.22	0.68
AUTO THEFT	0.50	1.00	1.00	0.29	0.71	0.50	0.0	0.50	0.15	0.35
BURGLARY	0.33	1.00	1.00	0.59	0.41	0.33	0.0	0.33	0.20	0.14
LARCENY	0.50	1.00	0.99	0.16	0.84	0.50	0.0	0.49	0.08	0.41
NARCOT LAW	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.14	0.86	1.00	0.0	1.00	0.14	0.86
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	1.00	1.00	0.33	0.67	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	0.96	1.00	1.00	0.07	0.93	0.96	0.0	0.96	0.06	0.90
DRUNKENESS	0.33	1.00	1.00	0.02	0.98	0.33	0.0	0.33	0.01	0.33
DISORD&VAG	0.73	1.00	1.00	0.0	1.00	0.73	0.0	0.73	0.0	0.73
D W I	1.00	1.00	1.00	0.09	0.91	1.00	0.0	1.00	0.09	0.91
OTHER NTRAF	0.66	1.00	1.00	0.06	0.94	0.66	0.0	0.66	0.04	0.62
INDEX	0.47	1.00	0.99	0.29	0.71	0.47	0.0	0.47	0.14	0.33
NON INDEX	0.55	1.00	1.00	0.05	0.95	0.55	0.0	0.55	0.03	0.52
ALL	0.53	1.00	1.00	0.11	0.89	0.53	0.0	0.53	0.06	0.47

TABLE 163

TRANSITIONAL PROBABILITIES: 1968

CRAIG

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AUTO THEFT	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BURGLARY	0.50	1.00	1.00	0.33	0.67	0.50	0.0	0.50	0.17	0.33
LARCENY	0.50	1.00	0.67	1.00	0.0	0.50	0.0	0.33	0.33	0.0
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	1.00	0.0	1.00
SEX OFFENSES	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
FAM&CHILDREN	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
DRUNKENESS	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
DISORD&VAG	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.25	0.75
D W I	1.00	1.00	1.00	0.25	0.75	1.00	0.0	1.00	0.01	0.99
OTHER NTRAF	1.00	1.00	1.00	0.01	0.99	1.00	0.0	1.00	0.01	0.99
INDEX	0.50	1.00	0.89	0.50	0.50	0.50	0.0	0.44	0.22	0.22
NON INDEX	1.00	1.00	1.00	0.02	0.98	1.00	0.0	1.00	0.02	0.98
ALL	0.95	1.00	0.99	0.04	0.96	0.95	0.0	0.95	0.04	0.91

TABLE 164

TRANSITIONAL PROBABILITIES: 1969

CRAIG

CRIME TYPE	PA	PS	PP	PDA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.50	1.00	1.00	0.0	1.00	0.50	0.0	0.50	0.0	0.50
AUTO THEFT	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
BURGLARY	0.50	1.00	1.00	0.20	0.80	0.50	0.0	0.50	0.10	0.40
LARCENY	0.58	1.00	1.00	0.18	0.82	0.58	0.0	0.58	0.09	0.41
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	1.00	1.00	1.00	0.08	0.92	1.00	0.0	1.00	0.08	0.92
DRUNKENESS	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
DISORDSVAG	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
D W I	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
OTHER NTRAF	1.00	1.00	1.00	0.04	0.96	1.00	0.0	1.00	0.04	0.96
INDEX	0.92	1.00	1.00	0.14	0.86	0.52	0.0	0.52	0.07	0.45
NON INDEX	1.00	1.00	1.00	0.02	0.98	1.00	0.0	1.00	0.02	0.98
ALL	0.86	1.00	1.00	0.04	0.96	0.86	0.0	0.86	0.04	0.82

TABLE 165

TRANSITIONAL PROBABILITIES: 1956

DINWIDDIE

CRIME TYPE	PA	PS	PP	PBA	PPB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
RAPE	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
ROBBERY	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
AG ASSAULT	0.65	0.72	1.00	0.44	0.56	0.47	0.18	0.65	0.29	0.36
AUTO THEFT	0.50	1.00	1.00	0.0	1.00	0.50	0.0	0.50	0.0	0.50
BURGLARY	0.50	0.75	0.67	0.67	0.33	0.38	0.13	0.37	0.25	0.12
LARCENY	0.50	0.91	0.97	0.41	0.59	0.45	0.05	0.48	0.20	0.29
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.22	1.00	1.00	0.33	0.67	0.22	0.0	0.22	0.07	0.15
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.50	0.0	0.0	0.33	0.67	0.0	0.30	0.30	0.10	0.20
FAM&CHILDREN	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	0.40	0.09	1.00	0.0	1.00	0.04	0.36	0.40	0.0	0.40
DISORD&VAG	0.59	0.12	1.00	0.06	0.94	0.07	0.48	0.55	0.03	0.52
D W I	0.58	0.44	1.00	0.13	0.88	0.42	0.54	0.96	0.12	0.84
OTHER NTRAF	0.67	0.09	1.00	0.06	0.94	0.06	0.61	0.67	0.04	0.63
INDEX	0.56	0.78	0.92	0.45	0.55	0.44	0.12	0.53	0.24	0.29
NON INDEX	0.59	0.20	1.00	0.08	0.92	0.12	0.47	0.59	0.05	0.54
ALL	0.58	0.37	0.96	0.18	0.82	0.21	0.37	0.57	0.10	0.47

TABLE 166

TRANSITIONAL PROBABILITIES: 1969

DINWIDDIE

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.00	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
RAPE	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.42	0.68	1.00	0.52	0.48	0.28	0.14	0.42	0.22	0.20
AUTO THEFT	0.50	0.90	1.00	0.10	0.90	0.45	0.05	0.50	0.05	0.45
BURGLARY	0.33	0.60	1.00	0.60	0.40	0.20	0.13	0.33	0.20	0.13
LARCENY	0.49	0.94	1.00	0.42	0.58	0.46	0.03	0.49	0.20	0.28
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.50	1.00	1.00	0.0	1.00	0.50	0.0	0.50	0.0	0.50
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.15	1.00	1.00	0.0	1.00	0.15	0.0	0.15	0.0	0.15
FAM&CHILDREN	0.10	1.00	1.00	1.00	0.0	0.10	0.0	0.10	0.10	0.0
DRUNKENESS	0.40	0.11	1.00	0.0	1.00	0.04	0.56	0.40	0.0	0.40
DISORD&VAG	0.50	0.10	1.00	0.02	0.97	0.05	0.45	0.50	0.01	0.49
D W I	0.49	0.49	1.00	0.02	0.98	0.24	0.25	0.49	0.01	0.48
OTHER NTRAF	0.76	0.17	1.00	0.07	0.93	0.13	0.63	0.76	0.06	0.70
INDEX	0.44	0.77	1.00	0.46	0.54	0.34	0.10	0.44	0.20	0.24
NON INDEX	0.54	0.24	1.00	0.06	0.94	0.13	0.41	0.54	0.03	0.51
ALL	0.52	0.38	1.00	0.16	0.84	0.19	0.32	0.52	0.08	0.43

TABLE 167

TRANSITIONAL PROBABILITIES: 1968

FAUQUIER

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.60	0.89	0.43	0.57	0.60	0.40	0.93	0.40	0.53
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.89	0.94	1.00	0.06	0.94	0.85	0.05	0.89	0.05	0.85
AG ASSAULT	0.34	0.83	0.88	0.62	0.38	0.70	0.14	0.75	0.46	0.29
AUTO THEFT	0.88	1.00	0.54	0.43	0.57	0.88	0.0	0.47	0.20	0.27
BURGLARY	0.82	0.77	0.92	0.33	0.67	0.63	0.19	0.77	0.25	0.52
LARCENY	0.73	0.83	0.85	0.05	0.95	0.61	0.12	0.64	0.03	0.61
NARCOT LAW	1.00	1.00	1.00	0.50	0.50	1.00	0.0	1.00	0.50	0.50
LIQUOR LAW	1.00	1.00	0.75	0.0	1.00	1.00	0.0	0.75	0.0	0.75
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.50	0.80	0.50	0.33	0.67	0.40	0.10	0.30	0.10	0.20
FAM&CHILDREN	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	1.00	0.99	0.00	1.00	1.00	0.0	0.99	0.00	0.99
DISORD&VAG	1.00	1.00	0.93	0.03	0.97	1.00	0.0	0.93	0.03	0.90
D W I	1.00	1.00	0.98	0.09	0.91	1.00	0.0	0.98	0.09	0.89
OTHER NTRAF	1.00	1.00	0.89	0.03	0.97	1.00	0.0	0.89	0.02	0.87
INDEX	0.82	0.82	0.87	0.28	0.72	0.67	0.15	0.73	0.21	0.52
NON INDEX	1.01	1.00	0.93	0.02	0.98	1.01	0.00	0.94	0.02	0.91
ALL	0.99	0.98	0.92	0.05	0.95	0.96	0.02	0.91	0.05	0.86

TABLE 168

TRANSITIONAL PROBABILITIES: 1969

FAUQUIER

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.62	0.85	0.42	0.58	0.62	0.38	0.90	0.38	0.52
RAPE	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
ROBBERY	0.75	1.00	0.75	0.0	1.00	0.75	0.0	0.56	0.0	0.56
AG ASSAULT	0.84	0.74	0.81	0.47	0.53	0.62	0.22	0.72	0.34	0.38
AUTO THEFT	0.50	0.75	1.00	0.25	0.75	0.38	0.13	0.50	0.13	0.38
BURGLARY	0.71	0.82	0.94	0.48	0.52	0.58	0.13	0.68	0.32	0.35
LARCENY	0.90	0.73	0.87	0.16	0.84	0.66	0.24	0.81	0.13	0.68
NARCOT LAW	1.00	0.67	1.00	0.33	0.67	0.67	0.33	1.00	0.33	0.67
LIQUOR LAW	1.00	1.00	0.95	0.0	1.00	1.00	0.0	0.95	0.0	0.95
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.60	0.0	1.00	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	0.71	0.0	1.00	1.00	0.0	0.71	0.0	0.71
FAM&CHILDREN	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	0.99	0.96	0.01	0.99	0.99	0.01	0.96	0.01	0.96
DISORD&VAG	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
D W I	1.00	0.97	0.98	0.03	0.97	0.97	0.03	0.98	0.03	0.95
OTHER NTRAF	1.00	1.00	0.79	0.03	0.97	1.00	0.0	0.79	0.02	0.77
INDEX	0.84	0.75	0.86	0.29	0.71	0.63	0.21	0.75	0.22	0.53
NON INDEX	1.00	0.99	0.84	0.02	0.98	1.00	0.01	0.84	0.02	0.82
ALL	0.98	0.96	0.84	0.06	0.94	0.95	0.04	0.83	0.05	0.78

TABLE 169

TRANSITIONAL PROBABILITIES: 1968

FRANKLIN

CRIME TYPE	PA	PS	PP	P2A	P2B	P2	P2B	P3T	P3A	P3B
MURDER	0.00	0.67	0.00	0.64	0.36	0.58	0.29	0.80	0.51	0.29
RAPE	1.00	0.67	1.00	0.67	0.33	0.67	0.33	1.00	0.67	0.33
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.38	0.76	0.92	0.37	0.63	0.28	0.09	0.35	0.13	0.22
AUTO THEFT	0.42	1.00	1.00	1.00	0.0	0.42	0.0	0.42	0.42	0.0
BURGLARY	0.15	0.67	0.85	0.41	0.59	0.10	0.05	0.13	0.06	0.08
LARCENY	0.20	0.67	0.92	0.27	0.73	0.13	0.07	0.19	0.05	0.14
NARCOT LAW	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.93	1.00	0.18	0.82	0.93	0.07	1.00	0.18	0.82
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	1.00	0.97	0.97	0.16	0.84	0.97	0.03	0.97	0.16	0.81
SEX OFFENSES	0.70	0.91	0.90	0.50	0.50	0.64	0.06	0.64	0.32	0.32
FAM&CHILDRN	0.50	0.50	0.95	0.08	0.92	0.25	0.25	0.49	0.04	0.45
DRUNKENESS	0.95	0.99	1.00	0.10	0.90	0.94	0.01	0.94	0.10	0.85
DISORD&VAG	0.87	0.98	0.96	0.20	0.80	0.85	0.02	0.84	0.16	0.67
D W I	0.34	0.97	1.00	0.34	0.66	0.33	0.01	0.34	0.12	0.23
OTHER NTRAF	0.46	0.94	0.93	0.07	0.93	0.43	0.03	0.43	0.03	0.40
INDEX	0.23	0.69	0.92	0.36	0.64	0.16	0.07	0.21	0.08	0.13
NON INDEX	0.64	0.92	0.96	0.12	0.88	0.59	0.05	0.62	0.07	0.54
ALL	0.57	0.88	0.95	0.16	0.84	0.50	0.07	0.55	0.09	0.46

TABLE 170

TRANSITIONAL PROBABILITIES: 1969

FRANKLIN

CRIME TYPE	PA	PS	PP	P8A	P8B	P2	P2B	P3T	P3A	P3B
MURDER	0.38	0.67	1.00	0.43	0.57	0.50	0.38	0.67	0.37	0.50
RAPE	1.00	0.67	1.00	0.67	0.33	0.67	0.33	1.00	0.67	0.33
ROBBERY	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
AG ASSAULT	0.47	0.48	0.92	0.42	0.58	0.22	0.24	0.45	0.19	0.26
AUTO THEFT	0.33	0.67	1.00	0.67	0.33	0.22	0.11	0.33	0.22	0.11
BURGLARY	0.19	0.44	1.00	0.44	0.56	0.07	0.08	0.15	0.07	0.08
LARCENY	0.18	0.72	0.94	0.20	0.80	0.09	0.02	0.12	0.02	0.10
NARCOT LAW	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.82	1.00	0.25	0.75	0.82	0.18	1.00	0.25	0.75
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.11	0.91	0.98	0.30	0.70	0.10	0.01	0.10	0.03	0.07
FAM&CHILDREN	0.50	0.51	0.94	0.17	0.83	0.25	0.25	0.49	0.08	0.40
DRUNKENESS	0.96	0.99	0.99	0.10	0.90	0.95	0.01	0.95	0.10	0.85
DISORDGVAG	0.89	0.95	0.97	0.18	0.82	0.84	0.05	0.86	0.16	0.70
D & T	0.38	0.99	0.99	0.38	0.62	0.34	0.01	0.34	0.13	0.21
OTHER NTRAF	0.54	0.95	0.98	0.11	0.89	0.32	0.01	0.33	0.04	0.30
INDEX	0.24	0.60	0.96	0.34	0.66	0.14	0.10	0.23	0.08	0.15
NON INDEX	0.61	0.93	0.98	0.15	0.85	0.57	0.04	0.59	0.09	0.51
ALL	0.57	0.88	0.98	0.18	0.82	0.50	0.07	0.56	0.10	0.46

TABLE 171

TRANSITIONAL PROBABILITIES: 1968

HENRY

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.73	0.63	0.38	0.63	0.73	0.27	0.73	0.27	0.45
RAPE	1.00	0.38	0.33	0.17	0.83	0.38	0.63	0.75	0.12	0.62
ROBBERY	1.00	1.00	1.00	0.0	1.00	0.63	0.0	0.63	0.0	0.63
AG ASSAULT	0.04	0.72	0.87	0.51	0.49	0.60	0.23	0.76	0.39	0.37
AUTO THEFT	0.81	1.00	0.57	0.0	1.00	0.81	0.0	0.46	0.0	0.46
BURGLARY	0.60	0.59	0.69	0.42	0.58	0.36	0.25	0.57	0.24	0.33
LARCENY	0.05	0.73	0.93	0.21	0.79	0.41	0.15	0.53	0.11	0.42
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.59	0.39	1.00	0.78	0.22	0.45	0.05	0.50	0.39	0.11
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.38	0.60	1.00	0.40	0.60	0.06	0.02	0.08	0.03	0.05
SEX OFFENSES	0.01	0.60	0.78	0.0	1.00	0.37	0.24	0.53	0.0	0.53
FAM&CHILDREN	1.00	0.06	0.55	0.03	0.97	0.06	0.94	0.97	0.03	0.94
DRUNKENESS	0.92	0.69	0.99	0.04	0.96	0.64	0.28	0.92	0.04	0.88
DISORD&VAG	0.82	0.39	0.96	0.10	0.90	0.49	0.33	0.80	0.08	0.72
D W I	1.00	0.78	0.97	0.29	0.71	0.78	0.22	0.93	0.29	0.69
OTHER NTRAF	0.65	0.52	0.68	0.15	0.85	0.33	0.31	0.60	0.09	0.50
INDEX	0.68	0.71	0.86	0.30	0.70	0.48	0.20	0.62	0.18	0.43
NON INDEX	0.01	0.61	0.96	0.12	0.88	0.49	0.32	0.78	0.09	0.69
ALL	0.77	0.62	0.95	0.14	0.86	0.48	0.29	0.74	0.10	0.64

TABLE 172

TRANSITIONAL PROBABILITIES: 1969

HENRY

CRIME TYPE	PA	PS	PP	PEA	PAB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.67	1.00	0.50	0.50	0.67	0.33	1.00	0.50	0.50
RAPE	1.00	0.78	1.00	0.67	0.33	0.76	0.22	1.00	0.67	0.33
ROBBERY	0.67	0.90	1.00	0.10	0.90	0.60	0.07	0.67	0.07	0.60
AG ASSAULT	0.84	0.42	0.86	0.23	0.77	0.35	0.48	0.78	0.18	0.61
AUTO THEFT	0.89	0.48	0.73	0.11	0.89	0.38	0.41	0.70	0.08	0.62
BURGLARY	0.45	0.43	0.90	0.32	0.68	0.19	0.24	0.41	0.13	0.28
LARCENY	0.56	0.66	0.89	0.24	0.76	0.37	0.19	0.53	0.13	0.40
NARCOT LAW	1.00	0.60	0.33	0.33	0.67	0.60	0.40	0.60	0.20	0.40
LIQUOR LAW	0.43	0.89	0.94	0.56	0.44	0.36	0.04	0.38	0.21	0.17
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.08	1.00	0.50	0.0	1.00	0.08	0.0	0.04	0.0	0.04
SEX OFFENSES	0.40	0.64	0.79	0.05	0.95	0.25	0.15	0.35	0.02	0.33
FAM&CHILDREN	1.00	0.15	0.86	0.11	0.89	0.15	0.85	0.98	0.10	0.87
DRUNKENESS	0.98	0.67	0.99	0.06	0.94	0.65	0.32	0.97	0.06	0.91
DISORD&VAG	0.85	0.56	0.90	0.13	0.87	0.45	0.35	0.75	0.10	0.66
D W I	1.00	0.81	0.92	0.42	0.58	0.81	0.19	0.93	0.39	0.55
OTHER NTRAF	0.61	0.36	0.83	0.12	0.88	0.23	0.38	0.57	0.07	0.51
INDEX	0.62	0.58	0.89	0.26	0.74	0.36	0.26	0.58	0.15	0.43
NON INDEX	0.76	0.55	0.93	0.13	0.87	0.42	0.35	0.75	0.10	0.65
ALL	0.73	0.55	0.92	0.15	0.85	0.40	0.33	0.70	0.11	0.59

TABLE 173

TRANSITIONAL PROBABILITIES: 1960

NELSON

CRIME TYPE	PA	PS	PP	P8A	P8B	P2	P2B	P3T	P3A	P3B
MURDER	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	1.00	1.00	0.94	0.07	0.93	1.00	0.0	0.94	0.07	0.87
AUTO THEFT	1.00	1.00	1.00	1.00	0.0	1.00	0.0	1.00	1.00	0.0
BURGLARY	1.00	1.00	1.00	0.50	0.50	1.00	0.0	1.00	0.50	0.50
LARCENY	1.00	1.00	1.00	0.60	0.40	1.00	0.0	1.00	0.60	0.40
NARCOT LAW	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	1.00	1.00	0.33	0.67	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FAMCHILDREN	1.00	0.95	0.95	0.05	0.95	0.95	0.05	0.95	0.05	0.91
DRUNKENESS	1.00	1.00	1.00	0.02	0.98	1.00	0.0	1.00	0.02	0.98
DISORDSVAG	1.00	1.00	0.98	0.04	0.96	1.00	0.0	0.98	0.04	0.94
D W I	1.00	0.90	0.68	0.23	0.77	0.90	0.10	0.90	0.21	0.69
OTHER NTRAF	1.00	1.00	0.90	0.85	0.15	1.00	0.0	0.90	0.77	0.14
INDEX	1.00	1.00	1.05	0.29	0.71	1.00	0.0	0.95	0.27	0.67
NON INDEX	1.00	0.98	0.96	0.14	0.86	0.98	0.02	0.97	0.14	0.83
ALL	1.00	0.99	0.96	0.19	0.81	0.99	0.01	0.96	0.18	0.78

TABLE 174

TRANSITIONAL PROBABILITIES: 1969

NELSON

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	1.00	1.00	0.28	0.28	0.72	1.00	0.0	0.83	0.23	0.60
AUTO THEFT	0.0	0.50	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
BURGLARY	0.50	0.90	1.00	0.90	0.10	0.45	0.05	0.50	0.45	0.05
LARCENY	0.50	0.78	1.00	0.56	0.44	0.39	0.11	0.50	0.28	0.22
NARCOT LAW	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.09	0.0	0.0	1.00	0.09	0.91	0.91	0.0	0.91
FAM&CHILDREN	0.0	0.95	0.96	0.04	0.96	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	0.89	1.00	0.01	0.99	0.89	0.11	1.00	0.01	0.99
DISORD&VAG	1.00	0.54	1.00	0.07	0.93	0.54	0.46	1.00	0.07	0.93
D W I	1.00	1.00	0.98	0.25	0.75	1.00	0.0	0.98	0.25	0.73
OTHER NTRAF	1.00	0.11	1.00	0.16	0.84	0.11	0.89	1.00	0.16	0.84
INDEX	0.67	0.85	0.90	0.44	0.56	0.57	0.10	0.62	0.27	0.34
NON INDEX	1.00	0.62	0.98	0.10	0.90	0.62	0.38	0.99	0.10	0.89
ALL	0.83	0.64	0.97	0.13	0.87	0.64	0.36	0.82	0.11	0.71

TABLE 175

TRANSITIONAL PROBABILITIES: 1968

SURREY

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	1.00	0.86	1.00	0.14	0.86	0.86	0.14	1.00	0.14	0.86
AUTO THEFT	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
BURGLARY	0.05	1.00	0.0	0.0	0.0	0.05	0.0	0.0	0.0	0.0
LARCENY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.75	1.00	0.50	0.50	0.75	0.25	1.00	0.50	0.50
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
FAM&CHILDREN	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
DISORD&VAG	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
D W I	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
OTHER NTRAF	0.93	1.00	0.76	0.03	0.97	0.93	0.0	0.70	0.02	0.69
INDEX	0.23	0.91	0.65	0.14	0.66	0.21	0.02	0.14	0.02	0.12
NON INDEX	0.94	0.99	0.80	0.04	0.96	0.95	0.01	0.76	0.03	0.73
ALL	0.78	0.99	0.79	0.05	0.95	0.77	0.01	0.62	0.03	0.59

TABLE 176

TRANSITIONAL PROBABILITIES: 1969

SURREY

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
AUTO THEFT	1.00	1.00	0.67	0.0	1.00	1.00	0.0	0.67	0.0	0.67
BURGLARY	0.08	1.00	1.00	1.00	0.0	0.08	0.0	0.08	0.08	0.0
LARCENY	0.15	0.83	0.50	0.25	0.75	0.13	0.03	0.10	0.03	0.08
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.73	0.63	0.38	0.63	0.73	0.27	0.73	0.27	0.45
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FAM&CHILDREN	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	1.00	0.92	0.0	1.00	1.00	0.0	0.92	0.0	0.92
DISORD&VAG	1.00	1.00	0.67	0.17	0.83	1.00	0.0	0.67	0.11	0.56
D W I	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
OTHER NTRAF	1.00	1.00	0.76	0.0	1.00	1.00	0.0	0.76	0.0	0.76
INDEX	0.22	0.89	0.75	0.42	0.58	0.18	0.04	0.18	0.07	0.10
NON INDEX	0.32	0.99	0.76	0.03	0.97	0.80	0.02	0.63	0.02	0.61
ALL	0.60	0.96	0.76	0.07	0.93	0.58	0.02	0.46	0.03	0.43

TABLE 177

TRANSITIONAL PROBABILITIES: 1968

CHARLOTTESVILLE

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.83	0.80	0.40	0.60	0.33	0.17	0.83	0.33	0.50
RAPE	0.60	1.00	0.75	0.83	0.17	0.60	0.0	0.45	0.37	0.07
ROBBERY	0.50	0.00	1.00	0.47	0.53	0.30	0.20	0.50	0.23	0.27
AG ASSAULT	1.00	0.93	1.00	0.04	0.96	0.63	0.37	1.00	0.04	0.96
AUTO THEFT	0.32	0.67	0.90	0.43	0.57	0.21	0.11	0.30	0.13	0.17
BURGLARY	0.24	0.84	0.79	0.23	0.77	0.20	0.04	0.20	0.05	0.15
LARCENY	0.22	0.85	0.93	0.11	0.89	0.19	0.03	0.21	0.02	0.19
NARCOT LAW	0.0	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.0	1.00	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	1.00	1.00	0.0	0.0	0.0	1.00	0.0	1.00	0.0	1.00
GAMBLING	1.00	1.00	1.00	0.0	0.0	1.00	0.0	0.0	0.0	0.0
SEX OFFENSES	0.85	1.00	0.94	0.03	0.97	0.85	0.0	0.79	0.03	0.77
FAM&CHILDREN	1.00	0.50	0.96	0.01	0.99	0.30	0.70	0.96	0.01	0.95
DRUNKENESS	1.00	0.10	0.99	0.00	1.00	0.10	0.90	1.00	0.00	1.00
DISORD&VAG	1.00	0.13	0.94	0.02	0.98	0.13	0.87	0.99	0.02	0.97
D W I	1.00	1.00	0.96	0.13	0.88	1.00	0.0	0.96	0.12	0.84
OTHER NTRAF	1.00	0.11	0.98	0.02	0.98	0.11	0.89	1.00	0.02	0.98
INDEX	0.27	0.76	0.94	0.11	0.89	0.20	0.07	0.26	0.03	0.23
NON INDEX	1.00	0.18	0.95	0.02	0.98	0.18	0.82	0.99	0.02	0.97
ALL	0.73	0.32	0.94	0.04	0.96	0.23	0.30	0.72	0.03	0.69

TABLE 178

TRANSITIONAL PROBABILITIES: 1969

CHARLOTTESVILLE

CRIME TYPE	PA	PS	PP	P&A	P&B	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.71	1.00	0.57	0.43	0.71	0.29	1.00	0.57	0.43
RAPE	0.73	1.00	0.67	0.40	0.60	0.73	0.0	0.48	0.19	0.29
ROBBERY	0.38	0.97	0.83	0.72	0.28	0.36	0.01	0.31	0.22	0.09
AG ASSAULT	1.00	0.04	0.87	0.04	0.96	0.04	0.36	0.92	0.04	0.87
AUTO THEFT	0.36	1.00	0.76	0.22	0.78	0.36	0.0	0.28	0.06	0.22
BURGLARY	0.29	0.68	0.96	0.50	0.70	0.20	0.09	0.29	0.09	0.20
LARCENY	0.18	0.82	0.93	0.12	0.88	0.15	0.03	0.17	0.02	0.15
NARCOT LAW	1.00	1.00	0.89	0.0	1.00	1.00	0.0	0.89	0.0	0.89
LIQUOR LAW	1.00	1.00	1.00	0.02	0.98	1.00	0.0	1.00	0.02	0.98
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
SEX OFFENSES	1.00	1.00	0.92	0.09	0.91	1.00	0.0	0.92	0.08	0.84
FAM&CHILDREN	1.00	0.41	0.70	0.01	1.00	0.41	0.59	0.88	0.0	0.88
DRUNKENESS	1.00	0.11	1.00	0.01	0.99	0.11	0.89	1.00	0.01	0.99
DISORD&VAG	1.00	0.12	1.00	0.02	0.98	0.12	0.88	1.00	0.02	0.98
D W I	1.00	1.00	0.99	0.07	0.93	1.00	0.0	0.99	0.07	0.91
OTHER NTRAF	1.00	0.12	0.97	0.02	0.93	0.12	0.88	1.00	0.02	0.98
INDEX	0.25	0.75	0.89	0.12	0.88	0.19	0.06	0.23	0.03	0.20
NON INDEX	1.00	0.19	0.95	0.02	0.98	0.19	0.81	0.99	0.02	0.97
ALL	0.68	0.34	0.91	0.04	0.96	0.23	0.45	0.66	0.03	0.63

TABLE 179

TRANSITIONAL PROBABILITIES: 1968

DANVILLE

CRIME TYPE	PA	PS	PP	PDA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.80	0.75	0.58	0.42	0.80	0.20	0.80	0.47	0.33
RAPE	0.67	0.92	0.83	0.36	0.64	0.62	0.05	0.56	0.21	0.36
ROBBERY	0.60	0.90	1.00	0.60	0.40	0.45	0.05	0.50	0.30	0.20
AG ASSAULT	0.80	0.77	0.77	0.38	0.63	0.61	0.19	0.66	0.25	0.41
AUTO THEFT	0.68	1.00	0.82	0.29	0.71	0.55	0.0	0.45	0.13	0.32
BURGLARY	0.53	0.91	0.59	0.56	0.44	0.48	0.05	0.34	0.19	0.15
LARCENY	0.82	0.88	0.90	0.29	0.71	0.71	0.10	0.74	0.22	0.53
NARCOT LAW	0.0	1.00	0.17	0.0	1.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	0.86	0.37	0.63	1.00	0.0	0.86	0.31	0.54
PROSTITUTION	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
GAMBLING	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
SEX OFFENSES	1.00	1.00	0.82	0.07	0.93	1.00	0.0	0.82	0.06	0.76
FAM&CHILDREN	1.00	1.00	0.86	0.00	1.00	1.00	0.0	0.86	0.00	0.85
DRUNKENESS	1.00	1.00	1.00	0.10	0.90	1.00	0.0	1.00	0.10	0.90
DISORD&VAG	1.00	1.00	0.88	0.06	0.94	1.00	0.0	0.88	0.05	0.82
D W I	1.00	1.00	0.98	0.30	0.70	1.00	0.0	0.98	0.29	0.69
OTHER NTRAF	0.94	0.99	0.87	0.12	0.88	0.92	0.01	0.92	0.10	0.72
INDEX	0.69	0.86	0.80	0.36	0.64	0.60	0.09	0.58	0.21	0.37
NON INDEX	0.96	1.00	0.93	0.10	0.90	0.96	0.00	0.90	0.09	0.80
ALL	0.94	0.95	0.91	0.15	0.87	0.92	0.02	0.86	0.11	0.75

TABLE 180

TRANSITIONAL PROBABILITIES: 1969

DANVILLE

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.60	1.00	0.60	0.40	0.60	0.40	1.00	0.60	0.40
RAPE	1.00	1.00	0.89	0.50	0.50	1.00	0.0	0.89	0.44	0.44
ROBBERY	0.44	0.73	1.00	0.40	0.60	0.33	0.12	0.44	0.18	0.27
AGG ASSAULT	1.00	0.79	0.68	0.42	0.58	0.79	0.21	0.74	0.31	0.43
AUTO THEFT	0.41	0.90	0.81	0.42	0.58	0.37	0.04	0.34	0.14	0.19
BURGLARY	0.44	0.83	0.92	0.56	0.44	0.36	0.08	0.41	0.23	0.18
LARCENY	0.79	0.91	0.85	0.16	0.84	0.72	0.07	0.68	0.11	0.57
NARCOT LAW	1.00	0.94	0.65	0.50	0.50	0.94	0.06	0.67	0.33	0.33
LIQUOR LAW	1.00	1.00	1.00	0.08	0.92	1.00	0.0	1.00	0.08	0.92
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	1.00	1.00	0.91	0.0	1.00	1.00	0.0	0.91	0.0	0.91
SEX OFFENSES	1.00	1.00	0.95	0.21	0.79	1.00	0.0	0.95	0.20	0.75
FAM&CHILDREN	1.00	1.00	0.87	0.04	0.96	1.00	0.00	0.87	0.03	0.83
DRUNKENESS	1.00	1.00	0.99	0.08	0.92	1.00	0.0	0.99	0.08	0.90
DISORD&VAG	1.00	1.00	0.85	0.07	0.93	1.00	0.0	0.85	0.06	0.79
D W I	1.00	1.00	0.97	0.32	0.68	1.00	0.0	0.97	0.31	0.66
OTHER NTRAF	1.00	0.99	0.87	0.11	0.89	0.99	0.01	0.87	0.10	0.77
INDEX	0.63	0.87	0.85	0.31	0.69	0.55	0.08	0.54	0.17	0.37
NON INDEX	1.00	1.00	0.92	0.10	0.90	1.00	0.00	0.92	0.09	0.83
ALL	0.93	0.98	0.91	0.13	0.87	0.92	0.02	0.86	0.11	0.75

TABLE 181

TRANSITIONAL PROBABILITIES: 1968

FREDERICKSBURG

CRIME TYPE	PA	PS	PP	P&A	P&B	P2	P2B	P3T	P3A	P3B
MURDER	0.50	1.00	3.50	0.43	0.57	0.50	0.0	1.75	0.75	1.00
RAPE	1.00	0.67	1.00	0.0	1.00	0.67	0.33	1.00	0.0	1.00
ROBBERY	0.50	1.00	1.00	0.40	0.60	0.50	0.0	0.50	0.20	0.30
AG ASSAULT	1.00	0.17	1.00	0.02	0.98	0.17	0.83	1.00	0.02	0.98
AUTO THEFT	0.32	0.70	1.00	0.05	0.95	0.22	0.10	0.32	0.02	0.30
BURGLARY	0.24	0.76	1.00	0.16	0.84	0.18	0.06	0.24	0.04	0.20
LARCENY	0.10	0.54	0.95	0.14	0.86	0.10	0.08	0.17	0.02	0.15
NARCOT LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
LIQUOR LAW	1.00	1.00	1.00	0.20	0.80	1.00	0.0	1.00	0.20	0.80
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	1.00	0.11	0.89	1.00	0.0	1.00	0.11	0.89
FAM&CHILDREN	1.00	0.05	1.00	0.01	0.99	0.05	0.95	1.00	0.01	0.99
DRUNKENESS	1.00	0.99	1.00	0.01	0.99	0.99	0.01	1.00	0.01	0.99
DISORD&VAG	0.58	0.92	1.00	0.03	0.97	0.54	0.05	0.58	0.02	0.57
D W I	1.00	1.00	1.00	0.17	0.83	1.00	0.0	1.00	0.17	0.83
OTHER NTRAF	0.81	1.00	1.00	0.06	0.94	0.81	0.0	0.81	0.05	0.76
INDEX	0.28	0.39	1.01	0.08	0.92	0.11	0.17	0.28	0.02	0.26
NON INDEX	0.86	0.79	1.00	0.03	0.97	0.68	0.18	0.86	0.03	0.84
ALL	0.69	0.70	1.00	0.04	0.96	0.48	0.20	0.69	0.03	0.66

TABLE 182

TRANSITIONAL PROBABILITIES: 1969

FREDERICKSBURG

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	1.00	1.00	0.50	0.50	1.00	0.0	1.00	0.50	0.50
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.60	1.00	1.00	0.45	0.55	0.60	0.0	0.60	0.27	0.33
AG ASSAULT	1.00	0.18	1.00	0.04	0.96	0.18	0.82	1.00	0.04	0.96
AUTO THEFT	0.29	0.82	1.00	0.12	0.88	0.24	0.05	0.29	0.03	0.26
BURGLARY	0.20	0.79	1.00	0.16	0.84	0.15	0.04	0.20	0.03	0.16
LARCENY	0.17	0.54	0.96	0.06	0.94	0.09	0.08	0.17	0.01	0.16
NARCOT LAW	1.00	0.33	1.00	0.33	0.67	0.33	0.17	1.00	0.33	0.67
LIQUOR LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
SEX OFFENSES	1.00	1.00	1.00	0.25	0.75	1.00	0.0	1.00	0.25	0.75
FAM&CHILDREN	1.00	0.11	1.00	0.00	1.00	0.11	0.89	1.00	0.00	1.00
DRUNKENESS	1.00	0.95	1.00	0.01	0.99	0.95	0.05	1.00	0.01	0.99
DISORD&VAG	0.59	0.92	1.00	0.03	0.97	0.55	0.35	0.59	0.02	0.58
D W I	1.00	1.00	1.00	0.08	0.92	1.00	0.0	1.00	0.08	0.92
OTHER NTRAF	0.78	1.00	1.00	0.03	0.97	0.78	0.0	0.78	0.03	0.75
INDEX	0.23	0.42	0.98	0.07	0.93	0.10	0.14	0.23	0.02	0.21
NON INDEX	0.85	0.70	1.00	0.02	0.98	0.60	0.25	0.85	0.02	0.84
ALL	0.61	0.64	1.00	0.03	0.97	0.39	0.22	0.61	0.02	0.59

TABLE 183

TRANSITIONAL PROBABILITIES: 1968

LYNCHBURG

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.75	0.22	1.00	0.22	0.78	0.17	0.58	0.75	0.17	0.58
RAPE	0.50	0.0	0.0	0.0	1.00	0.0	0.50	0.50	0.0	0.50
ROBBERY	0.38	0.62	0.66	0.30	0.70	0.16	0.22	0.31	0.09	0.22
AG ASSAULT	1.00	0.33	1.00	0.33	0.67	0.33	0.67	1.00	0.33	0.67
AUTO THEFT	0.34	0.30	1.00	0.30	0.70	0.10	0.24	0.34	0.10	0.24
BURGLARY	0.23	0.38	1.00	0.38	0.62	0.09	0.14	0.23	0.09	0.14
LARCENY	0.30	0.22	0.98	0.22	0.78	0.07	0.23	0.30	0.07	0.23
NARCOT LAW	1.00	0.35	1.00	0.33	0.67	0.33	0.67	1.00	0.33	0.67
LIQUOR LAW	1.00	0.18	1.00	0.18	0.82	0.18	0.82	1.00	0.18	0.82
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.09	1.00	0.09	0.91	0.09	0.91	1.00	0.09	0.91
FAMCHILDREN	1.00	0.02	1.00	0.02	0.98	0.02	0.98	1.00	0.02	0.98
DRUNKENESS	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
DISORDEVAG	0.35	0.01	1.00	0.01	0.99	0.00	0.34	0.35	0.00	0.34
D W I	1.00	0.15	0.98	0.15	0.85	0.15	0.85	1.00	0.15	0.85
OTHER NTRAF	1.00	0.03	0.85	0.03	0.97	0.03	0.97	1.00	0.03	0.97
INDEX	0.31	0.26	0.87	0.26	0.74	0.08	0.23	0.31	0.08	0.23
NON INDEX	0.80	0.13	0.95	0.13	0.87	0.02	0.77	0.79	0.02	0.77
ALL	0.68	0.26	0.90	0.06	0.94	0.04	0.64	0.68	0.04	0.64

TABLE 184

TRANSITIONAL PROBABILITIES: 1969

LYNCHBURG

CRIME TYPE	PA	PS	PP	P8A	P8B	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
RAPE	0.44	0.20	1.00	0.20	0.80	0.09	0.36	0.44	0.09	0.36
ROBBERY	0.49	0.43	1.00	0.43	0.57	0.21	0.28	0.49	0.21	0.28
AG ASSAULT	1.00	0.40	1.00	0.40	0.60	0.40	0.60	1.00	0.40	0.60
AUTO THEFT	0.30	0.45	0.60	0.33	0.67	0.13	0.16	0.24	0.08	0.16
BURGLARY	0.21	0.32	0.90	0.30	0.70	0.07	0.14	0.20	0.06	0.14
LARCENY	0.30	0.21	0.87	0.19	0.81	0.06	0.24	0.29	0.06	0.24
NARCOT LAW	1.00	0.50	0.50	0.33	0.67	0.50	0.50	0.75	0.25	0.50
LIQUOR LAW	1.00	0.23	1.00	0.23	0.77	0.23	0.77	1.00	0.23	0.77
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
SEX OFFENSES	1.00	0.33	1.00	0.33	0.67	0.33	0.67	1.00	0.33	0.67
FAM&CHILDREN	1.00	0.02	1.00	0.02	0.98	0.02	0.98	1.00	0.02	0.98
DRUNKENESS	1.00	0.01	1.00	0.01	0.99	0.01	0.99	1.00	0.01	0.99
DISORD&VAG	0.46	0.00	0.0	0.0	1.00	0.00	0.46	0.46	0.0	0.46
D W I	1.00	0.12	1.00	0.12	0.88	0.12	0.88	1.00	0.12	0.88
OTHER NTRAF	1.00	0.05	0.96	0.05	0.95	0.05	0.95	1.00	0.05	0.95
INDEX	0.31	0.26	0.89	0.24	0.76	0.09	0.23	0.30	0.07	0.23
NON INDEX	0.83	0.03	0.96	0.03	0.97	0.03	0.80	0.83	0.03	0.80
ALL	0.68	0.07	0.92	0.06	0.94	0.04	0.64	0.68	0.04	0.64

TABLE 185

TRANSITIONAL PROBABILITIES: 1968

PETERSBURG

CRIME TYPE	PA	PS	PP	PEA	PBB	P2	P23	P3T	P3A	P3B
MURDER	1.00	0.60	0.78	0.46	0.54	0.60	0.40	0.87	0.40	0.47
RAPE	0.65	0.42	0.80	0.30	0.64	0.25	0.35	0.55	0.20	0.35
ROBBERY	0.38	0.51	0.84	0.44	0.56	0.20	0.19	0.35	0.16	0.20
AG ASSAULT	0.73	0.06	0.92	0.06	0.94	0.04	0.69	0.73	0.04	0.69
AUTO THEFT	0.16	0.32	0.88	0.26	0.74	0.05	0.11	0.16	0.04	0.12
BURGLARY	0.12	0.31	0.89	0.24	0.76	0.04	0.08	0.12	0.03	0.09
LARCENY	0.16	0.14	0.88	0.06	0.94	0.02	0.14	0.16	0.01	0.15
NARCOT LAW	1.00	0.67	1.00	0.33	0.67	0.67	0.33	1.00	0.33	0.67
LIQUOR LAW	1.00	0.07	1.00	0.04	0.96	0.07	0.93	1.00	0.04	0.96
PROSTITUTION	1.00	0.05	1.00	0.05	0.95	0.05	0.95	1.00	0.05	0.95
GAMBLING	1.00	0.18	0.78	0.00	1.00	0.18	0.82	0.96	0.00	0.96
SEX OFFENSES	1.00	0.09	0.78	0.04	0.96	0.09	0.91	0.96	0.04	0.94
FAM&CHILDREN	1.00	0.10	0.87	0.09	0.91	0.10	0.90	0.96	0.09	0.87
DRUNKENESS	1.00	0.01	1.00	0.00	1.00	0.01	0.99	1.00	0.00	1.00
DISORD&VAG	1.00	0.04	0.93	0.03	0.97	0.04	0.96	1.00	0.03	0.96
D & I	1.00	0.10	1.00	0.05	0.95	0.10	0.90	1.00	0.05	0.95
OTHER NTRAF	1.00	0.04	0.91	0.04	0.96	0.04	0.96	1.00	0.04	0.95
INDEX	0.21	0.13	0.83	0.10	0.90	0.03	0.16	0.20	0.02	0.18
NON INDEX	1.00	0.04	0.90	0.03	0.97	0.04	0.96	1.00	0.03	0.96
ALL	0.71	0.07	0.89	0.05	0.95	0.05	0.66	0.70	0.04	0.67

TABLE 186

TRANSITIONAL PROBABILITIES: 1969

PETERSBURG

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.38	0.55	1.00	0.45	0.55	0.20	0.17	0.38	0.17	0.20
RAPE	0.45	0.19	1.00	0.13	0.88	0.09	0.37	0.45	0.06	0.40
ROBBERY	0.34	0.47	0.67	0.33	0.67	0.16	0.18	0.29	0.09	0.19
AG ASSAULT	0.62	0.06	0.96	0.06	0.94	0.04	0.58	0.61	0.04	0.58
AUTO THEFT	0.08	0.46	0.93	0.42	0.58	0.04	0.04	0.07	0.03	0.04
BURGLARY	0.08	0.19	0.84	0.16	0.84	0.02	0.07	0.08	0.01	0.07
LARCENY	0.23	0.06	0.89	0.05	0.95	0.01	0.22	0.23	0.01	0.22
NARCOT LAW	1.00	0.28	1.00	0.28	0.72	0.28	0.72	1.00	0.28	0.72
LIQUOR LAW	1.00	0.38	1.00	0.38	0.62	0.38	0.62	1.00	0.38	0.62
PROSTITUTION	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
GAMBLING	1.00	0.20	1.00	0.0	1.00	0.20	0.80	1.00	0.0	1.00
SEX OFFENSES	1.00	0.21	1.00	0.02	0.98	0.21	0.79	1.00	0.02	0.98
FAM&CHILDREN	0.0	0.02	1.00	0.02	0.98	0.0	0.0	0.0	0.0	0.0
DRUNKENESS	1.00	0.04	1.00	0.01	0.99	0.04	0.96	1.00	0.01	0.99
DISORD&VAG	1.00	0.03	1.00	0.01	0.99	0.03	0.97	1.00	0.01	0.99
D W I	1.00	0.23	1.00	0.17	0.83	0.28	0.72	1.00	0.17	0.83
OTHER NTRAF	1.00	0.15	0.98	0.11	0.89	0.15	0.85	0.99	0.11	0.88
INDEX	0.21	0.10	0.87	0.09	0.91	0.02	0.19	0.21	0.02	0.19
NON INDEX	1.00	0.08	0.97	0.04	0.96	0.08	0.92	1.00	0.04	0.96
ALL	0.68	0.09	0.95	0.06	0.94	0.06	0.62	0.67	0.04	0.63

TABLE 187

TRANSITIONAL PROBABILITIES: 1968

RADFORD

CRIME TYPE	PA	PS	PP	P8A	P8B	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.50	0.64	1.00	0.0	1.00	0.32	0.18	0.50	0.0	0.50
AUTO THEFT	0.22	1.00	0.0	0.0	0.0	0.22	0.0	0.0	0.0	0.0
BURGLARY	0.08	0.50	1.00	0.50	0.50	0.04	0.04	0.08	0.04	0.04
LARCENY	0.44	0.79	0.88	0.06	0.94	0.35	0.09	0.40	0.02	0.37
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.10	1.00	0.10	0.90	0.10	0.90	1.00	0.10	0.90
FAM&CHILDREN	0.56	0.0	0.0	0.0	1.00	0.0	0.56	0.56	0.0	0.56
DRUNKENESS	0.91	0.11	1.00	0.01	0.99	0.10	0.81	0.91	0.01	0.90
DISORD&VAG	0.91	0.12	0.91	0.04	0.96	0.11	0.81	0.90	0.04	0.86
D W I	1.00	0.44	1.00	0.37	0.63	0.44	0.56	1.00	0.37	0.63
OTHER NTRAF	0.66	0.12	1.00	0.06	0.94	0.08	0.58	0.66	0.04	0.61
INDEX	0.37	0.75	0.90	0.09	0.91	0.28	0.09	0.34	0.03	0.31
NON INDEX	0.85	0.13	0.98	0.06	0.94	0.11	0.73	0.85	0.05	0.80
ALL	0.68	0.24	0.94	0.06	0.94	0.16	0.52	0.67	0.04	0.63

TABLE 188

TRANSITIONAL PROBABILITIES: 1969

RADFORD

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2J	P3T	P3A	P3B
MURDER	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROBBERY	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
AG ASSAULT	1.00	1.00	0.94	0.0	1.00	1.00	0.0	0.94	0.0	0.94
AUTO THEFT	0.29	1.00	0.0	0.0	0.0	0.29	0.0	0.0	0.0	0.0
BURGLARY	0.16	0.80	0.67	0.13	0.88	0.10	0.06	0.13	0.02	0.11
LARCENY	0.67	0.75	0.92	0.07	0.93	0.50	0.17	0.63	0.04	0.59
NARCOT LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.60	0.67	0.0	1.00	0.60	0.40	0.80	0.0	0.80
FAM&CHILDREN	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
DRUNKENESS	0.07	0.11	0.93	0.0	1.00	0.09	0.78	0.86	0.0	0.86
DISORD&VAG	1.00	0.13	0.83	0.04	0.96	0.13	0.87	0.98	0.04	0.93
D W I	1.00	0.14	1.00	0.06	0.94	0.14	0.86	1.00	0.06	0.94
OTHER NTRAF	1.00	0.06	1.00	0.02	0.98	0.06	0.94	1.00	0.02	0.98
INDEX	0.47	0.77	0.91	0.06	0.94	0.36	0.10	0.43	0.03	0.41
NON INDEX	0.94	0.09	0.91	0.02	0.98	0.09	0.86	0.94	0.02	0.92
ALL	0.80	0.27	0.91	0.03	0.97	0.22	0.59	0.78	0.02	0.76

TABLE 189

TRANSITIONAL PROBABILITIES: 1960

SALEM

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	1.00	0.50	0.50	0.0	0.0	0.0	0.0	0.0
RAPE	0.0	0.33	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0
ROBBERY	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AG ASSAULT	0.24	0.86	1.00	0.29	0.71	0.20	0.03	0.24	0.07	0.17
AUTO THEFT	0.21	0.0	0.0	0.0	1.00	0.0	0.21	0.21	0.0	0.21
BURGLARY	0.16	1.00	0.89	0.0	1.00	0.16	0.0	0.04	0.0	0.04
LARCENY	0.12	0.78	0.95	0.04	0.96	0.16	0.03	0.12	0.01	0.11
NARCOT LAW	1.00	1.00	0.40	0.0	1.00	1.00	0.0	0.40	0.0	0.40
LIQUOR LAW	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.83	1.00	0.0	1.00	0.83	0.17	1.00	0.0	1.00
FAM&CHILDREN	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
DRUNKENESS	1.00	0.96	1.00	0.01	0.99	0.96	0.04	1.00	0.01	0.99
DISORD&VAG	1.00	0.79	1.00	0.03	0.97	0.79	0.21	1.00	0.03	0.97
D & I	1.00	0.95	0.95	0.17	0.83	0.95	0.05	0.95	0.16	0.79
OTHER NTRAF	1.00	0.58	0.99	0.05	0.95	0.58	0.42	0.99	0.05	0.94
INDEX	0.18	0.82	0.83	0.07	0.93	0.18	0.03	0.11	0.01	0.11
NON INDEX	1.00	0.74	0.96	0.04	0.96	0.74	0.26	0.99	0.04	0.95
ALL	0.56	0.76	0.96	0.05	0.95	0.42	0.14	0.54	0.02	0.52

TABLE 190

TRANSITIONAL PROBABILITIES: 1969

SALEM

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	1.00	1.00	0.33	0.67	1.00	0.0	1.00	0.33	0.67
RAPE	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
ROBBERY	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
AG ASSAULT	0.26	0.25	1.00	0.13	0.88	0.06	0.19	0.26	0.03	0.22
AUTO THEFT	0.18	0.63	0.80	0.33	0.67	0.11	0.07	0.14	0.05	0.09
BURGLARY	0.14	0.56	0.96	0.35	0.65	0.08	0.06	0.13	0.05	0.09
LARCENY	0.26	0.79	0.86	0.09	0.91	0.20	0.06	0.23	0.02	0.21
NARCOT LAW	1.00	0.86	1.00	0.71	0.29	0.86	0.14	1.00	0.71	0.29
LIQUOR LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
PROSTITUTION	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.50	0.0	1.00	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.44	1.00	0.0	1.00	0.44	0.56	1.00	0.0	1.00
FAM&CHILDREN	1.00	0.02	1.00	0.02	0.98	0.02	0.98	1.00	0.02	0.98
DRUNKENESS	1.00	0.96	0.99	0.01	0.99	0.96	0.04	0.99	0.01	0.99
DISORD&VAG	1.00	0.67	0.91	0.0	1.00	0.67	0.33	0.94	0.0	0.94
D W I	1.00	1.00	0.94	0.18	0.82	1.00	0.0	0.94	0.16	0.77
OTHER NTRAF	1.00	0.74	0.97	0.06	0.94	0.74	0.26	0.97	0.06	0.92
INDEX	0.22	0.73	0.87	0.13	0.87	0.16	0.06	0.20	0.03	0.17
NON INDEX	1.00	0.76	0.96	0.04	0.96	0.76	0.24	0.97	0.04	0.93
ALL	0.62	0.75	0.94	0.06	0.94	0.47	0.15	0.59	0.04	0.56

TABLE 191

TRANSITIONAL PROBABILITIES: 1968

STAUNTON

CRIME TYPE	PA	PS	PP	PSA	PSB	P2	P2B	P3T	P3A	P3B
MURDER	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
RAPE	1.00	0.50	1.00	0.50	0.50	0.50	0.50	1.00	0.50	0.50
ROBBERY	1.00	0.71	1.00	0.14	0.86	0.71	0.29	1.00	0.14	0.86
AG ASSAULT	1.00	0.20	1.00	0.07	0.93	0.20	0.80	1.00	0.07	0.93
AUTO THEFT	1.00	0.43	1.00	0.17	0.83	0.43	0.57	1.00	0.17	0.83
BURGLARY	1.00	0.27	1.00	0.27	0.72	0.27	0.73	1.00	0.27	0.72
LARCENY	1.00	0.33	1.00	0.11	0.89	0.33	0.67	1.00	0.11	0.89
NARCOT LAW	0.0	1.00	1.00	1.00	0.0	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	1.00	1.00	0.0	1.00	1.00	0.0	1.00	0.0	1.00
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.08	1.00	0.08	0.92	0.08	0.92	1.00	0.08	0.92
FAM&CHILDREN	1.00	0.07	1.00	0.05	0.95	0.07	0.93	1.00	0.05	0.95
DRUNKENESS	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
DISORDSVAG	1.00	0.01	1.00	0.01	0.99	0.01	0.99	1.00	0.01	0.99
D W I	1.00	1.00	1.00	0.10	0.90	1.00	0.0	1.00	0.10	0.90
OTHER NTRAF	1.00	0.07	0.94	0.03	0.97	0.07	0.93	1.00	0.03	0.97
INDEX	1.00	0.30	1.00	0.14	0.86	0.30	0.70	1.00	0.14	0.86
NON INDEX	1.00	0.19	0.99	0.02	0.98	0.09	0.91	1.00	0.02	0.98
ALL	1.00	0.13	0.99	0.04	0.96	0.13	0.87	1.00	0.04	0.96

TABLE 192

TRANSITIONAL PROBABILITIES: 1969

STAUNTON

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	0.50	1.00	0.0	1.00	0.50	0.50	1.00	0.0	1.00
RAPE	1.00	1.00	1.00	1.00	0.0	1.00	0.0	1.00	1.00	0.0
ROBBERY	0.18	0.70	1.00	0.50	0.50	0.12	0.05	0.18	0.09	0.09
AG ASSAULT	0.50	0.39	1.00	0.45	0.55	0.30	0.20	0.50	0.23	0.27
AUTO THEFT	0.20	0.71	1.00	0.36	0.64	0.14	0.06	0.20	0.07	0.13
BURGLARY	0.15	0.36	1.00	0.12	0.88	0.05	0.10	0.15	0.02	0.13
LARCENY	0.14	0.51	1.00	0.34	0.66	0.07	0.07	0.14	0.05	0.09
NARCOT LAW	0.0	0.83	0.40	0.33	0.67	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.73	1.00	0.0	1.00	0.73	0.27	1.00	0.0	1.00
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.27	1.00	0.0	1.00	0.27	0.73	1.00	0.0	1.00
FAM&CHILDREN	1.00	0.10	1.00	0.10	0.90	0.10	0.90	1.00	0.10	0.90
DRUNKENESS	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
DISORD&VAG	1.00	0.01	1.00	0.01	0.99	0.01	0.99	1.00	0.01	0.99
D W I	1.00	1.00	0.95	0.12	0.88	1.00	0.0	0.95	0.12	0.83
OTHER NTRAF	1.00	0.03	1.00	0.03	0.97	0.03	0.97	1.00	0.03	0.97
INDEX	0.17	0.53	1.00	0.33	0.67	0.09	0.08	0.17	0.06	0.11
NON INDEX	1.00	0.09	0.95	0.03	0.97	0.09	0.91	0.99	0.03	0.96
ALL	0.77	0.14	0.97	0.06	0.94	0.10	0.66	0.76	0.04	0.72

TABLE 193

TRANSITIONAL PROBABILITIES: 1963

SUFFOLK

CRIME TYPE	PA	PS	PP	P1A	P3B	P2	P2B	P3T	P3A	P3B
MURDER	1.00	1.00	0.91	0.43	0.57	1.00	0.0	0.91	0.39	0.52
RAPE	0.50	1.00	0.82	0.50	0.50	0.50	0.0	0.41	0.20	0.20
ROBBERY	0.27	0.80	0.75	0.50	0.50	0.22	0.05	0.22	0.11	0.11
AG ASSAULT	0.27	0.22	0.92	0.03	0.97	0.06	0.21	0.26	0.01	0.25
AUTO THEFT	0.21	0.0	0.0	1.00	0.0	0.0	0.21	0.21	0.21	0.0
BURGLARY	0.11	1.00	0.74	0.78	0.22	0.11	0.0	0.08	0.06	0.02
LARCENY	0.18	0.0	0.0	0.22	0.78	0.0	0.16	0.18	0.04	0.14
NARCOT LAW	0.0	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.33	1.00	0.67	0.33	0.33	0.67	1.00	0.67	0.33
PROSTITUTION	0.0	1.00	0.67	0.0	1.00	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	1.00	0.29	0.0	1.00	1.00	0.0	0.29	0.0	0.29
FAM&CHILDREN	1.00	1.00	0.43	1.00	0.0	1.00	0.0	0.43	0.43	0.0
DRUNKENESS	1.00	0.05	0.75	0.04	0.96	0.05	0.95	0.99	0.04	0.94
DISORDRVAG	1.00	0.21	0.69	0.15	0.85	0.21	0.79	0.84	0.15	0.83
O U I	1.00	0.57	1.00	0.29	0.71	0.57	0.43	1.00	0.29	0.71
OTHER NTRAF	1.00	0.17	0.94	0.36	0.64	0.17	0.83	0.99	0.35	0.64
INDEX	0.18	0.51	0.85	0.12	0.88	0.06	0.12	0.17	0.02	0.15
NON INDEX	1.00	0.21	0.79	0.22	0.78	0.20	0.80	0.96	0.21	0.75
ALL	0.83	0.24	0.82	0.19	0.81	0.14	0.46	0.57	0.11	0.46

TABLE 194

TRANSITIONAL PROBABILITIES: 1969

SUFFOLK

CRIME TYPE	PA	PS	PP	P8A	P8B	P2	P2B	P3T	P3A	P3B
MURDER	0.0	0.00	1.00	0.20	0.80	0.0	0.0	0.0	0.0	0.0
RAPE	0.50	0.33	1.00	0.56	0.44	0.17	0.33	0.50	0.28	0.22
ROBBERY	0.22	0.30	0.33	0.25	0.75	0.07	0.15	0.17	0.04	0.13
AG ASSAULT	0.26	0.15	0.78	0.03	0.97	0.04	0.22	0.26	0.01	0.25
AUTO THEFT	0.15	0.0	0.0	1.00	0.0	0.0	0.15	0.15	0.15	0.0
BURGLARY	0.16	1.00	0.89	0.92	0.08	0.16	0.0	0.15	0.13	0.01
LARCENY	0.20	0.21	1.00	0.21	0.79	0.04	0.16	0.20	0.04	0.16
NARCOT LAW	1.00	1.00	0.0	0.0	0.0	1.00	0.0	0.0	0.0	0.0
LIQUOR LAW	1.00	0.0	0.0	0.0	1.00	0.0	1.00	1.00	0.0	1.00
PROSTITUTION	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GAMBLING	0.0	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEX OFFENSES	1.00	0.50	1.00	0.0	1.00	0.50	0.50	1.00	0.0	1.00
FAM&CHILDREN	1.00	1.00	0.83	1.00	0.0	1.00	0.0	0.83	0.83	0.0
DRUNKENESS	1.00	0.04	1.00	0.04	0.96	0.04	0.96	1.00	0.04	0.96
DISORDRVAG	1.00	0.11	0.88	0.13	0.87	0.11	0.89	0.99	0.13	0.86
D & I	1.00	0.24	1.00	0.34	0.66	0.24	0.76	1.00	0.34	0.66
OTHER NTRAF	1.00	0.14	0.76	0.36	0.64	0.14	0.86	0.97	0.35	0.62
INDEX	0.21	0.24	0.86	0.16	0.84	0.05	0.16	0.20	0.03	0.17
NON INDEX	1.00	0.10	0.87	0.16	0.84	0.10	0.90	0.99	0.16	0.83
ALL	0.66	0.14	0.87	0.16	0.84	0.09	0.57	0.65	0.11	0.55

TABLE 195

TRANSITIONAL PROBABILITIES: 1968

VIRGINIA BEACH

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	0.83	0.67	0.93	0.45	0.55	0.56	0.28	0.79	0.36	0.44
RAPE	0.30	0.79	0.86	0.08	0.92	0.23	0.06	0.26	0.02	0.24
ROBBERY	0.36	0.55	0.97	0.28	0.72	0.19	0.16	0.35	0.10	0.25
AG ASSAULT	0.33	0.16	0.93	0.06	0.94	0.05	0.28	0.33	0.02	0.31
AUTO THEFT	0.04	1.00	0.90	0.37	0.63	0.04	0.0	0.04	0.01	0.03
BURGLARY	0.04	0.30	0.97	0.22	0.78	0.01	0.03	0.04	0.01	0.03
LARCENY	0.04	0.30	0.86	0.10	0.90	0.01	0.03	0.04	0.00	0.04
NARCOT LAW	0.29	0.30	0.88	0.20	0.80	0.24	0.06	0.27	0.05	0.21
LIQUOR LAW	0.83	0.25	0.89	0.14	0.86	0.21	0.62	0.81	0.11	0.70
PROSTITUTION	0.36	0.02	1.00	0.05	0.95	0.01	0.35	0.36	0.02	0.35
GAMBLING	1.00	0.0	0.0	0.06	0.94	0.0	1.00	1.00	0.06	0.94
SEX OFFENSES	0.31	0.31	0.94	0.04	0.96	0.10	0.21	0.31	0.01	0.30
FAM&CHILDREN	1.00	0.06	1.00	0.07	0.93	0.06	0.94	1.00	0.07	0.93
DRUNKENESS	0.99	0.00	0.50	0.01	0.99	0.00	0.99	0.99	0.01	0.98
DISORD&VAG	0.88	0.01	1.00	0.02	0.98	0.01	0.38	0.88	0.02	0.86
O M I	0.94	0.23	1.00	0.23	0.77	0.03	0.91	0.94	0.21	0.73
OTHER NTRAF	0.86	0.13	0.94	0.23	0.77	0.11	0.75	0.86	0.20	0.66
INDEX	0.05	0.30	0.92	0.14	0.86	0.02	0.04	0.05	0.01	0.05
NON INDEX	0.33	0.06	0.93	0.08	0.92	0.05	0.33	0.38	0.07	0.30
ALL	0.41	0.11	0.92	0.09	0.91	0.05	0.36	0.41	0.04	0.37

TABLE 196

TRANSITIONAL PROBABILITIES: 1969

VIRGINIA BEACH

CRIME TYPE	PA	PS	PP	PBA	PBB	P2	P2B	P3T	P3A	P3B
MURDER	1.00	1.00	1.00	0.50	0.50	1.00	0.0	1.00	0.50	0.50
RAPE	1.00	0.89	1.00	0.44	0.56	0.89	0.11	1.00	0.44	0.56
ROBBERY	0.59	0.30	1.00	0.47	0.53	0.47	0.12	0.59	0.28	0.31
AG ASSAULT	0.29	0.15	1.00	0.12	0.88	0.14	0.25	0.29	0.03	0.26
AUTO THEFT	0.13	0.30	0.92	0.33	0.67	0.04	0.09	0.13	0.04	0.09
BURGLARY	0.10	0.23	1.00	0.41	0.59	0.02	0.08	0.10	0.04	0.06
LARCENY	0.04	0.34	0.99	0.13	0.87	0.01	0.03	0.04	0.01	0.04
NARCOT LAW	0.55	0.40	1.00	0.23	0.77	0.22	0.33	0.55	0.13	0.43
LIQUOR LAW	0.89	0.17	1.00	0.23	0.77	0.15	0.74	0.89	0.21	0.68
PROSTITUTION	1.00	0.06	1.00	0.03	0.97	0.06	0.94	1.00	0.03	0.97
GAMBLING	0.94	0.0	0.0	0.38	0.63	0.0	0.94	0.94	0.35	0.59
SEX OFFENSES	0.54	0.45	1.00	0.03	0.97	0.24	0.30	0.54	0.01	0.53
FAM&CHILDREN	0.83	0.05	1.00	0.27	0.73	0.04	0.79	0.83	0.22	0.60
DRUNKENESS	0.89	0.01	1.00	0.00	1.00	0.01	0.88	0.89	0.00	0.88
DISORD&VAG	0.94	0.01	1.00	0.01	0.99	0.01	0.93	0.94	0.01	0.93
D W I	0.94	0.11	1.00	0.32	0.68	0.11	0.83	0.94	0.30	0.64
OTHER NTRAF	1.00	0.07	0.99	0.15	0.85	0.07	0.93	1.00	0.15	0.85
INDEX	0.07	0.28	0.99	0.25	0.75	0.02	0.05	0.07	0.02	0.06
NON INDEX	0.91	0.07	1.00	0.10	0.90	0.06	0.85	0.91	0.09	0.82
ALL	0.38	0.13	1.00	0.14	0.86	0.05	0.33	0.38	0.05	0.32

VITA

Arnold B. Baker was born on February 3, 1946, in New York, New York. He grew up in Alexandria, Virginia, and attended elementary and high school there. He received a Bachelor of Arts degree in History from Virginia Polytechnic Institute in June of 1968. In June of 1970, he received a Master of Arts degree in Economics from the same institution. During the 1970-71 academic year, he was the recipient of a National Institute of Law Enforcement and Criminal Justice Fellowship. He completed the requirements for the Ph.D. in Economics in July of 1971.

A CRITICAL EVALUATION OF RESOURCE ALLOCATION EFFICIENCY IN THE CRIMINAL JUSTICE SYSTEM OF VIRGINIA

Arnold B. Baker

Abstract

In recent years, crime has become one of the most important and challenging problems to be faced by the United States. Increasing amounts of resources have been allocated to meet this challenge; yet, very little is known about resource allocation efficiency and efficiency properties within the criminal justice system itself. Certainly if this problem is to be overcome successfully and available resources most fully utilized, a great deal more must be learned about this aspect of the criminal justice system. This dissertation is an investigation designed for such purposes.

Based on the criminal justice system of Virginia, both a systems analytic model of the system to the court sentencing stage and a separate model for law enforcement is developed, and the necessary criteria for establishing relative efficiency set out. Both models are tested empirically for ten counties and ten cities of Virginia for 1968 and 1969 for seventeen individual and three summary crime categories, and the relationship of some of the efficiency properties with respect to manpower, population, land area, population density, average

family buying income, and an organizational dummy variable is examined. Further, projections on the systems model are made for the period 1969 to 1974, under certain assumptions, to determine the impact on the system of increased law enforcement clearance rates and of increased case loads throughout the system.

Results of the analysis indicate (1) that county systems and county law enforcement agencies tend to be somewhat more efficient than city systems and city law enforcement agencies; (2) that population density, average family buying income, and county versus city governmental forms exert a strong influence on relative efficiency in a non-linear fashion; and (3) that differences in relative efficiency cannot be explained on the basis of the relative volume of cases involved. Further, projections on the systems model with respect to increased clearance rates indicate that this specific form of the model is more applicable for short period analysis than for extended projections, and that the effect of increased clearance rates on the system is somewhat less than anticipated. Projections on the systems model with respect to increased case loads indicate that this form of the model may be used for either short or long period analysis, and that the effects on the system of increased case loads is quite substantial.

END