

**ANOTHER ATTEMPT AT DETERRENCE:  
THE USE OF MANDATORY MINIMUM SENTENCING**

**A Thesis**

**Presented in Partial Fulfillment of the Requirements  
for the Degree Master of Arts**

**by**

**David Allen Faulconer, A.B.**

**The Ohio State University  
1983**

**Approved by**

**Copyright © 1983  
by David Allen Faulconer.  
All rights reserved.**

*Joseph E. Scott*  
**Advisor  
Department of Sociology**

To my parents,  
Gwen and Edmond Faulconer

## ABSTRACT

Rising crime rates and growing concern for public safety have been the catalyst for increases in statutory regulation of the sentencing process. Based upon deterrence propositions of severe, certain, and celerious punishment, state after state has recently established standards or guidelines governing decisions on the minimal punishment of offenders.

Thus far, researchers have utilized a wide variety of methodologies to assess the nature and extent of deterrence variables. However, the research has yet to sufficiently answer the questions concerning the efficacy of penal sanctions and their deterrent capabilities. Utilizing a quasi-experimental design, this study assesses the deterrent capabilities of statutes which mandate mandatory minimum sentences for individuals convicted of possession or use of a firearm in the commission of a felony.

Data from 1970 through 1980, consisting of individual state Uniform Crime Report arrest statistics for the crimes of robbery and aggravated assault, are used in the analysis. If this form of sentencing legislation is to be considered effective, then corresponding reductions in the use or possession of firearms during the commission of the enumerated felonies should follow their enactment.

Findings indicated that momentary reductions in firearm usage were observed for states initiating mandatory minimum sentences. However, the reductions do not appear to be due to the deterrent

effects of the mandatory sentencing statutes. Control states without such statutes experience similar declining trends during the same period.

## ACKNOWLEDGEMENTS

I would like to express my gratitude to the various criminal justice agencies who contributed to the data collection phase of this project. This analysis would not have been possible had it not been for their prompt and thorough assistance. In addition, a significant portion of the literature cited throughout this project was made available through the assistance of Tony Cain and the National Criminal Justice Reference Service.

I would also like to thank Dr. Simon Dinitz and Dr. C. Ronald Huff for their suggestions, comments, and critical review of the manuscript. My sincerest thanks, however, go to Dr. Joseph E. Scott for his guidance, encouragement, patience, and continued belief in the "eventual" completion of this project.

Finally, a special thanks to Beth, my wife and "partner in ring-reaching," for believing in me, and showing me that commitment is not contingent upon geographic proximity or time. And lastly, but certainly not least in either assistance or stature, a heart-felt thanks to Jaime whose ever present companionship eased the long days and even longer nights.

## TABLE OF CONTENTS

ABSTRACT . . . . .	iii
ACKNOWLEDGEMENTS . . . . .	v
LIST OF TABLES . . . . .	vii
LIST OF GRAPHS . . . . .	viii

## Chapter

1. INTRODUCTION . . . . .	1
2. DETERRENCE THEORY . . . . .	8
3. REVIEW OF DETERRENCE LITERATURE . . . . .	15
4. THE DEVELOPMENT OF MANDATORY MINIMUM SENTENCING LITERATURE . . . . .	29
FLORIDA BILL 55 . . . . .	36
MICHIGAN STATE LAW 750.227b . . . . .	39
DELAWARE STATE LAW 1447 . . . . .	43
5. THE "GREAT DEBATE" . . . . .	46
Proponents Arguments . . . . .	46
Arguments of the Opposition . . . . .	51
6. DESCRIPTION OF METHODOLOGY . . . . .	56
7. FINDINGS AND DISCUSSION . . . . .	69
8. IMPLICATIONS AND CONCLUSION . . . . .	96

## APPENDICES

Appendix A The Statutes . . . . .	98
Appendix B Graphs . . . . .	102

( ) BIBLIOGRAPHY . . . . .	117
-------------------------------	-----

## LIST OF TABLES

A.	Experimental and Control States . . . . .	61
B.	Regression Analysis. .Time Period Categories. . . . .	64
1.	Aggravated Assault Committed with a Firearm Florida and Control States . . . . .	70
2.	Aggravated Assault Committed with a Firearm Delaware and Control States . . . . .	71
3.	Aggravated Assault Committed with a Firearm Michigan and Control States . . . . .	73
4.	Aggravated Assault Committed with a Firearm Experimental Group . . . . .	74
5.	Robbery Committed with a Firearm Delaware and Control States . . . . .	76
6.	Robbery Committed with a Firearm Delaware and Control States . . . . .	77
7.	Robbery Committed with a Firearm Michigan and Control States . . . . .	79
8.	Robbery Committed with a Firearm Experimental Group . . . . .	81
9.	Aggravated Assault Committed with a Firearm Analysis of Covariance . . . . .	83
10.	Robbery Committed with a Firearm Analysis of Covariance . . . . .	86
11.	Aggravated Assault by Type of Weapon Used Florida . . . . .	87
12.	Aggravated Assault by Type of Weapon Used Delaware . . . . .	89
13.	Aggravated Assault by Type of Weapon Used Michigan . . . . .	91
14.	Robbery by Type of Weapon Used Florida . . . . .	92
15.	Robbery by Type of Weapon Used Delaware . . . . .	93
16.	Robbery by Type of Weapon Used Michigan . . . . .	95

## LIST OF GRAPHS

1. Aggravated Assault Committed with a Firearm Florida and Control States . . . . .	103
2. Aggravated Assault Committed with a Firearm Delaware and Control States . . . . .	104
3. Aggravated Assault Committed with a Firearm Michigan and Control States . . . . .	105
4. Aggravated Assault Committed with a Firearm Experimental Group . . . . .	106
5. Robbery Committed with a Firearm Florida and Control States. . . . .	107
6. Robbery Committed with a Firearm Delaware and Control States . . . . .	108
7. Robbery Committed with a Firearm Michigan and Control States . . . . .	109
8. Robbery Committed with a Firearm Experimental Group . . . . .	110
11. Aggravated Assault by Type of Weapon Used Florida . . . . .	111
12. Aggravated Assault by Type of Weapon Used Delaware . . . . .	112
13. Aggravated Assault by Type of Weapon Used Michigan . . . . .	113
14. Robbery by Type of Weapon Used Florida . . . . .	114
15. Robbery by Type of Weapon Used Delaware . . . . .	115
16. Robbery by Type of Weapon Used Michigan . . . . .	116

## INTRODUCTION

"Reform of sentencing statutes has recently emerged as a major issue of national debate. New legislation is being considered at both federal and state levels to modify criminal proceedings, particularly sentencing" (Petersilia and Greenwood, 1978: 604). A major facet of that reform, and possibly the major thrust of the legislation, is mandatory minimum sentencing statutes.

Interest and support for this type legislation has developed both in the academic and public sectors. Criminologists, legal philosophers, and political leaders have expressed discontent over the disparate sentencing policies and practices that exist under present criminal statutes (Petersilia and Greenwood, 1978). All too frequently, ". . . persons of similar criminal history convicted of similar crimes are treated differently by the courts" (Petersilia and Greenwood, 1978: 604). Many feel that mandatory minimum statutes would constructively limit judicial and jury sentencing discrepancies and thereby curtail preferential or prejudicial decisions and punishment. Additionally, public concern over continuously increasing rates of property and violent crime has been compounded with critiques of an all too lenient judicial system. Many citizens, scholars, and practitioners feel that a "get tough" policy at the court level would: ". . . (1) help protect them against serious criminals by imprisoning such persons for longer periods, and (2) deter others from crime because of the harsher sentences they would expect to receive if caught"

(Petersilia and Greenwood, 1978: 604).

The advent of punishment oriented legislation has subsequently revitalized the discussion of punitive measures in preventing crime. For some time, the concepts of rehabilitation and "treatment" of offenders have been the dominant policy of western criminal justice. Enlightened sociologists and jurists had previously rejected Bentham's classical view of man as a hedonistic creature avoiding criminal behavior because of the "threat" of punishment. Grounded in the positivist tradition of criminology, rehabilitation has held sway as an official or neo-official policy (Beyleveld, 1979). Present public and legislative concerns have, however, fostered widespread disillusionment with rehabilitative concepts, contributing to their decline.

The concept of deterrence and its threats of severe, swift and certain punishment has received renewed support during the past decade. Deterrence (coupled with the philosophy of incapacitation for serious offenders) is fast becoming the official crime control policy in the United States, aided undoubtedly by the declining belief in rehabilitation. Consistent with its strong legalistic stand-point, advocates of deterrence based legislation argue that: ". . .if the criminal act is primarily the result of a calculation of self-interest, then the primary control strategy ought to be deterrence, if the act is the off-spring of an evil will, then punishment, not treatment, must be meted out" (Beyleveld, 1979: 135).

Initially appearing in the classic writings of Beccaria and Bentham, the concept of criminal deterrence provided one of the

basic rationales for the utilization of punishment. Since its conception, deterrence has had a major influence on the formulation of criminal law and policy. This most recent resurgence in its support serves to demonstrate its popularity and perceived viability. For the past twenty-five years, studies assessing the deterrent effects of criminal sanctions have been conducted by criminologists, economists, political and social scientists. While economists seem to have concluded that deterrent sanctions work, social scientists have yet to reach a consensus that the evidence is consistent or significant enough to warrant strong support of the theory. "Although most sociological studies present findings which appear to support deterrence theory" (Pontell, 1978: 6), the findings have remained rather inconclusive.

The conflicting results and continued debates concerning deterrence research may, however, be completely inconsequential to the issue at hand. As Morris points out, ". . .it may be unfashionable in the heated disputes that characterize so much contemporary public and professional discussion of crime and its control, to allow much weight to careful analysis of the deterrent purposes of the criminal justice system; yet deterrence remains a central purpose of criminal sanctions" (Andeneas, 1974, forward). It is generally agreed that the role and function of government, through its use of the criminal justice system, is to provide security and freedom from the threat of crime for its citizenry. In order to attain that goal government officials and practitioners alike are advocating the use of more severe and certain penal sanctions as

a means of deterring crime.

Senator Edward Kennedy, in a recent attack on crime in the United States, stated:

No doubt the crime which causes most concern to Americans is violent street crime and with good reason. . .even when we are not personally touched by violent crime, we find ourselves altering habits and lifestyles just to avoid the threat and danger of becoming another victim. . .The sad and tragic fact is that today in America it is the law abiding citizen that finds himself confined in his own makeshift jail . . .a jail in which the fear of being mugged or robbed becomes a substitute for prison bars, and locked doors prevent unlawful entry not escape. . .The great majority of peaceful citizens in our nation are trapped in their own homes, afraid to venture out, while the violent criminal - - the mugger, the robber, the burglar - - roams free . . . The time has come to provide freedom to all the citizens of our nation - - freedom from fear (Kennedy, 1976: 18).

In an effort to remove the threat of crime from our streets, supporters of punishment-based legislation argue that since the entire system of American criminal justice is based in part on the assumption that punishment of offenders will deter future criminality (Waldo and Chiricos, 1972: 522), we should therefore utilize the systems potential deterrent characteristics. Although empirical assessments of the theory have but recently been initiated, and while the scientific knowledge about the relationship between crime and punishment is at best meager, ". . .there are a number of scholars who believe the effectiveness of deterrent counter-measures is not only obvious, but already proven" (Zimring, 1976: 496). Tullock (1974) has expressed that punishment should deter crime, based on the economic argument that if you increase the relative cost of an object, you will decrease its rate of consumption. Andenaes (1974) considers that today's legislators, in an attempt to keep

the populace reasonably law-abiding, define crimes and stipulate punishments based on the general-preventive considerations. One can see that the controversial question of deterrence and the uses as well as the effects of punishment, do not merely present points of theoretical and empirical interest, but will elicit and have always elicited a significant practical aspect as well.

The question of how much punishment and the method of its threatened application offer the more perplexing problems. Historically, magnitude or relative severity of punishment had been the vehicle by which lawmakers have attempted to control the criminal element. In order to make people more law-abiding, the philosophy has been to simply increase the punishment for legal transgressions. The ramifications and policy implications of such administration is, however, quite far reaching. At this time, social scientists and criminal justice practitioners are uncertain as to how much of an increase in punishment is needed to achieve a deterrent effect. It appears that in applying Bentham's deterrent hypothesis, we may thus far be reasoning more by analogy or deduction than by empirical assessment.

"Implicit in our criminal justice policies are the hypotheses that the certainty and severity of punishment will deter crime" (Antunes and Hunt, 1973: 486). The actual or threatened punishment of law violators is assumed to have a preventive or deterrent effect upon potential offenders. "It is argued, that, in response to the resulting perceived risk of sanctions, at least part of the population is dissuaded from committing some criminal acts" (Blumstein, 1978: 3). Opinions on the viability of the theory have become highly polarized.

Proponents continue to argue for the necessity of punitive sanctions in order to maintain their deterrent effect on potential violators. A few suggest that the threat of punishment, punishment and the subsequent fear of punishment are the solution to our current crime problem (Bailey, Martin and Gray, 1974: 124-5). "This conception of deterrence is clearly stated by Sir John Salmond: 'Punishment is before all things deterrent, and the chief end of the law of crime is to make the evil doer an example and a warning to all who are like-minded with him.' " (Ball, 1955: 348).

In an attempt to reduce not only violent felonies, but more specifically the use of firearms in the commission of felonies, a series of deterrent-based statutes enumerating mandatory minimum sentences for felonies committed with the use or possession of a firearm have been enacted. Because of the nature of the statutes this legislation has, in effect, created offenses where previously none had been defined. At the current time, little is known about the extent of the development or variability of this type of legislation.

Although limited, research thus far has shown two major divisions within laws directed at deterring offenses committed with a firearm. The first variation concerns application of punishment. In states such as Florida, and Delaware until 1976, felony offenses were assigned a standard, fixed penalty for felonies when committed with a firearm. In contrast, Maryland and Michigan are examples of states that have defined their mandatory minimum sentencing

statutes as additional fixed penalties to be served consecutively with the penalty for the original felony. The second major difference associated with these statutes has to do with early release programs. Many of the states employing these statutes have excluded by law, offender eligibility for early release; e.g. parole, "goodtime" or "gaintime." Some states, however, have maintained probation or parole possibilities within their statutes. It should be noted that the possible use of early release programs would by definition somewhat compromise the basic philosophy behind mandatory minimum sentencing statutes. Early release would allow offenders to leave prison prior to fulfilling the minimum requirements enumerated in the statute, thereby undercutting the certainty of receiving the full sentence associated with the law.

In the last decade mandatory minimum sentencing legislation has experienced dramatic increases in both public and governmental acceptance. Numerous states have recently initiated legislation based on deterrence principles that take the form of mandatory minimum sentencing policy. As of 1975, approximately 25% of all states had enacted various forms of mandatory minimum sentencing legislation directed at violent offenders. By 1975 that number had grown to slightly more than 50%, and it appears as though the trend is not slowing (Council of State Governments, 1975: 3). The continued passage of such legislation is clearly a resurgence of past punishment-oriented sanctions. Because of the severity and far reaching effects of this type of legislation, careful and accurate assessment of its success or failure is paramount.

## DETERRENCE THEORY

"The question of the appropriate legal reaction to crime has generated heated debate for centuries" (Gibbs, 1968: 515). The concept of deterrence has held a central point in that debate, as well as significant issue of inquiry within the social sciences during the last few decades.

The concept of deterrence was first formulated as theory by Cesare Beccaria in 1764 and expounded upon by Jeremy Bentham as part of the classical school of criminology. Stressing a legalistic view-point in the application of law, it proposes that the control of crime and the deterrence of offenders can be realized through the use of punishment and threats of punishment. "Although some scholars disdain the concept of deterrence as being less than useful in the understanding of criminal behavior, the implications of understanding how behavior, criminal or otherwise, can be deterred holds great attraction to theorists and practitioners alike" (Cramer, 1978: forward).

"Grounded in a utilitarian paradigm, deterrence theory is closely linked with both the exchange theory in sociology and the utility theory in economics" (Grasmick and Green, 1980: 326). The theory posits man utilizing a cost-benefit analysis to assess potential costs and rewards from projected acts (Beyleveld, 1979; Grasmick and Green, 1980). Concerned with the regulation of human behavior, the theory is based upon the possibility of altering or regulating conduct through the use of threats of punishment. Recently, H. H. Cooper defined deterrence as ". . .

any measure designed actively to impede, discourage, or restrain the way in which another might think or act" (1973: 164).

The theory assumes that potential offenders utilize rational judgment in deciding whether or not to violate the law, and that they are sensitive to: (1) the existence of sanctions, (2) the degrees of severity of punishment, (3) the probability of apprehension, and (4) the swiftness of adjudication for those laws they intend to violate. In addition, this exceedingly rationalistic view assumes that the costs and benefits of alternative choices of action can be objectively ascertainable. Successful application of deterrence-based sanctions should elicit negative associations between aggregate crime rates and more severe sanctions.

The crux of the deterrence argument stems from the use of three premises that comprise the theory: the application of severe, certain, and celerious punishment. "Criminal behavior is usually assumed to be rational and calculative and therefore prevented or acted upon depending upon the perceived risk of apprehension and punishment on the part of the offender or potential offender" (Webb, 1980: 29). In that vein, deterrence theory assumes that as the severity, certainty, and celerity of punishment increases, the amount of crime for any given offense decreases proportionately.

The first premise, severity, can be defined as the objective degree or amount of punishment that is imposed. When concerning mandatory minimum sentencing statutes, severity of punishment is defined as the length of incarceration time imposed by the statute. Because of the nature of the law, legislatively enumerated time

corresponds closely to the objective length of time an offender is held in prison. The second premise, certainty of punishment, has been defined as the objective probability of apprehension (Webb, 1980). However, when applied to mandatory minimum sentencing statutes, the requirement of certainty of punishment has been redefined as the objective certainty of sentence imposition (Alber and Weiss, 1977; Glick, 1979; Kennedy, 1976). Finally, celerity of punishment is defined as the swiftness with which punishment is administered. Increases in celerity can be achieved by reducing the relative time between the moment a criminal act is committed and the time at which punishment is administered. Although celerity is a major aspect of deterrence theory and subsequently would be an integral part of the deterrent aspect of mandatory minimum sentencing, so little is known of the premise that we have yet to objectively incorporate it into empirical assessments of either deterrence theory in general or mandatory minimum sentencing statutes in particular.

As to assessing the severity and certainty in deterring offenders or potential offenders, ". . .because the model is inherently untestable, i.e., measuring suppressed and therefore unobservable acts, attention has focused on the differential incidence of offending or recidivism under differing standards of punishment" (Webb, 1980: 29). Consequently, recent research has considered only two such propositions: ". . .(1) among jurisdictions, the more certain the legal punishment for a type of crime, the less the rate for that type of crime, and (2) among jurisdictions, the more

severe the actual legal punishment for a type of crime, the less the rate for that type of crime" (Erickson and Gibbs, 1976: 176).

Thus far, certainty of punishment has been accepted as having the greater deterrent impact on crime (Webb, 1980: 29). "Indeed, the certainty and celerity of a legal reaction may be far more important than its severity" (Gibbs, 1968: 518). However, the recent trends in punishment-oriented legislation show that we are currently more concerned with implementing sanctions that are severe and certain than celerious. By imposing minimum terms of incarceration without the possibility of early release, mandatory minimum sentencing statutes aspire to fulfill the requirement of severe punishment. Additionally, by requiring that the imposition of the sentence be mandatory, it is implied that the statute more than adequately fulfills the requirement of certain punishment.

Deterrence theory also distinguishes between types of deterrence. Individual or specific deterrence refers to the offender being punished, while general deterrence is aimed at discouraging potential offenders within the public at large. Specific deterrence is directed at the individual offender and refers to the threat of additional punishment for those individuals who have experienced the punishment process and who might choose to recidivate. It ". . .refers to the future punishment-avoidance behavior of the person who was punished" (Blumstein, 1976: 78). It is interesting to note that, ". . .in regard to specific deterrence, the evidence is relatively consistent in showing that severity of punishment,

whether measured through intensity or duration, has little or no effect in deterring criminals from further offenses" (Webb, 1980: 29).

Conversely, general deterrence, as previously stated, is directed at the population at large, and through the employment of public threat ". . .relates to the crimes averted through the symbolic effect of imposing sanctions" (Blumstein, 1978: 1). The ". . .concern is not the offender sanctioned, but rather on the general population that would be subject to similar sanctions if they committed similar crimes" (Blumstein, 1978: 1). Consequently, the punishment of some individuals assists in communicating the magnitude of the risk of punishment to would-be offenders. In this instance, those individuals punished under the auspices of either general or specific deterrence would fulfill the symbolic effect of punishment. "It may be noted that general deterrence includes specific deterrence" (Henry, 1978: 69), in that it hopes to deter both those individuals who have already, and those individuals who have not yet, experienced punishment. For the duration of this study, because the legislation in question is concerned with general deterrence, the possible difference between the effects of specific and general deterrence will not be addressed.

A third concept of deterrence, that of marginal deterrence, has recently become an issue of discussion (Morris and Hawkins, 1969; Flynn and Conrad, 1978). "It refers to increasing the effectiveness of deterrence through variations in the application

of criminal justice system strategies and in the employment of conditions of legal threats" (Flynn and Conrad, 1978: 81). According to Morris and Hawkins, marginal increases in severity of punishment in conjunction with the ". . . channeling effects of threats of punishment" (1969: 255-6), comprise the major factors in marginal deterrence. The latter concept describes those incidences in which the threat of punishment precipitates a change in behavior. While that channeling effect may reach levels sufficient enough to deter violation, it may fall short of complete deterrence, even though a significant behavioral alteration has taken place.

It would seem that the advent of mandatory minimum sentencing, and its application of severe and certain penalties would concern itself with just such an issue. These statutes would attempt to change the behavior of those individuals committing felonies with the use or possession of a firearm. Although offenders might not be deterred from committing the felony itself (e.g. aggravated assault or robbery), they may experience a channeling effect and not use a firearm during its commission. Through the legislative manipulation of the deterrence premises of severe and certain punishment, proponents of the statutes would argue that the effectiveness of the theory and the laws that result from its interpretation, would have increased. Thus, the application of marginal deterrence concepts, through the use of mandatory minimum sentencing statutes, should elicit general deterrent effects on crime rates, demonstrated as reductions in the use

of firearms in the commission of felonies. This study will attempt to assess, through the use of aggregate uniform crime report data, the general deterrent effects of those mandatory minimum sentencing statutes.

## REVIEW OF DETERRENCE LITERATURE

Deterrence theory is in evidence at the core of our legislation and throughout our judicial proceedings. The adherence to deterrence as a truth plays a major role in the legal ideology of common law systems of criminal law. It is, therefore, critically important to a sociology of criminal law in such countries that the theory's validity be assessed (Anderson, 1979: 120).

In pursuit of findings that would ultimately offer proof of the deterrence propositions, researchers have utilized a ". . .wide variety of methodologies to assess the nature and extent of deterrence variables" (Zimring, 1976: 132). However, our research has yet to sufficiently answer the questions concerning the efficacy of penal sanctions and their deterrent capabilities.

Initially, most of the sociological research directed at assessing Bentham's deterrence hypothesis, concentrated on the idea that certainty and severity of punishment were deterrents of crime (Chambliss, 1966; Gibbs, 1968; Tittle, 1969; Chiricos and Waldo, 1970; Logan, 1972; Antunes and Hunt, 1973; Tittle and Rowe, 1974). A majority of these studies found ". . .weak, although significant associations between certainty of punishment and crime rates, and no association between severity of punishment and crime rates, except for homicide" (Silberman, 1976: 433).

The forerunner of modern deterrence research, Chambliss' (1966) study of parking violations on a college campus, showed that the incidence of violations dropped sharply as severity and certainty of punishment for these offenses were increased. Although his results were supportive of deterrence propositions, Chambliss qualified the importance of his findings, stating, ". . .

we cannot, of course, infer from the findings of this study of parking regulations that punishment does deter" (Chambliss, 1966: 75).

Renewed interest in the empirical testing of the deterrence hypothesis increased with the publication of work by Gibbs (1968), and Tittle (1969). Based on aggregate properties of crime and punishment (Uniform Crime Reports were used as the unit of analysis), both reported inverse relationships between the threat of legal punishment and the volume of crime. During this same period, Jensen (1969) found similar results supporting the deterrence hypothesis, utilizing individual's perceptions of the threat of punishment and their self-reported involvement in illegal behavior. "These two research strategies - - aggregate-level and individual-level analyses - - presently constitute the two major traditions in deterrence research" (Grasmick and Green, 1980: 325).

Prior to 1968, research on general deterrence had been largely limited to the effects of the death penalty on rates of homicide. Additionally, studies such as Sellin's (1967) national assessment of capital punishment, presented results in direct conflict with the deterrence hypothesis. Beginning with Gibbs (1968) and Tittle (1969), a number of studies in support of the deterrence concept began to appear utilizing official crime statistics and objective measures of severity and certainty of punishment in their analysis. Limited to assessing the general deterrent effects of objective levels of punishment on homicide rates, Gibbs' results showed that states with high levels of certainty and severity of

punishment also had low homicide rates. Gibbs concluded that the combined effects of the severity and certainty of punishment were additive in their effect on crime rates, as deterrence theory would predict. His findings, ". . .question the common assertion that no evidence exists of a relationship between legal reactions to crime and crime rate" (Gibbs, 1968: 201). By introducing operational definitions of certainty and severity Gibbs sparked new interest as well as generating a new dimension to the study of deterrence.

Tittle's (1969) deterrence investigation was similar to Gibbs in his use of objective measures of punishment and operational definitions of certainty and severity of punishment. However, Tittle expanded his study to examine the relationship between certainty and severity of punishment and offense rates for all seven Uniform Crime Report index offenses. He reported that, ". . .strong and consistent negative associations are observed between certainty of punishment and crime rates, while, a negative association is observed between severity of punishment and crime rates only for homicide" (Tittle, 1969: 409). The relationships between the severity of punishment and offense for the remaining six offenses were positive, contrary to what deterrence theory would predict. Tittle concluded that, ". . .popular proposals for increasing severity of punishment as a method of controlling deviance would seem to have limited validity" (Tittle, 1969: 423). Shortly thereafter, "Logan (1972) confirmed the results of Gibbs and Tittle, and found additionally that severity of punishment was of greater consequence in reducing crime than earlier studies had indicated" (Pontell, 1978: 6).

Chiricos and Waldo (1970) provide a further analysis of the hypothesis that rates of crime are inversely related to certainty and severity of punishment. Employing indexes which measured the association between changes in crime rates and in sanctioning rates, their study failed to replicate Tittle's earlier findings. Like Tittle (1969), Chiricos and Waldo examine the deterrent effects for each of the seven Uniform Crime Report index crimes. However, Chiricos and Waldo expanded this analysis and investigated possible deterrent effects at three points in time, rather than just one as Tittle had done. "Further, they also examine the relationship between changes in the level of the certainty and severity of punishment, and their effect on offense rates" (Bailey, Martin and Gray, 1974: 128).

Based upon classical concepts of deterrence, and in line with the findings of Chambliss, Gibbs, and Tittle, Chiricos and Waldo hypothesized that: (1) there is an inverse relationship between certainty and severity of punishment and crime rates and (2) there is an inverse relationship between changes in certainty and changes in severity of punishment, and changes in crime rates. "Examination of the certainty-rate data revealed that all but one correlation was in the hypothesized negative direction" (Chiricos and Waldo, 1970: 128). However, the strengths and levels of significance of the associations varied greatly by offense and over time. In addition, the severity-rate data failed to provide consistent support for the deterrence hypothesis. Excluding homicides in 1960, all of the correlations were either low negative, or positive. Moreover, the data exhibited little consistency,

over time, or within offense categories. "Examinations of changes in the levels of the severity and certainty of punishment and their effect on offense rates also produced inconsistent findings (Bailey, Martin and Gray, 1974: 128-9). Consequently, their data suggest ". . .that the correlation of certainty with criminality is somewhat variable over time and highly variable among offenses" (Chiricos and Waldo, 1970: 210). Chiricos and Waldo concluded that since neither Gibbs' (1968), nor Tittle's (1969) findings offered strong support for the notion that punishment deters crime, and as their data provided little evidence of deterrence, significant questions still exist concerning the hypothesis that severe punishment deters crime.

Findings from this early core of deterrence research have consistently shown a negative relationship between certainty of punishment and crime rate. Although this relationship has varied greatly by offense and over time, it has nonetheless remained significant. When considering the deterrent effect of the severity of punishment, however, the evidence has varied greatly. In some studies an inverse relationship has been found, in others a positive relationship, and in still others no relationship at all. Deterrence theory suggests that the severity and certainty of punishment are additive in their effect on crime rates. While investigations by Gibbs, and Tittle seem to support this proposition, they do so only for the offense of homicide. In addition, Chiricos and Waldo's only support for the severity proposition is also limited to the offense of homicide. Although these results may be supportive of our application of sanctions for the crime of

homicide, they are inconsistent when concerning other offenses. As our application of increasingly severe sanctions is based upon the deterrence hypothesis, it would seem that the results from these studies would question the method of application of those sanctions.

In an attempt to further assess the deterrent effects of criminal sanctions, Logan (1972) utilized partial correlations to analyze the relationship between certainty of imprisonment and crime rate. He found not only the existence of a moderate negative relationship between certainty of imprisonment and crime rate, but also evidence that the relationship may be curvilinear. His results indicated that,

. . .the zero-order correlation of severity of imprisonment and crime rate is not in the predicted (negative) direction (except for homicide), but when the effects of certainty as either an explaining or intervening variable are removed, the relation for severity moves in the expected direction (towards a negative relation) (Logan, 1972: 71).

In addition,

. . .the relation between certainty and crime rate is increased in strength and slope under conditions of high severity, relative to conditions of low severity. But the effect of severity on crime rate, not strong or consistent to begin with, appears some-what stronger under conditions of low certainty (Logan, 1972: 71).

Logan's results, utilizing a re-analysis of official data, provides considerable support for the proposition that certainty of punishment deters crime, while the role of severity of punishment, once again, appears questionable in its strength as a deterrent. Logan concluded that the likelihood, or certainty of punishment, as previously found, continues to play an important role in increasing conformity to the law.

Antunes and Hunt (1973), utilizing a regression analysis on the effects of certainty and severity of punishment, concluded that severity, although exhibiting a moderate deterrent impact on homicide rates, was unrelated to crime rates for other types of crime. One phase of their analysis of severity of punishment, indicated regression coefficients almost all positive in sign, thus indicating that higher levels of severity were associated with higher levels of crime. An additional regression analysis showed that ". . .severity acting alone, accounts for very little of the explained variations in crime rates, regardless of type of crime" (Antunes and Hunt, 1973: 491).

Although their model demonstrated that certainty and severity of punishment do have a moderate deterrent effect upon crime rates, ". . .it should be kept in mind that certainty, considered by itself, has a moderate deterrent effect for all crimes, while severity acting alone is not associated with lower rates of crime" (Antunes and Hunt, 1973: 492-3). Antunes and Hunt felt it was plausible to hypothesize that severity would only have a deterrent impact at high levels of certainty. Consequently, increasing severity in a condition of low certainty would have little effect on the crime rate. They concluded that severity of punishment, acting alone, would not function as a significant deterrent to crime. Thus, studies of the relationships between severity and crime rates reported little or no effect, unless levels of certainty of punishment are sufficiently high. Otherwise, the effect of severity of punishment, for most crime, is negligible.

Prompted by the findings of the previous studies (Chiricos and Waldo, 1970; Logan, 1972; Antunes and Hunt, 1973), Tittle and Rowe (1974), using arrest clearance rates as a measure of certainty of punishment found that the probability of apprehension appeared to be inversely related to crime rate. However, this predicted effect was elicited only when levels of certainty had reached minimal or "tipping points." Dealing specifically with the law enforcement aspect, and certainty of apprehension, Tittle and Rowe found that once the certainty of arrest reaches 30%, increases in police efficiency appear to be related to decreases in the volume of crime. Conversely, an opposite relationship to deterrence would occur when arrest certainty falls below the tipping point. Thus, the deterrent effect of certainty of arrest is a function of the degree of certainty itself.

The findings in this study suggest that certainty of punishment is an important influence on the degree of conformity that can be expected in a political unit, but that this influence does not show noticeable results until certainty has reached at least moderate levels (Tittle and Rowe, 1974: 459).

It seems clear, from the research reviewed, that the dominant variable in deterrence is certainty of punishment.

Although earlier studies concentrated on imprisonment as the measure of punishment, Logan (1975), prompted by the work of Tittle and Rowe (1974), extended the examination of arrest and conviction and their effectiveness in deterring crime. Logan justified his use of arrest statistics on the premise that, ". . . studies on the deterrent effects of arrest are less subject to one criticism leveled against studies of the deterrent effects of

imprisonment: namely, that they do not separate deterrent from incapacitative effects" (1975: 378). The prior works of Tittle and Rowe (1974), and Skogan (1974) had, according to Logan, ". . .made the case for the theoretical and methodological advantages of analyzing arrest rates in deterrence research" (1975: 379). Their discussions ". . .note that there are gains in validity, interpretability, and generality when using arrest rates, rather than imprisonment statistics, as the measure of certainty of criminal sanction" (Logan, 1975: 379). Except for homicide and only weakly for assault, his results demonstrated a negative relation between certainty of sanction and rates of major felony offenses, consistent with previous deterrence research.

Bailey (1976), attempting to build upon some of the limitations of Tittle and Rowe's (1974) examination of the deterrent effects of legal sanctions, also utilized arrest rates in examining the effect of arrest on total felony rates. His findings corroborated prior results presented by Tittle and Rowe, lending ". . .support to the argument that the law - - the threat of legal sanctions - - can no longer be ignored in considerations of the etiology of crime" (Bailey, 1976: 153). However, Bailey's data did indicate that the threat of arrest does not have a uniformly deterrent effect for all felonies. Consistent with the previous work of Chambliss (1967) and subsequent work of Geerken and Gove (1977), Bailey found that, ". . .for offenses commonly considered to be 'instrumental' in nature, arrest would appear to be a much more important determinant of the level of crime than for 'expressive' crimes" (1976: 153).

As previously defined by Chambliss (1967), those crimes considered to be instrumental are described as ". . .potentially reactive to legal sanctions" (Geerken and Gove, 1977: 426), and thus ". . .are more likely to be influenced by the threat or imposition of punishment" (Chambliss, 1967: 712). Chambliss proposed that violation of laws defined as instrumental occurs because the act of violation is ". . .instrumental to the attainment of some other goal" (1967: 708). Conversely, expressive crimes, those violations which are ". . .largely unaffected by legal sanctions" (Geerken and Gove, 1977: 426), are ". . . committed because it is pleasurable in and of itself and not because it is a route to some other goal" (Chambliss, 1967: 708).

Based on these studies (Chambliss, 1967; Bailey, 1976; Geerken and Gove, 1977), the crime of robbery has been defined as instrumental, in that it is a stage to the attainment of profit. The crime of aggravated assault has been defined as expressive, as it has been relegated to the category of ". . .so-called crimes of passion" (Geerken and Gove, 1977: 427), and is not ordinarily utilized as a route to some other goal. A further discussion of these crimes and their role in the application of mandatory minimum sentencing statutes will be presented in the following analysis.

It is first necessary, however, to acknowledge two additional directions of inquiry that have developed in the quest for deterrence research. The first describes the nature of the interaction between moral commitment and the threat of punishment.

Discussed extensively, (Andenaes, 1966; Zimring and Hawkins, 1968; Zimring, 1971; Tittle and Rowe, 1973; Silberman, 1976) ". . .it is generally argued that the deterrent effect of the threat of punishment depends on the degree of moral commitment to the norm" (Silberman, 1976: 443). Thus, ". . .the strongly socialized citizen's sense of right and wrong is less affected by the negative aspects of threatened punishment than that of those who are less strongly socialized" (Silberman, 1976: 443; Zimring, 1971: 44-5). Conversely, it is believed that the threat of legal punishment will ". . .contribute to an increase in the development of morality and respect for law" (Silberman, 1976: 443; Zimring and Hawkins, 1973: 89).

Tittle and Rowe's (1973) analysis of these variables was directed at assessing the relative effects of a moral appeal when compared to that of a sanction threat, and their individual effects on college classroom cheating. Their results demonstrated that the moral appeal had no effect, while ". . . .a clear and substantial impact was observed for the sanction threat" (Tittle and Rowe, 1973: 488). Although their findings clearly supported deterrence theory, the ". . .research clearly suggests that the impact of sanction threats will vary with the strength of motivation to engage in the (illegal) behavior" (Tittle and Rowe, 1973: 497). Thus, it would seem that the uniform imposition of criminal sanctions may not elicit the desired deterrent effects.

The second area of inquiry concentrates on subjectively perceived risks of punishment. Earlier research focused on

objective risks of punishment, and generally found a moderate relationship between it and various crime rates. "It has been repeatedly noted (e.g. Andenaes, 1975; Chiricos and Waldo, 1970; Gibbs, 1975) that the major difficulty with this past research concerns the use of actual sanctions rather than those perceived by the general public" (Anderson, 1979: 124). "Several studies have suggested that the probability or perceived probability of punishment for nonconformity is a key determinant of behavior" (Tittle and Rowe, 1974: 456).

Given the importance of the issue, recent studies have attempted to assess, empirically, the effects of perceived risks of punishment. One such study was conducted by Erickson and Gibbs (1978), in an examination of both objective and perceptual measures of sanctions, and their relationships to crime rates. By examining both objective and perceptual measures of sanctions, and their relationship to officially measured crime rates, Erickson and Gibbs searched for links between objective and perceived certainty of punishment, and crime rate.

They noted that an interpretation of Bentham and Beccaria's ideas leads to the basic premise that objective certainty of punishment is directly related to perceived certainty of punishment, which in turn is inversely related to the crime rate for the population under consideration (Anderson, 1979: 124).

Although their findings demonstrated negative relationships for the crime rate with objective certainty of arrest, as well as with perceived certainty of arrest, ". . .there was no evidence that the link between objective certainty and crime rate was

perceived certainty" (Anderson, 1979: 124). Based on these results, serious questions arise concerning the efficacy of general deterrence.

Webb has pointed out that;

It can hardly be accepted that there are standardized risks, objectively or subjectively, in law violation. Rather, the relative risk of being detected, apprehended and convicted, operates as a deterrent (if at all) depending upon the type of offense and the specific offender. . .deterrence or compliance is not determined by laws and sanctions; rather, it is the individual's perception of the act or behavior and the situation in which it occurs which are the crucial variables in determining or understanding human action, whether criminal or non-criminal. Thus the legal system can have little effect in reducing many types of crimes unless it considers the situational motivation of the offender (Webb, 1980: 29-33).

Based on this argument, in order to better understand and eventually deter criminal violations, the focus of research should be towards the extra-legal factors that influence subjective perceptions of punishment rather than the ". . .simple imposition of criminal sanctions" (Webb, 1980: 33).

However, the current application and growth in the use of mandatory minimum sentencing statutes has been justified on the perceived success of the application of these simple criminal sanctions. Interpretation of official crime statistics has been employed as the basis in reporting the positive effects of these statutes in reducing the use of firearms in the commission of felonies, as well as general reductions in crime rates. While acknowledging the importance of continued research in perceptions of risks of punishment, this study will be primarily concerned with evaluating

mandatory minimum sentencing statutes (for offenses committed with the use or possession of a firearm) through the use of aggregate Uniform Crime Report data. It should be noted that studies reporting the success of these statutes base their findings on the use of similar aggregate crime statistics.

"The rising volume of crime and the resulting concern for its victims has brought about a climate in which judicial discretion is being replaced by a reliance on statutory regulation of the sentencing process" (Alper and Weiss, 1977: 15). Currently, many critics of our judicial system feel that it has become soft, due to the effects of plea bargaining, and overly lenient judges. These critics feel that harsh treatment, exemplified by certainty and severity in prison sentences, will generally deter the criminal. Consequently, ". . . where, wide discretion in sentencing was once the rule, state after state has recently established standards or guidelines governing decisions on how much to punish convicted offenders" (von Hirsh and Hanrahan, 1981: 289).

One such application of this type of sentencing guideline deals with offenders, who are convicted of using or possessing a firearm in the commission of a felony. In an attempt to effectively deal with our violent criminal element, these newly enacted statutes specify mandatory minimum incarceration times to insure certainty of punishment. In their application of this mandatory sentencing, the statutes prescribe predetermined, fixed penalties for all violators of these laws, regardless of individual circumstances.

Historically, statutes dealing with mandatory minimum provisions have existed for some time. Previously, their application had been limited to narcotics laws, repeat felony violators, and subsequent violations of the same offense. Presently, however, the

scope of the sentencing policy has been expanded to include violations in which the offender possessed or used a firearm in the commission of a felony. It should be noted that the punishment orientation of this sentencing policy appears to be the national trend, as the continued development and acceptance of these statutes are sweeping our state legislatures. According to Glick:

The new criminal sentencing policies seem to reflect fundamental changes in elite attitudes about the purposes and performance of the criminal justice system, indicating a shift in support from the rehabilitation and treatment models of sentencing to explicit public endorsement of punishment, retribution and deterrence (1979: 3).

The ". . .open endorsement of punishment-as-policy is an important transformation" (Glick, 1979: 3), as it eliminates the basic expectations of rehabilitation and seeks to institute a deterrence-based retributive system. The newer models of mandatory minimums, coupled with the quickening shift from variable and indeterminate sentencing have initiated effects within sentencing practices that have but recently been felt, but will continue to be experienced, throughout the criminal justice system.

Based on the philosophy of equity in sentencing, mandatory minimums reduce significantly the discretionary decision-making powers of both judges and parole boards, while they enhance the discretionary powers of state prosecutors. Following conviction, judges and parole boards are limited in choice and length of sentence to the letter of the law, as prescribed in the mandatory minimum statute. However, prosecutors are effectively given an additional tool, in the form of these statutes, with which they can

increase their plea bargaining powers through the threat of application of the mandatory sentence.

Irrespective of administrative interpretation and use, the enactment and subsequent application of these statutes have effectively created a guarantee of a minimum punishment for offenders as well as establishing a theoretical deterrent for prospective violators. The legislation does, however, bring into focus additional questions concerning the philosophy behind our application of criminal sanctions.

If punishment has been our actual policy, it differs little from the new sentencing proposals, but punishment alone perhaps is too brutal, too basic, too uncivilized to stand alone. Therefore, instead of simply scrapping rehabilitation and openly adopting mandatory sentencing, lawmakers seek a new moral goal for imprisonment: deterrence, in which jailing continues to have a higher motive, this time that of protecting society (Glick, 1979: 5-6).

Consequently, supportive arguments for this type of sentencing policy propose that ". . .the purpose of the mandatory sentencing act is to deter the use of firearms in the commission of certain offenses" (Ellmaker, 1978: 279). Simply put, these statutes are ". . .expected to deter crime" (Glick, 1979: 4).

As yet, however, ". . . the new sentencing policies are in transition and have not produced coherent, well-defined substitutes for past sentencing practices" (Glick, 1979: 3). Progress evaluating their effectiveness is limited, as ". . .confusion and disagreement regarding their probable impact on crime, deterrence and prisons also abound" (Glick, 1979: 3). Presently, research is under way, aimed at tabulating the existence, format, severity

and growth of mandatory minimum sentencing legislation. When considering the impact and policy implications of this type of sentencing program, additional research is certainly warranted.

One additional variable of consequence, contributing to the further development and acceptance of mandatory minimum sentencing, must be considered. Because of the very nature of the statute, mandatory sentencing policies are politically attractive, ". . .for unlike most other proposed prison reforms which require expensive construction or personnel increases, sentencing reform usually appears relatively costless and is easily translated into straight-forward voter appeal" (Glick, 1974: 4). Consequently, the public's desire for effective crime control has significantly aided the political advancement of mandatory minimum sentencing as legislators quickly rally behind support of the further development of these statutes.

Following the enactment of a mandatory sentencing statute in Kansas, Ellmaker points out that:

. . .apparently, the legislature believed that the certainty of incarceration for a uniform minimum period would have a deterrent effect. At least for the period of incarceration the public would be protected from one class of dangerous offenders (1978: 278).

Although both political and public support of these statutes have been beneficial in securing their continued enactment, support alone should not be considered as sole justification of their existence. Results from the limited number of studies that have assessed the effectiveness of mandatory minimum sentencing are not, thus far, overwhelmingly supportive.

In a study of the impact of gun control laws and mandatory sentencing in Massachusetts, for example, researchers concluded that the law only temporarily produced a decrease in the number of firearms in circulation in the state and that most crimes committed with firearms were not reduced by the new law which required a minimum 1-year sentence for illegal possession of a firearm (Glick, 1979: 7).

The statute described above by Glick, is Massachusetts' Bartley-Fox law. Enacted on April 1, 1975, it was at the forefront of the emerging national interest in mandatory sentencing. Unlike other statutes discussed in this study, the Bartley-Fox law applies only to the carrying of a firearm without proper authorization. Offenders convicted of violating the statute receive a mandatory minimum one-year sentence without possibility for suspended sentence, probation or ". . . various informal means of avoiding sentencing a defendant whom the prosecution has shown to have violated the gun-carrying prohibition" (Rossman, Froyd, Pierce, McDevitt, and Bowers, 1980: 150-1).

By prescribing sentencing practice and thus constructively removing judicial discretion in the sentencing process, the bill's co-author, retired Judge J. John Fox :

. . . expected the law to be a precedent for altering patterns of judicial behavior and ending the drift he perceived toward lenient sentences for all crimes of violence. In his words: 'This bill is aimed to change people's thinking. . . to make people understand that there are laws and there is punishment' " (Rossman, Froyd, Pierce, McDevitt and Bowers, 1980: 151).

Although the violation that the Bartley-Fox law is concerned with does not match perfectly with those state statutes that are of interest to this study, it is nonetheless noteworthy. Along

with being one of the first statutes to specify a standard mandatory minimum sentence for a firearm offense, it also has the distinction of being one of the first, and currently few, states whose mandatory sentencing statutes have been empirically assessed. Because of the nature and uniqueness of the law, numerous studies have been conducted, directed at determining its effectiveness.

One of the more significant of these studies was conducted by Rossman, Froyd, Pierce, McDevitt and Bowers (1980). It was a two-year study, funded by a grant from the Law Enforcement Assistance Administration of the United States Department of Justice to the Boston University Center for Criminal Justice. The study assessed ". . .the impact of Bartley-Fox on the crime rate in Boston, for the rest of the state, and for the state as a whole for three types of crime: aggravated assault, armed robbery, and homicide" (Rossman, Froyd, Pierce, McDevitt and Bowers, 1980: 152-3). Although their results indicated that the Bartley-Fox law did have an impact on the crime rate, they are somewhat inconsistent with previously proposed theoretical propositions which described a variability in the deterrent effects of criminal sanctions on different types of crime.

Their analysis indicated that the gun law had a moderate deterrent effect on gun robberies and substantial deterrent effect on armed assaults. This would appear to be contrary to theoretical propositions proposed by Chambliss (1967) concerning instrumental and expressive crimes. Since robbery is an instrumental crime, and theoretically more easily affected by criminal

sanctions, it should elicit the greater deterrent reaction to the law. Conversely, because assault is an expressive crime, it should have the least deterrent reaction. The results, however, indicate the exact opposite. Additionally, the 1977 data showed a shift back to the use of guns in robberies, thus indicating the possibility of a limited or only momentary deterrent effect.

The Rossman, et al results did, however, indicate one extremely interesting finding concerning marginal deterrence. They found that, ". . .while gun assaults decreased, non-gun assaults substantially increased" (1980: 150). The increase in non-gun assaults would appear to be an excellent example of the channeling effects of threats of punishment, as proposed by Morris and Hawkins (1969). Rossman, et al note that:

. . .this is most interesting reading for practitioners, theoreticians, and those involved in the legislative process. It should be considered not just in terms of gun control questions but also as an analysis of the impact of mandatory sentencing laws generally on the criminal justice system (1980: 150).

## FLORIDA BILL 55

Between the years of 1972 and 1974 the State of Florida experienced a continuous increase in crimes of violence and the use of firearms in the commission of specific felonies. These increases kept the crime rate in Florida above the national and geographic averages and greater than the rates of contiguous states. As a result, the Senate committee on Criminal Justice for the State of Florida initiated legal reform in 1973, adopted in 1974, directed at establishing a mandatory minimum sentence of three years for ". . .any person who has been convicted of a felony involving a firearm or destructive device" (Laws of Florida, 1976: 1231). However, the committee directed the sentence to all felonies and made it applicable only to second time offenders, ". . .upon subsequent conviction of a felony involving the display, use or attempt to use a firearm or destructive device. . .serve a minimum term of three years" (Laws of Florida, 1976: 1231).

In May of 1975, Florida Attorney General Robert L. Shevin, together with the Senate Judiciary-Criminal Committee, initiated a Bill to amend Section 775.087 and make the mandatory three year term applicable to the first conviction of an armed felony. The committee stated, ". . .the underlying assumption is that, the better deterrent is to prohibit parole for three years on the first conviction of an armed felon. Thus the existence of the law itself is to deter first time armed felons" (State of Florida, "Senate Judiciary-Criminal Committee: Staff Analysis").

Attorney General Shevin concurred and in his letter of 9 May, 1975 to Florida Governor Askew, he strongly urged the Governor to support Senate Bill 55, arguing that the Bill's passage would establish legislation that would deal firmly and harshly with those individuals who, while in the commission of a felony, saw fit to use deadly weapons. In addition, the House had limited application of the mandatory sentence to only certain enumerated "high risk" felonies. Those felonies carried a high risk of either death or great bodily injury. "In other words, it will discourage the criminal use of firearms" (Letter to Governor Reubin O'D. Askew, 1975). State Bill 55 was subsequently passed as amended, effective July 1, 1975.

Thus far, only one study has been published evaluating the application and effectiveness of the Florida statute. Coury, Silber and Tradd (1978), in order to study those cases which involved the use of a deadly weapon, reviewed dispositions for all felonies between the months of November and December of 1977, and January of 1978 for which the statute might be applicable. In reviewing the files, Coury, Silber and Tradd found:

(1) that the weapon possession charge was being used in most instances, (2) that defendants in other cases were not charged with the possession offense, even though a gun had been used, and (3) that there were times where defendants were charged with possession of a firearm, but the charges were later abandoned by the prosecution, usually in plea negotiations (1978: 1-2).

Their results indicated that in 75% of the cases studied the offenders ". . .do not go before the Judge as such, because the charge is abandoned, negotiated, or not charged at all" (Coury,

Silber and Tradd, 1978: 5). Of the 62 cases reviewed, only 27 defendants were charged under the mandatory statute. Of those individuals charged one was acquitted of the firearm possession charge by a jury, while 13 defendants had the possession charge abandoned by the prosecution in plea negotiations. Thus, only 13 of the original 62 defendants did in fact receive the three-year mandatory sentence.

Based upon these results one might question the efficacy of the law. It could be argued that Florida's mandatory sentencing statute has simply become a ". . . new and additional bargaining chip" (Glick, 1979: 6) of the prosecution, thus altering or eliminating altogether any possible deterrent effects the law might have originally held. However, Florida Uniform Crime Report data indicate a significant drop in the use of firearms in the commission of aggravated assaults within one and one-half years of the statute's enactment. Additionally, this data indicates significant increases in both the use of personal (hands, feet, fists, etc.) and other weapons during that same period. These findings are consistent with the proposed effects of both general as well as marginal deterrence. It should be noted also that, as with the Massachusetts data, the reduction in the use of firearms is only short term. Within three and one-half years of Bill 55's enactment the use of firearms in the commission of aggravated assaults have not only re-established an upward trend, but also surpassed the peak point at the time of the legislation's initiation.

## MICHIGAN STATE LAW 750.227b

On January 1, 1977 Michigan enacted an additional form of the mandatory minimum sentencing statute. The Michigan law mandates a mandatory two-year prison sentence for any person convicted of a felony while in possession of a firearm (unless such felony itself is the unlawful possession of a firearm). In addition, this statute requires that the sentence be served prior to the sentence of the original felony. Thus, the statute is applied "in addition to" the punishment for the original felony while simultaneously guaranteeing that the sentence be served in its entirety through the prohibition of suspension, probation, parole or any type of early release.

Whereas, the Massachusetts Bartley-Fox law applied only to unlawful possession of a firearm, the Michigan statute applies to possession of a weapon in the commission of all felonies.

The somewhat similar Florida statute, however, covers a much narrower set of circumstances by restricting the imposition of the mandatory sentence to those instances which involve firearm possession during the commission of certain enumerated violent or intentional crimes (Hall, 1976: 577).

In addition, the Florida statute prescribes a standard penalty, defining the possession of a firearm in the commission of a robbery as a single distinct offense. Whereas, the Michigan statute defines the possession of the firearm in the commission of the robbery as a separate offense from the robbery itself and subsequently prescribes its mandatory punishment to be served "in addition to" any punishment for the original felony. The significant point, however, is that both states, whether or not they define their

statutes as "standard" or "in addition to," have concerned their laws with the possession of a firearm in the commission of a felony.

In April of 1978, the Michigan Department of Corrections initiated the first analysis of the sentencing statute. The investigation dealt with two issues of particular concern to the Department of Corrections; (1) the number of persons the legislation would add to the prison population and (2) the deterrent impact of the law in preventing the use of firearms in felony crime. Their findings, assessing the impact on prison population after the first eleven months following the law's enactment, indicated that 311 persons were serving sentences as a direct result of the mandatory statute. The Department of Corrections felt, however, that ". . .it is unlikely that we will receive more than 200 cases a year under this law, that would not have come to prison were it not in effect" (Michigan Department of Corrections, 1978: 2).

The findings are quite interesting, however, when comparing the number of those individuals who had a firearm in their possession at the time of the commission of a felony, to the number of those individuals who were convicted under the mandatory statute. The data, obtained from pre-sentence and sentence information for every person in the state sentenced for a felony during a two-week period in late 1977, indicated that of the defendants who had a firearm in their possession at the time of their commission of a felony, only 19 (29.2%) were convicted of the mandatory

sentencing statute. It would seem that these findings are significantly comparable to those of Coury, Silber and Tradd (1978), who found that only 25% of the Florida defendants, although qualifying for application of the mandatory statute, received the mandatory sentence. Once again the effects of plea negotiation are evident. However, the close comparability in the percentage of those cases effected by prosecutorial discretion is significantly noteworthy. Although the data indicates that the mandatory aspect of these statutes has not been applied to all violators, the ratio of random application is comparable across jurisdictional boundaries.

A further goal of society, to which the mandatory sentencing of criminals contributes, is that of "in-capacitation." It is this particular goal which seemed to predominate in the minds of Michigan legislators at the time the new mandatory sentence firearm law was enacted. In the words of one of its more active proponents, 'what cannot be disputed is that during the two years that a convicted person serves in prison he can't hurt any law-abiding citizen' (Hall, 1976: 579).

Once again, the general deterrent propositions of the mandatory sentencing statute are wedded to a philosophy and policy of incapacitation. Proponents of the legislation consistently combine these two outcomes as beneficial products of mandatory minimum sentencing legislation. Although the American Bar Association's Project on Standards for Criminal Justice mentioned that it was concerned about keeping the dangerous repeat offender away from the general public, the project also indicated that:

. . .evil of the mandatory term is that it robs the system of the capacity to discriminate between offenders who do and offenders who do not deserve

the harsh treatment (of a prison sentence). . .  
(Hall, 1976: 589).

For proponents of these deterrence-based statutes, the argument that first-time offenders need the threat of certain punishment and assured incarceration can be counteracted with the knowledge that the probability of recidivism is increased if first-time offenders are sent to prison.

However, many feel that, without the threat of mandatory sentencing of first-time offenders, society might be indirectly encouraging violators to break the law on the assumption that probation is all that can result. Others feel that the mandatory sentence will fulfill humanitarian goals and allow prisons to keep the offender long enough for meaningful diagnosis, treatment and eventually rehabilitation. "Although the mandatory sentence may be a valid tool of law enforcement. . ." (Hall, 1976: 591), we have yet to accurately or adequately determine its effectiveness or appropriate usage.

On January 31, 1976, the Delaware legislature altered an existing statute, concerned with the use or possession of a firearm during the commission of a felony. The statute had allowed the sentence to be served concurrently with that of the original felony. The new statute required a five year mandatory minimum sentence to be served in addition to the sentence for the original felony and without eligibility "for parole or probation during such 5 years" (Delaware Code Annotated, 1979: 168). The passage of this statute, consistent with national trends, once again marked the return to punishment oriented legislation directed at threatening potential violators in order to assure compliance with the law. During this same period additional measures were being taken to combat what was perceived as a growing crime problem.

In 1975, the three major law enforcement agencies in Delaware targeted the crimes of robbery and burglary as needing special attention. Federal grants were obtained from the State Planning Agency to develop crime prevention and crime analysis capabilities. This included the development of community watch programs; the utilization of crime analysis to effectively deploy crime deterrent and prevention efforts; the institution of anti-fencing operations aimed at reducing the incidence of property theft; the use of sophisticated surveillance and alarm equipment and stakeout efforts. In 1976, the major law enforcement agencies began aggressively implementing these techniques.

In light of this concerted effort by the police to detect and apprehend robbery and burglary offenders, it was agreed that any hope of achieving a reduction in the incidence of these crimes would, in part, depend upon improved capabilities for more effective prosecution. As a result, a special unit was established in the criminal division of the State Attorney General's Office to prosecute robbery and burglary offenders.

This unit was called the Target Crimes Unit and it consisted of two experienced prosecutors, one legal assistant and one secretary. The Target Crimes Unit exclusively prosecuted robbery and burglary defendants in New Castle County. It should be noted that at the time of the unit's inception, New Castle County accounted for almost 80% of the crime in Delaware. The unit was implemented in August of 1976 and ended three years later in August, 1979.

The date of the targeting program's implementation is identical to that of the enactment of Delaware's mandatory minimum sentencing statute. The unit's "interest" in robbery should then, theoretically, assist in reducing firearm usage that would otherwise be attributed solely to the threats of mandatory sentencing.

Data obtained from the Delaware Statistical Analysis Center also indicate the effect of increases in prosecutorial effectiveness that would have added to the incapacitation and retributive properties of the mandatory minimum statute, as well as theoretically enhancing its deterrent capabilities. Between the years of 1976 and 1979, 181 defendants were charged under the mandatory minimum sentencing

statute. Of those charged, all 181 were sentenced to prison, with an average incarceration time of 102.5 months (8 years and 6½ months). If there is a deterrent effect from the mandatory statute, it may have received supportive influence from the increase in the efficiency of adjudication.

## THE "GREAT DEBATE" Proponent's Arguments

Advocates of mandatory sentences are, in essence, proclaiming that a prison sentence is the primary and best method for deterring crime. This reason is increasing in public acceptance (Alper and Weiss, 1977: 16).

Declarations that prisons are for punishment, as well as arguments advocating the incarceration of offenders for community protection, can be considered to be throwbacks to the deterrent model developed by the classical school of criminology. However, proponents of mandatory sentencing statutes not only support those declarations, but justify the existence and reported success of the new sentencing legislation, based upon these punishment-oriented premises. They argue that the threat of punishment, that is, the assignment of an appropriate sanction or penalty for illegal behavior, is the best method to deter potential offenders. "Many advocates of reform are convinced that more certain, more widely publicized, and more severe prison sentences for serious offenders will enhance public protection" (Petersilia and Greenwood, 1978: 604). As Tullock points out, punishment ". . . has the unique characteristic of being fairly easy to change by government action" (1974: 105). Thus, mandatory minimum sentencing statutes have become the vehicle through which punishment-oriented legislation is being directed.

Professional criticism of current sentencing policy and popular dissatisfaction with rising crime rates, fear of physical assault, and the apparent failure of rehabilitation all seem an unbeatable combination for producing statutory change (Glick, 1980: 4).

The effect of this combination of conditions has become increasingly more apparent as the mandatory sentencing of criminals using firearms to commit crimes of violence gains popularity with the American people. Growing numbers of legislators and jurists are placing confidence in official punishments as deterrents; as the negative sanctions of the new mandatory sentencing codes are thought to be effective in reducing violent crime. "The idea behind these laws is to 'make the punishment fit the crime' and to stress the certainty of punishment" (Alper and Weiss, 1977: 15).

A general deterrence policy, as exemplified by mandatory sentencing statutes, has obvious attractions. Most significant of these stems from its compatibility with models of human action which assign actors, in this instance violators of the law, a capacity for choice. Thus decisions to commit crimes are weighed, in a cost-benefit-analysis, against possibilities for punishment. Ultimately, a choice is made and the illegal act is either initiated or deterred.

Most economists who give serious thought to the problem of crime immediately come to the conclusion that punishment will indeed deter crime. The reason is perfectly simple; demand curves slope downward. If you increase the cost of something, less will be consumed. Thus, if you increase the cost of committing a crime, there will be fewer crimes. The elasticity of the curve, of course might be low, in which case the effect might be small; but there should be at least some effect (Tullock, 1974: 104-4).

Mandatory sentencing statutes have subsequently been defined as the significant factor in increasing costs of committing a crime and thus increasing the elasticity of the demand curve.

As previously noted, there now exists an ever increasing, vocal political constituency, advocating a "hard line" with offenders. These elected representatives have begun to side with those criminal justice experts, ". . .who favor changes for 'equal justice' considerations," while simultaneously ". . .are eager to endorse the proposed policies for their simple appeal to punishment and retribution" (Glick, 1979: 4).

At the forefront of this deterrent-based legislation, Massachusetts' Senator Edward Kennedy is heralded as one of the outspoken advocates of statutes ". . .assuring swift and certain punishment of the criminal offender" (Kennedy, 1976: 18). In espousing mandatory sentencing statutes, Kennedy has argued that:

. . .effective deterrence requires that the odds of apprehension, conviction and confinement be reduced  
. . .a prospective criminal must believe that if he is caught, the chances are high that he will be swiftly tried and, if convicted, punished (1976: 18-19).

Additionally, Kennedy has been instrumental in introducing legislation, at both federal and state levels ". . .calling for imposition of mandatory minimum sentences without parole in cases of violent street crime" (Kennedy, 1976: 19).

However, Senator Kennedy, like other proponents of these statutes, combines the philosophies of general deterrence and incapacitation, in his support of mandatory sentencing laws. On the side of general deterrence, Kennedy states:

Imposing such a sentence is not grounded in any theory of vindictive punishment. Rather, it arises from the need of certainty of punishment as the most effective way to deter potential offenders from their criminal conduct (1976: 19).

Simultaneously he justifies incapacitation arguments in stating, ". . . mandatory sentencing also serves the vital purpose of picking-up the violent offender and keeping him off the street" (Kennedy, 1976: 19). Kennedy concludes with:

My suggestions are not offered as some magic cure for the complex and elusive problem of crime. There is no simple answer. But strong, positive steps must be taken now to begin to reduce the rate of crime. Failure to act cannot help but nurture an already growing public cynicism about our own institutions (1976: 20).

In an attempt to secure Kennedy's "magic cure," proponents of mandatory sentencing statutes have been able to increase arithmetically the number of these state statutes adopted annually. As recently as February of 1981, Congressional proponents have not only worked towards the adoption of these statutes in their home states, but have also introduced three congressional bills (H 27, 2147, 8258) advocating the adoption of mandatory minimum sentencing for comparable federal violations. Additionally, Congressional proponents have also gained significant support from their colleagues, in effect assuring continued development of these statutes. In an address to the House in support of House Bill 27, which would provide a mandatory minimum 5-year prison sentence for those individuals convicted of committing Federal crimes involving the use of a firearm, California Congressman Anderson noted that at that time, just nine weeks into the 97th Congress, advocates of the referendum had secured over 100 co-sponsors.

It is impossible to determine the individual justifications for support, of these Congressional, or of other proponents of

sentencing statutes. Their supportive arguments may advocate the continued adoption of these sentencing laws, based upon the concepts of deterrence, incapacitation, retribution, or any combination of these justifications for punishment. It, however, appears that the majority of the support continues to stem from arguments for both an equal application of justice, and deterrence. In support of the former Glick notes that:

If mandatory and fixed sentencing laws were applied fully, they would produce some benefits beyond their immediate political appeal. They may eliminate some of the disparity in sentencing and the bitter sense of discrimination and arbitrariness which typical judicial discretion and parole decisions often have produced (1979: 8).

In support of the deterrence proposition Beyleveld notes that:

Deterrence, if successful, does not depend upon any interference with the character-structure of the individual. Unlike rehabilitation, it holds out a promise of being able to prevent persons entering the criminal justice system rather than merely dealing with them after they have done so (1979: 136).

And yet, a "hard line" view of the application of deterrence-based punishment is also possible, and may be defined as having retributive properties.

The Reverend Sydney Smith, a follower of the deterrence theory, said a prison should be 'a place of punishment, from which men recoil with horror - - a place of real suffering, painful to the memory, terrible to the imagination. . . a place of sorrow and wailing, which should be entered with horror and quitted with earnest resolution never to return to such misery. . .' (Tulloch, 1974: 110).

According to Tullock, this is an exaggeration, as our prisons need not be that inhumane, ". . .the deprivation of liberty in itself may be sufficiently effective punishment. But in any case,

deterrence necessarily involves the deliberate infliction of harm" (1974: 110).

As the number of statutes requiring the imposition of mandatory minimum sentences continues to grow, and as these statutes continue to require the fulfillment of sentence without possibility for early release, Tullock's requirement for harm may be met.

### Arguments of the Opposition

Use of mandatory minimum sentencing can be viewed as an attempt to increase, simultaneously, both the relative severity and certainty of punishment. The mandatory sentence for possession of a firearm in the commission of a felony guarantees not only a definite (certain) length of sentence, but also adds to sentence severity through its enforcement as either a lengthy sentence that had not previously existed, or as a consecutive term to be served in addition to time given for the original felony.

Yet, aside from its punitive reaction to violators of the statute, ". . .the mandatory sentence is perhaps most deleterious because it gives an illusion of protection" (Simon, 1976: 1298) to possible victims. Because these statutes threaten potential violators with certain and severe punishment, we assume that the potential criminal will respond appropriately and not violate the law. Additionally, as previously reviewed, mandatory sentences fulfill not only incapacitation arguments, but have ". . .some potential for placating the angels of vengeance" (Beyleveld, 1979: 136). As Beyleveld points out, ". . .this image of being all things to all

men may be an illusion once we spell out what we actually have to do in order to deter effectively" (1979: 136).

Administratively as previous noted, mandatory sentencing legislation has created significant difficulties for both judges, and parole and probation officials. In some instances, the statutes have limited the tasks of these individuals to such an extent that they have, in effect, eliminated the official's role. Additionally, instead of reducing the prosecutor's role in plea bargaining, the statute may increase their discretionary decision-making powers to such a degree that it will effectively undermine the entire purpose of the new sentencing policy. Nagel noted that in states that have recently initiated mandatory minimum sentencing legislation:

Prosecutors used the mandatory sentence provision to increase their discretionary powers as well as their bargaining powers in the plea bargaining process. A person, even an innocent person, really has no choice when faced with the prosecutor's offer of a guilty plea to a lesser charge, when the greater charge, on conviction, will result in one of the horrendously long sentences some of the proposed acts provide" (1977: 6).

In addition, juries are not immune to the use of discretion in instances where mandatory statutes are to be applied. "They just refuse to convict when the mandatory sentence affronts their sense of fairness" (Nagel, 1977: 7). The defendant, whether or not he is innocent, is acquitted and released.

Although these new sentencing reforms may be politically attractive, they may produce results that are no better, and perhaps worse, than past policies.

Mandatory sentencing proponents talk about uniformity but preach rigidity. Make the punishment fit the crime is a tuneful line from Gilbert and Sullivan that has been translated into political, if not criminological, philosophy (American Bar Association, 1976: 5).

While these statutes have been designed to guarantee punishment for minimum terms, some theorists have suggested that state legislatures might seize the opportunity to increase existing sentences while passing mandatory requirements. In addition, as popularity for this type of sentencing policy increases, and as additional states jump on the mandatory minimum bandwagon, the lengths of mandatory statutes may tend to increase. An example of this trend would be Florida's standard three year mandatory minimum sentence for possession of a firearm while in the commission of enumerated felonies (enacted in 1975), when compared to Alaska's standard six year mandatory minimum sentence for possession of a firearm while in the commission of similar felonies (enacted in 1980).

Besides observing the extent to which new sentencing laws are imposed, it is important to determine if they deter crime, for deterrence is a central theme in supporting and justifying the new penalties (Glick, 1979: 6).

In making that determination, the major tenet of deterrence, (i.e., the application of punishment), ". . . can be thought of as a lever which is manipulated by the justice system to regulate the flow of crime" (Pontell, 1978: 10). Given that description of the system, mandatory minimum sentencing, through their employment as just such a lever, would certainly appear to be an operationalized attempt at the regulation of that flow. However, implicit

in the deterrence model is the assumption that the criminal justice system has an unlimited capacity for dealing with crime. Yet, we have repeatedly seen that our courts and prisons are overworked, understaffed, and overcrowded. These negative factors work to the detriment of the legal system, limiting its capacity to adequately apply the negative sanctions inherent within the deterrence model. It seems unlikely that, against such odds, courts and prisons will be able to increase the levels in their rates of applications of sanctions. One must then assume that as the amount of crime increases the overload problem will be more acute, subsequently reducing the efficiency of the system and thus lowering relative certainty of punishment.

Mandatory statutes, by their very definition, add to this system overflow. By eliminating legislatively the discretionary powers of judges and probation and parole officers, these statutes require imposition of sentence and subsequent increases towards maximum capacities.

A final issue that some recent research has examined is the conflict between the possible benefits of the mandatory sentence in reducing crime through incapacitation and the corollary requirement that prison populations must increase (Glick, 1979: 8).

An analysis of incapacitation effects, by Petersilia and Greenwood (1978), indicated that for a one percent reduction in crime, prison populations must increase by three to ten percent. They found that although mandatory minimum sentencing policies can reduce crime through incapacitation effects, the increases in prison populations must be substantial to achieve modest reductions in crime rates.

A Rand Corporation study has concluded that mandatory sentencing could reduce crime 20% if all convicted felons were required to serve 1.2 years in prison; however, prison populations must increase 85%. Crime reductions up to 30% of recent levels would require 3 to 5 year prison terms for all convicts, but a likely tripling of the total U.S. prison population (Glick, 1979: 8).

Many feel that even if mandatory sentencing becomes the policy of the future, correctional facilities will not be able to meet legislative goals, because of the drastic increases in prison populations that would entail. If the incapacitation argument is taken to its ultimate conclusion, in order for these laws to accomplish what they propose, lawmakers must: (1) actively apply the mandatory sentence in all appropriate cases, (2) be willing to lock up all convicted offenders for several years, and (3) build more and more prisons to house the convicted. It would appear that the continued success of these statutes requires more than can be realistically expected.

## DESCRIPTION OF METHODOLOGY

Recent analyses of the deterrence hypothesis have approached the problem from two distinctly different strategies in their attempts to produce insights into the deterrence controversy.

One approach is to gather aggregate data on crime and other social indicators and to study the variations in crime that occur between jurisdictions or over time. The concept is one of studying changes that occur naturally, attempting to control for all the other differences that occur in nature either between areas or over time to isolate the contribution of general deterrence to differences in noted crime rates (Zimring, 1976: 132).

The second approach attempts to assess the impact of changes in law enforcement or punishment policy by closely following what happens after particular policy shifts occur. Comparisons in reported crime rates are made before and after the policy change. In some studies, comparison or control areas are used to reduce the possibility that changes in the dependent variable (usually crime rates) are inaccurately attributed to the policy shift being examined (Zimring, 1976: 132).

The policy approach is a form of quasi-experimentation incorporating characteristics of a multiple interrupted time-series design. As described above, the quasi-experiment is normally applied in a natural social setting in which the researcher lacks full control over the scheduling and randomization of exposures to the experimental stimuli, thus eliminating his opportunity to utilize "classic experimental procedure." As noted by Campbell and Stanley:

The essence of the time-series design is the presence of a periodic measurement process on some group or individual and the introduction of an experimental change into this time series or measurements, the results of which are indicated by discontinuity in the measurements recorded in the time series (1963: 37).

Research by Ross (1973) and, Campbell and Ross (1967) together with extensive discussion concerning methodological stability by

Campbell and Stanley (1963) have laid the groundwork for the use of quasi-experimentation in the evaluation of law and public policy.

Utilizing quasi-experimental concepts, this study assesses the deterrent capabilities of statutes which mandate mandatory minimum sentences for individuals convicted of possession or use of a firearm in the commission of a felony. The enactment of these statutes, together with the use of aggregate uniform crime report data to determine their effectiveness, offer an almost classic opportunity to utilize a quasi-experimental methodology. The date of enactment of the mandatory statute functions as the experimental stimuli, and aggregate uniform crime report data is used as the unit of measure for comparisons of time periods before and after the statute's passage.

Data from 1970 through 1980, of individual state Uniform Crime Report arrest statistics for the crimes of robbery, and aggravated assault, are used in the analysis. Statistics were obtained from the individual state Uniform Crime Reports. In some instances, however, less than eleven years of state statistics is presented. Not all of the states had tabulated crime statistics for the full eleven years that this study is concerned with. Additionally, statistics for the crime of robbery were not tabulated in a form applicable for this study until 1974.

The crimes of robbery and aggravated assault were chosen as offense categories because of: (1) theoretical propositions advanced by Chambliss (1967) concerning the effects of deterrent

sanctions on "instrumental" versus "expressive" crimes, (2) the statutes under study had included these two offenses within the list of felonies to which the statutes were applicable, and (3) the existence of aggregate data tabulated for these crimes by "type of weapon used," and at rates per 100,000 inhabitants. The use of these offenses provide a sound theoretical basis to the statutes being investigated, as well as standard measure articulated specifically to those weapons with which the statutes are concerned.

Comparison of yearly crime rates are presented as pretest (data for those years prior to the statutes enactment), experimental treatment (enactment of mandatory minimum sentencing legislation), and post-test (data for those years following the statutes enactment). Comparison across both time and jurisdictional (state) boundaries is made possible through the standardization of definitions of offenses, and method of data presentation. Definitions established by the Federal Bureau of Investigation, and presented in their annual Uniform Crime Reports, for the crimes of Robbery and Aggravated Assault are utilized as offense categories. Since each state tabulates its own crime statistics and subsequently forwards that information to the FBI for national tabulation, it was assumed that there would be sufficient comparability between federal and state definitions of these offenses, that a problem would not be created when comparing offense rates across time or state boundaries. Nevertheless, a review of the appropriate state definitions for the offenses of Robbery and Aggravated Assault was conducted and compatability of definitions verified. Consequently, Aggravated

Assault is defined as:

. . .an unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault is usually accompanied by the use of a weapon or by means likely to produce death or great bodily harm. Attempts are included since it is not necessary that an injury result when a gun, knife or other weapon is used which could and probably would result in serious personal injury if the crime were successfully completed (Federal Bureau of Investigation, 1979: 19).

While Robbery is defined as:

the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear (Federal Bureau of Investigation, 1979: 15).

The data is tabulated and presented as "rate per 100,000 inhabitants" for each offense category. By presenting the data in this manner, a standard measure exists for graphed comparisons as well as statistical analysis.

States were selected for this analysis based upon the following set of criteria. Those states with existing mandatory minimum sentencing statutes were selected and assigned to the "experimental group" if: (1) their statutes applied to possession or use of a firearm in the commission of a felony, (2) the statute was enacted between 1970 and 1980, (3) the state had tabulated a minimum of five years of uniform crime statistics for the crimes of robbery and aggravated assault, and (4) the data had been tabulated as rate per 100,000 inhabitants and these offenses articulated by "type of weapon used." Comparison states were selected and assigned to the "control group" if: (1) they had not enacted a mandatory minimum sentencing statute during the period under investigation,

(2) they were within close geographical proximity to one of the "experimental states," (3) the state had tabulated a minimum of five years of uniform crime statistics for the crimes of robbery and aggravated assault, and (4) the data had been tabulated as rate per 100,000 inhabitants and these offenses articulated by "type of weapon used."

Since a portion of the analysis for this study is presented in graphed time-line comparisons, similar to that of Thorsten Sellin's (1967) analysis of homicide rates, and Campbell and Ross' (1967) analysis of speed limit violators, two "control" states were chosen for comparison with each "experimental" state. Where possible, control states were geographically contiguous to their comparative experimental state.

It is acknowledged by this researcher that, although comparative "control" states are non-equivalent control groups they are nevertheless helpful. As previously noted, in natural social settings where classic experimental procedure is not applicable and subsequently, randomly assigned control groups are unavailable, adaptation to a quasi-experimental analysis allows for controls against threats to internal validity. According to Campbell and Ross, ". . .it is in the spirit of quasi-experimental analysis to make use of all available data that could help to rule out or confirm any plausible rival hypothesis (1967: 43)." Subsequently, the experimental group consists of the states Delaware, Florida, and Michigan, while the states Arkansas, Illinois, New Jersey, North Carolina, Pennsylvania and Wisconsin form the control group.

Table A lists experimental states and their comparative control states.

**Table A**  
**Experimental and Control States**

<u>Experimental Group</u>	<u>Control Group</u>
Florida	Arkansas* North Carolina*
Michigan	Illinois Wisconsin
Delaware	New Jersey Pennsylvania

\*not geographically contiguous to its "experimental" state

As indicated, Florida is compared with Arkansas and North Carolina. Because states contiguous to Florida failed to fulfill selection criteria it was necessary to select two states, also within the Southern region, that could meet those requirements. Arkansas and North Carolina were the two most geographically proximate Southern region states that were able to fulfill selection criteria. The second state in the "experimental group," Michigan, is compared with "control" states Illinois and Wisconsin. Both of these control states fulfilled selection criteria and at the same time are geographically contiguous to their experimental state. However, indicative of the growing support for this type of legislation, in March of 1980, Wisconsin enacted their own mandatory minimum sentencing statute for possession or use of a firearm in the commission of a felony; prescribing an additional prison term to the punishment associated with the initiating felony. Consequently, 1980 statistics from Wisconsin were excluded from this analysis. And finally, as

indicated, Delaware is compared to control states New Jersey and Pennsylvania. New Jersey and Pennsylvania fulfilled selection criteria and are contiguous to Delaware.

As previously noted, this study utilizes a multiple time-series design in a comparison of states with mandatory minimum sentencing statutes to contiguous or regional states without similar legislation. However, analysis of the data takes two distinctly different forms. A portion of the analysis for this study is presented in a manner similar to Sellin's (1967) analysis of homicide rates, and employs a visual analysis through the use of graphed time-line comparisons. Graphs are constructed for both offense categories, Robbery and Aggravated Assault, and are presented to assess two proposed effects of the legislation.

Initially, the comparisons are directed at assessing the general deterrent effects of the mandatory sentencing legislation. Graphs consist of one "experimental" state with its two "control" states, for one offense category committed with the use or possession of a firearm, at a rate per 100,000 inhabitants. These graphs indicate the increases and decreases, over time, in the use or possession of a firearm in the commission of the enumerated felony, thus visually comparing rates of control states to experimental states while indicating the date of enactment of the mandatory minimum statutes.

The second stage of the graphed analysis articulates each offense category by type of weapon used (i.e., firearm, knife or other cutting instrument, personal weapons, and other weapons)

for the experimental states. This analysis is directed at assessing the channeling effects (Morris and Hawkins, 1969) of this type of deterrent-based legislation. Graphs consist of data for one "experimental" state, articulating one offense category, indicating each of the four categories of type of weapon used, at a rate per 100,000 inhabitants. These graphs, as with the graphs comparing experimental to control states, indicate increases and decreases, over time, in the use or possession of firearms in the commission of the specified felony for the experimental state. It should be noted, that the second type of graphs also portray increases and decreases in the three remaining weapons categories to the date of enactment of the mandatory minimum sentencing statutes.

The second portion of the analysis for this study employs an analysis of covariance in assessing the deterrent capabilities of this type of sentencing legislation. The states are divided into experimental and control groups (see Table A) and a series of regressions calculated in each of the two offense categories for the offenses committed with the use or possession of a firearm.

Because the statutes under study were enacted in 1975, 1976, and 1977 for Florida, Delaware, and Michigan, respectively; comparisons were made utilizing "analogous time period categories" spanning six years. These categories are at one year increments, beginning two years prior to each statutes' enactment, and ending three years after their passage. Thus, the year of enactment category would consist of 1975 statistics for Florida and its comparison states, Arkansas and North Carolina, 1976 statistics for

Delaware and its comparison states, Pennsylvania and New Jersey, and 1977 statistics for Michigan and its comparison states, Illinois and Wisconsin. While it is evident that the years utilized in the analysis are not chronologically identical, they are identical in reference to each statute's development, enactment, and proposed effects. Consequently, comparisons and ultimately analyses of the various statutes are facilitated by standardizing the temporal differences caused by their differing dates of enactment.

As previously noted, states were divided into "experimental" and "control" groups and regression analyses were run on each group individually. Analyses utilized the statistics described above, regressing "time period 1" on "time period 2" in each of the following five time period comparisons.

**Table B**  
**Regression Analysis. . Time Period Categories**

<u>Time Period 1</u>	<u>Time Period 2</u>
Two years prior to the statute's enactment	The year of the statute's enactment
One year prior to the statute's enactment	The year of the statute's enactment
The year of the statute's enactment	One year after the statute's enactment
The year of the statute's enactment	Two years after the statute's enactment
The year of the statute's enactment	Three years after the statute's enactment

In this way the relative degree of change, as indicated by the slope (B) of the regression lines, is calculated individually for both the

experimental and control groups. Thus, if the statutes under study do have an effect after enactment, a significant change in the slope of the regression for the experimental group should be observable. Secondly, as previously noted, an analysis of covariance employing the F test of significance was conducted to verify if the slope of the experimental group differed significantly from that of the control group in any of the time period comparisons indicated in Table B.

It should be noted, however, that although initial reductions in rates in the use or possession of firearms in both aggravated assault, and robbery might be initially attributed to the development of mandatory minimum sentencing statutes, these results can also be fundamentally misleading. In order to relate these reductions to the deterrent effects of the mandatory sentencing statutes (experimental treatment), careful consideration must be given to plausible explanations, employing supplementary analyses where possible. When utilizing quasi-experimental techniques, previous studies (Ross, 1973; Campbell and Ross, 1967; and Campbell and Stanley, 1963) have indicated that special consideration should be given to a number of common threats to the internal validity of these types of analyses.

By utilizing a multiple interrupted time-series analysis with non-equivalent control groups,

. . . we can regard the design as controlling the main effects of history, maturation, testing, and instrumentation, in that the difference for the experimental group between pretest and post-test (if greater than for the control group) cannot be explained by main effects of these variables such as would be found affecting both the experimental and the control group (Campbell and Stanley, (1973: 48).

Excluding Florida's recent increase in Cuban and Haitian refugees, and Delaware's "targeting programs" described previously, neither experimental, nor control states have experienced any unique events which could be considered as affecting these investigated offense rates. Additionally, because contiguous or geographically proximate states are utilized as non-equivalent control groups, it is assumed that both historical and maturation variables would be comparable in their effects on both groups.

The effects of testing and instrumentation are additionally controlled for through the use of state uniform crime report statistics as the measuring instrument. Individual state uniform crime report tabulation existed in all experimental states a minimum of two years prior to the initiation of their respective mandatory minimum sentencing statutes. Additionally, tabulation of uniform crime report data for submission to federal tabulation existed in excess of ten years in all states, thus diminishing pretest effects. A survey of state and federal data tabulation techniques, to assess instrumentation effects, indicated that the most recent major alterations in collection and tabulation techniques for the offenses being examined occurred mainly at the federal level, and prior to 1970. Consequently, this analysis utilizes only data collected after that date.

As previously noted by Campbell and Ross, ". . .the likelihood of regression or of selection for 'treatment' on a basis tending to introduce regression. . ." (1967: 42), can mask, or be attributed as effects of the experimental treatment, and is supported in the graphed time-line comparisons. Because regression is always a

plausible explanation in groups selected for their extreme pre-test scores; or in this instance, for states whose high crime rates facilitated statutory reaction, it must be taken into consideration. Consequently, the possible contributory effects of regression will be discussed further in the findings section of this analysis. The final question concerning the instability of the measures involved in this study refers to the reliability and appropriateness of the use of aggregate crime statistics in this type of analysis.

Many researchers feel that ". . .the entire question of deterring crime through punishment may be inadequately addressed through the use of available aggregate data" (Chiricos and Waldo, 1970: 213). Interpretation of findings has been questioned, based on claims that there are serious problems inherent in the use of aggregate data to examine the deterrent effect of negative sanctions. According to Deutsch:

On the disadvantage side, the UCR (1) is too highly aggregated, (2) does not discriminate between various levels of victimization, and (3) suffers from different reporting procedures used in different jurisdictions (1978: 188).

Most criminologists, however, argue that the data, although limited, ". . .are the best we have for many purposes and may be used very profitably if one keeps in mind their limitations" (Bailey, Martin, and Gray, 1974: 134). Given these limitations, aggregate crime statistics (UCR data) remain the most comprehensive and systematic crime data on file. Researchers in support of the validity of UCR information continue to argue that: (1) the UCR

is the only major data source currently available, and (2) official data and victimization data, although different in magnitude, correlate quite highly with each other. Skogan (1974) offers a comprehensive paper on the validity of official crime statistics, admitting that although they are not on a one-to-one basis with actual crime, official statistics are at least moderately correlated with victimization survey results, and ". . .that when we are relating crime rate to other variables, the measurement errors in official statistics do not seem to lead us to false conclusions, or to inferences which are measurement-specific" (Logan, 1975: 379).

Deutsch points out that:

UCR information has been collected for many years and is generally consistent with several other indicators of victimization, such as victimization surveys, supports use of UCR as a good estimate of actual crime (1978: 119).

Consequently, studies assessing relative change or shifts in the observed level of crime rather than nominal level or priority ranking are prime candidates for UCR-type data. In addition, UCR data are the only statewide data currently available. Since neither victimization nor self-report data are statewide, this analysis demands the use of UCR data. As this study is concerned with assessing the ability of mandatory minimum sentencing statutes to create downward shifts in the use or possession of firearms for the offenses being examined, employment of UCR statistics was deemed appropriate.

## FINDINGS AND DISCUSSION

Table 1 presents the annual changes in rates of aggravated assault committed with the use or possession of a firearm for the experimental state Florida, together with its comparison states Arkansas and North Carolina. Graph 1, contained in Appendix B, presents the same data in graphic rather than tabular form.

When viewing the Florida data alone, the statistics indicate that the mandatory statute may have had an impact on the use of firearms during the commission of these offenses for a short period of time. From 1975 to 1976, the rate for possession of firearms during the commission of aggravated assaults dropped from 122.3 to 105.7 per 100,000 inhabitants. However, the data also indicates that both control states experienced similar reductions, although to relatively lesser degrees, during the same time period.

Table 2, and corresponding Graph 2 (see Appendix B), present the annual changes in the rates of aggravated assaults committed with the use or possession of a firearm for the experimental state Delaware, together with its two control states New Jersey and Pennsylvania. Once again, a one year momentary downtrend in rates of firearm usage, corresponding to the year following the mandatory sentencing statute's enactment is indicated for the experimental state. However, the control state Pennsylvania, also exhibits a corresponding reduction in rates of firearm usage, although to a lesser degree, for 1976 compared to 1975.

TABLE 1  
 Aggravated Assault Committed with a Firearm  
 Florida and Control States

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Florida	96.5	114.2	117.9	122.3	105.7	108.3	123.5	139.0	161.9
Arkansas	*	*	*	71.3	55.6	52.3	56.4	60.4	53.8
North Carolina	*	95.8	102.3	93.1	86.1	86.0	86.6	91.9	91.5

Florida State Law S775.087 enacted July 1, 1975

\*data not available

**TABLE 2**  
**Aggravated Assault Committed with a Firearm**  
**Delaware and Control States**

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Delaware	20.4	26.9	33.1	35.5	59.2	64.7	47.0	43.5	48.5	57.6	41.1
New Jersey	17.3	23.0	25.5	26.5	24.5	23.7	22.5	23.8	27.7	33.3	41.8
Pennsylvania	*	*	*	24.2	25.9	25.7	22.1	19.8	21.5	23.6	26.7

Delaware State Law S1447 enacted January 31, 1976

\*data not available

Table 3, and corresponding Graph 3 (see Appendix B), present the annual changes in the rates of aggravated assaults committed with the use or possession of a firearm for the experimental state Michigan, together with its two control states Illinois and Wisconsin. Similar to the two previous states that enacted mandatory minimum sentencing statutes, Michigan also experienced a one year momentary downtrend in rate of firearm usage during the year following its statute's enactment. However, corresponding trends are exhibited by the control states. For example, Illinois reports a corresponding downtrend in rates of firearm usage the year following the enactment of Michigan's statute. Similarly, both control states Illinois and Wisconsin, report increased rates two years after the enactment of the Michigan statute.

Table 4, and corresponding Graph 4 (see Appendix B), present the annual changes in the rates of aggravated assaults committed with the use or possession of a firearm for all three experimental states, Florida, Delaware, and Michigan. In viewing this data, it might well be possible to argue that the existence of mandatory minimum sentencing statutes created momentary deterrent effects. A reduction in rates in the use or possession of firearms during the commission of aggravated assaults is observed for all three experimental states in the year following each statute's enactment, with corresponding uptrends occurring the next year. Thus, proponents of this type of sentencing legislation might argue that the one year reduction, although momentary, was attributable to the statutes' deterrent effect.



TABLE 4  
 Aggravated Assault Committed with a Firearm  
 Experimental Group

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Florida	*	*	96.5	114.2	117.9	122.3	105.7	108.3	123.5	139.0	161.9
Delaware	20.4	26.9	33.1	35.5	59.2	64.7	47.0	43.5	48.5	57.6	41.1
Michigan	56.9	61.2	64.4	71.9	78.1	80.0	75.3	65.1	63.1	72.7	77.0

Florida State Law S775.087 enacted July 1, 1975  
 Delaware State Law S1447 enacted January 31, 1976  
 Michigan State Law S750.227b enacted January 1, 1977

\*data not available

Simultaneously, opponents might note that downtrends in rates of firearm usage during the commission of aggravated assaults began in 1976 for all three experimental states, irrespective of the date of their respective statute's enactment. Given the comparative rates of the control states, together with this 1976 downtrend, one might question the casual relationship between the imposition of mandatory minimum sentencing statutes and reductions in the rates of firearm usage during the commission of aggravated assaults.

Table 5 presents the annual changes in rates of robbery committed with the use or possession of a firearm, for the experimental state Florida, together with its comparison states Arkansas and North Carolina. Graph 5 (see Appendix B) presents the same data in graphic rather than tabular form. Once again the data indicate a momentary reduction in the rate of firearm usage for the experimental state. However, unlike previous effects, the decline begins during the year of Florida's mandatory sentencing enactment and continues for an additional two years, until 1977.

In comparison, both control states exhibit similar declines in firearm usage during the two years following Florida's mandatory sentencing enactment. In addition, the control state North Carolina, although to a lesser degree, simulates the three year downtrend followed by a corresponding three year uptrend demonstrated by Florida, but without the presence of its own mandatory sentencing statute.

Table 6, and corresponding Graph 6 (see Appendix B), present the annual changes in the rates of robberies committed with the use

TABLE 5  
 Robbery Committed with a Firearm  
 Florida and Control States

	1974	1975	1976	1977	1978	1979	1980
Florida	152.6	116.5	77.3	73.1	76.7	91.4	141.6
Arkansas	*	64.8	53.6	52.6	49.0	44.7	48.1
North Carolina	50.6	42.0	33.4	27.7	30.6	35.7	38.7

Florida State Law S775.087 enacted July 1, 1975

\*data not available

**TABLE 6**  
**Robbery Committed with a Firearm**  
**Delaware and Control States**

	1974	1975	1976	1977	1978	1979	1980
Delaware	45.2	65.1	41.4	50.7	38.6	32.6	37.1
New Jersey	69.5	71.5	61.2	51.2	53.3	78.5	99.7
Pennsylvania	68.1	69.3	52.2	45.8	45.0	48.8	58.6

Delaware State Law S1447 enacted January 31, 1976

or possession of a firearm for the experimental state Delaware, together with its two control states New Jersey and Pennsylvania.

Similar to the Florida data, Delaware exhibits a reduction in the rate of robbery committed with the use or possession of a firearm the year of the statute's enactment. The following year, however, differs distinctly from all other data showing a sharp one year increase in rates, and is most likely attributable to the effects of Delaware's "targeting programs." Excluding this one year deviation, the data corresponds to that of Florida, indicating a three year downtrend before an eventual return to uptrends in firearm usage rates.

While both control states demonstrate comparable reductions in rates during the year of enactment of Delaware's mandatory sentencing statute, they begin upward trends one (Pennsylvania) and two years (New Jersey) prior to Delaware. While it may be difficult to separate the effects of the "targeting programs" from those of the mandatory sentencing statute, some form of an effect is evident.

Table 7, and corresponding Graph 7 (see Appendix B), present the annual changes in the rates of robberies committed with the use or possession of a firearm for the experimental state Michigan, together with its two control states Illinois and Wisconsin.

As with the two previous experimental states, Michigan exhibits a downtrend in rates of firearm usage during the commission of robberies, that begins during the year of its statute's enactment and continues for two additional years, culminating in the eventual return to an upward trend. In addition, as with previous

TABLE 7  
 Robbery Committed with a Firearm  
 Michigan and Control States

	1974	1975	1976	1977	1978	1979	1980
Michigan	*	209.4	195.9	144.3	108.3	84.5	88.2
Illinois	*	129.0	92.3	87.3	80.4	77.5	81.8
Wisconsin	37.3	40.4	30.2	25.1	22.8	27.7	28.9

Michigan State Law S750.227b enacted January 1, 1977

\*data not available

comparisons, the control states show corresponding trends for much of the data. Although to a lesser degree, Illinois comes close to mimicking the Michigan data, and notably without the presence of a mandatory sentencing statute.

Table 8, and corresponding Graph 8 (see Appendix B), present the annual changes in the rates of robberies committed with the use or possession of a firearm for all three experimental states, Florida, Delaware, and Michigan.

When viewing this data alone, it might not be unrealistic to infer some type of "link" between the existence of mandatory sentencing statutes and the three year reductions in rates of use or possession of firearms during the commission of robberies in these states. Proponents of this type of sentencing reform might well argue that these findings, excluding Delaware's one year deviation, not only verify deterrence hypotheses, but also support and are supported by Chambliss' (1967) description of the effects of sanctions on "expressive" versus "instrumental" crimes. Although somewhat inconclusive, the one year momentary effect for aggravated assault corresponds to the theoretically weak effects of sanctions on expressive crimes, as does the three year momentary effect for the more easily affected instrumental crime of robbery.

Although possibly stronger than the findings presented for aggravated assault, these results remain somewhat inconclusive. Once again the comparative rates of the control states, this time in conjunction with the limitations of available data prior to 1974, raise questions concerning the causal relationship between the

TABLE 8  
 Robbery Committed with a Firearm  
 Experimental Group

	1974	1975	1976	1977	1978	1979	1980
Florida	152.6	116.5	77.3	73.1	76.7	91.4	141.6
Delaware	45.2	65.1	41.4	50.7	38.6	32.6	37.1
Michigan	*	209.4	195.9	144.3	108.3	84.5	88.2

Florida State Law S775.087 enacted July 1, 1975  
 Delaware State Law S1447 enacted January 31, 1976  
 Michigan State Law S750.227b enacted January 1, 1977

\*data not available

imposition of mandatory minimum sentencing statutes and reductions in the rates of firearm usage during the commission of robberies. Reductions in firearm usage rates for control states correspond to similar reductions for the experimental states that would otherwise be attributed to the existence of the mandatory minimum sentencing statutes. Additionally, the lack of available data prior to 1974 limits a more robust assessment of offense rates for a significant period prior to the enactment of these statutes.

The second phase of this analysis employs an analysis of covariance in assessing the deterrent capabilities of this type of sentencing legislation. States were divided into experimental and control groups and a series of regression analyses were run utilizing the "analogous time period categories" described in the methodology section of this study.

While the years utilized in this analysis were not chronologically identical, as previously noted, they were identical in reference to each statute's development, enactment, and proposed effects. Thus, as an example, the year of enactment category would consist of 1975 statistics for Florida, Arkansas, and North Carolina; 1976 statistics for Delaware, Pennsylvania and New Jersey, and 1977 statistics for Michigan, Illinois, and Wisconsin.

Table 9 presents the slopes (b) of the regressions resulting from this analysis, as well as the F statistic that was calculated to assess the relative differences between experimental and control groups.

TABLE 9  
 Aggravated Assault Committed with a Firearm  
 Analysis of Covariance

	Two Years Prior	One Year Prior	One Year After	Two Years After	Three Years After
Experimental Group	1.399	1.394	0.806	0.752	0.860
Control Group	0.975	0.909	0.857	0.797	0.766
F	0.67 (N.S.) N=8*	0.53 (N.S.) N=8*	1.40 (N.S.) N=9	1.26 (N.S.) N=9	0.03 (N.S.) N=9

\*Data unavailable for Arkansas

Any further discussion of this, and the similar analysis of the robbery data, should first be prefaced with a caveat concerning these findings. Although the technique employed was noted as being both rigorous, as well as appropriate for this data, the sample employed, coupled with the limitations in meeting assumptions of independent random sampling, limit the interpretability of the findings.

A comparison of the slopes of the experimental group to those of the control group in each time period indicates results quite to the contrary of what would be expected if a deterrent effect were present. Slopes of the experimental states, those with mandatory minimum sentencing statutes, exceed those of the control states for all years prior to their statute's enactment, and for the time period three years after enactment. Results such as these would correspond to analyses in which a regression effect were occurring.

Where a group has been selected for treatment just because of its extreme performance on the pretest, and if the pretest and posttest are imperfectly correlated, as they almost always are, it follows that on the average the posttest will be less extreme than the pretest (Campbell and Stanley, 1967: 40).

Campbell and Stanley's (1967) conclusion might also be applicable to this study, where high offense rates may have precipitated the development of mandatory sentencing statutes, and subsequent reductions in offense rates are then incorrectly attributed to the enactment and hypothesized deterrent effects.

And finally, F statistics for all time period categories failed to reach statistical significance at a .05 level. However, although

results were not significant (N.S.), these findings could be indicative of a lack of variation between the two groups or an exceedingly small sample placing undue stress on the statistic itself.

Table 10 presents the slopes (b) of the regressions resulting from the analysis of the robbery data, as well as the relevant F statistics that were calculated to determine the relative differences between the experimental and control groups.

Once again results do not readily indicate that a deterrent effect is present. The slopes of the experimental states are below those of the control states in all instances, and as previously with the aggravated assault data, F statistics fails to reach statistical significance. These results could well be indicative of a lack of any deterrent effects or the caveats noted earlier.

The final phase of this study is directed at assessing the possible channeling effects (Morris and Hawkins, 1969) of this type of deterrent-based legislation. Noted previously, channeling effects describe a process whereby a significant behavioral modification may take place, but fall short of complete deterrence. When applied to mandatory minimum sentencing statutes for possession or use of a firearm in the commission of a felony, increases in other weapons categories, accompanied by corresponding reductions in firearm usage, might be indicative of just such a channeling effect.

Table 11, and corresponding Graph 11 (see Appendix B), present the annual changes in the rates of aggravated assaults articulated by type of weapon used for the experimental state Florida.

TABLE 10

Robbery Committed with a Firearm

Analysis of Covariance

	Two Years Prior	One Year Prior	One Year After	Two Years After	Three Years After
Experimental Group	0.626	0.797	0.516	0.448	0.550
Control Group	0.659	0.964	0.922	0.850	1.047
F	3.24	2.25	0.43	0.93	1.13
	(N.S.)	(N.S.)	(N.S.)	(N.S.)	(N.S.)
	N=6+	N=8*	N=9	N=9	N=9

+Data unavailable for Florida, Arkansas and North Carolina

\*Data unavailable for Arkansas

TABLE 11  
Aggravated Assault by Type of Weapon Used

Florida

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Firearm	96.5	114.2	117.9	122.3	105.7	108.3	123.5	139.0	161.9
Knife or Other Cutting Instrument	85.4	85.0	92.9	102.7	105.7	108.7	120.0	130.7	134.4
Other Weapons	75.0	81.3	95.3	115.5	122.0	134.2	154.6	169.7	178.2
Personal Weapons/ Strong Arm	69.1	54.5	45.7	59.1	81.6	97.9	104.4	81.2	81.4

Florida State Law S775.087 enacted July 1, 1975

It is initially evident that neither of the weapon categories of Other Weapons or Knife or Other Cutting Instrument demonstrate any channeling effects. Both continue to rise, unabated, irrespective of the date of passage of the mandatory sentencing statute. The category for personal weapons, on the other hand, does begin in an upward trend corresponding to the enactment of the mandatory sentencing statute, and maintains this direction during the decline in firearm usage, a characteristic indicative of a channeling effect.

Table 12, and corresponding Graph 12 (see Appendix B), present the annual changes in the rates of aggravated assaults articulated by type of weapon used for the experimental state Delaware.

From the data presented, it would appear that Delaware may exhibit one significant channeling effect. Excluding a moderate rise in rates for other weapons and knife or other cutting instrument in the year following the enactment of the mandatory sentencing statute, all other trends for these two categories either correspond to , or are irrelevant to changes in rates of firearm usage. Although not a direct inverse to the trends in firearm usage, the strikingly dramatic change in the use of personal weapons (hands, feet, fists, etc.) does correspond to the passage of the mandatory sentencing statute for firearm usage. A more perfect demonstration of the effect would also run opposite to the firearm rates. Nevertheless, this could, quite possibly, be partially representative of Morris and Hawkins' proposition.

TABLE 12  
 Aggravated Assault by Type of Weapon Used

Delaware

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Firearm	20.4	26.9	33.1	35.5	59.2	64.7	47.0	43.5	48.5	57.6	41.1
Knife or Other Cutting Instrument	24.3	27.9	37.4	45.9	55.5	56.8	51.6	54.8	62.5	53.2	51.4
Other Weapons	21.9	27.5	41.1	54.7	65.3	53.2	50.4	55.5	90.3	112.7	102.2
Personal Weapons/ Strong-arm	129.2	118.4	123.3	101.9	107.6	38.9	23.8	40.4	66.8	150.9	104.1

Delaware State Law S1447 enacted January 31, 1976

Table 13, and corresponding Graph 13 (see Appendix B), present the annual changes in the rates of aggravated assaults articulated by type of weapon used for the experimental state Michigan.

The data indicates that rather than exhibiting a channeling effect, the weapons categories of personal weapons, and knife or other cutting instrument demonstrate strikingly similar trends to that of firearm usage, for ten of the eleven years observed. Conversely, the other weapons category exhibits a significant and continuing increase in rates, beginning during the year of Michigan's mandatory sentencing statute enactment. Results such as these might well be construed as evidence of channeling effects. The dramatic increase corresponds to the statute enactment, with eventual downtrends returning as firearm use once again begins to increase.

Table 14, and corresponding Graph 14 (see Appendix B), present the annual changes in the rates of robberies articulated by type of weapon used for the experimental state Florida. Excluding a moderate increase in the rate of robberies committed using person weapons, two years after Florida's mandatory sentencing enactment there does not appear to be any channeling effect operating.

Table 15, and corresponding Graph 15 (see Appendix B), present the annual changes in the rates of robberies articulated by type of weapon used for the experimental state Delaware.

Robbery statistics for Delaware, as with the previous data presented for Florida, fail to demonstrate any significant channeling effects. Proponents of this type of sentencing reform would find this type of result somewhat disheartening. As robbery is an

TABLE 13  
 Aggravated Assault by Type of Weapon Used  
 Michigan

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Firearm	56.9	61.2	64.4	71.9	78.1	80.0	75.3	65.1	63.1	72.7	77.0
Knife or Other Cutting Instrument	52.0	51.8	57.4	62.2	63.6	66.7	62.3	61.5	60.6	70.0	69.3
Other Weapons	57.4	60.1	64.2	72.9	80.2	81.7	82.5	102.2	153.9	166.1	159.3
Personal Weapons/ Strong-arm	26.4	34.2	39.5	48.2	50.1	54.3	46.0	45.8	30.1	31.4	26.5

Michigan State Law S750.227b enacted January 1, 1977

TABLE 14

Robbery by Type of Weapon Used

Florida

	1974	1975	1976	1977	1978	1979	1980
Firearm	152.6	116.5	77.3	73.1	76.7	91.4	141.6
Knife or Other Cutting Instrument	19.0	20.7	18.5	18.8	22.3	27.4	37.5
Other Weapons	11.4	12.9	11.2	10.7	12.2	14.5	18.5
Personal Weapons/ Strong-arm	86.8	86.1	76.5	79.6	86.3	105.8	159.4

Florida State Law S775.087 enacted July 1, 1975

TABLE 15  
 Robbery by Type of Weapon Used  
 Delaware

	1974	1975	1976	1977	1978	1979	1980
Firearm	45.2	65.1	41.4	50.7	38.6	32.6	37.1
Knife or Other Cutting Instrument	11.0	6.4	6.1	7.0	4.8	6.2	7.1
Other Weapons	10.4	12.1	11.9	13.3	16.5	11.9	15.8
Personal Weapons/ Strong-arm	64.6	79.4	72.0	85.0	80.7	76.1	76.9

Delaware State Law S1447 enacted January 31, 1976

instrumental crime, and thus employed as a means to obtain some other goal, if some form of deterrent effect is present, theoretically, it should have a greater propensity for occurrence during the commission of this offense, rather than an expressive crime such as aggravated assault.

And finally, Table 16, and corresponding Graph 16 (see Appendix B), present the annual changes in rates of robberies articulated by type of weapon used for the experimental state Michigan.

The rates for the category other weapons, and to a lesser extent those of offenses committed with a knife or other cutting instrument, present what might be construed as an almost "classic" channeling effect. Excluding a momentary, and almost significant, departure from the trend, the category other weapons maintains a relatively strong inverse relationship to that of firearm use. Although admittedly to a lesser degree, the trend is nevertheless evident. However, it should be noted that the decline in the rate of use of other weapons begins the year prior to the enactment of Michigan's mandatory minimum sentencing statute.

TABLE 16  
 Robbery by Type of Weapon Used  
 Michigan

	1974	1975	1976	1977	1978	1979	1980
Firearm	*	209.4	195.9	144.3	108.3	84.5	88.2
Knife or Other Cutting Instrument	*	18.0	14.6	14.7	10.5	22.8	29.2
Other Weapons	*	10.6	17.0	15.7	29.0	47.7	52.6
Personal Weapons/ Strong-arm	*	115.1	105.1	87.2	71.5	64.6	71.5

Michigan State Law S750.227b enacted January 1, 1977

\*Data not available

This study compared states with mandatory minimum sentencing to contiguous or regional states without such legislation. The analysis was directed at determining if this type of deterrence-based legislation was effective in reducing the number of firearms either used or possessed during the commission of a felony. Although the findings from this study cannot be construed to be either overwhelmingly supportive of or critical of mandatory sentencing legislation, a number of significant conclusions can be drawn.

Reductions in rates of firearm usage or possession that had previously been attributed solely to the mandatory sentencing statutes of the experimental states were also observed in the comparative "control" states. In addition, a reduction in the rate of firearm use in aggravated assault, occurring in 1976, was observed for all experimental states irrespective of their differing dates of mandatory sentencing enactment. Moreover, the analysis of covariance indicated the possibility of the existence of regression effects contributing to the reduction in rates of firearm use. This latter analysis described a process by which exceedingly high rates of crime are causally linked to the development of mandatory sentencing statutes, and not necessarily to crime reduction. The eventual declines in rates are viewed as a normal process and not a product of the statute.

An assessment of findings concerning channeling effects would seem to indicate the possibility of at least a partial deterrent effect

for some states. However, because this form of sentencing policy, significantly increases plea bargaining powers of the prosecutor, these findings may be an artifact of prosecutorial discretion in charge assignment rather than true channeling effects.

Finally, if one chooses not to utilize the comparative findings and instead considers only data from states with mandatory sentencing, viewed without comparison to neighboring control states or other states with similar legislation, one might conclude that these statutes had a deterrent effect. However, if that technique is utilized, one must also note that the "proposed" deterrent effects are palliative, at best. Reductions in robbery dissipate after three years, and aggravated assault after only one. Even if one were to accept these findings as indicators of a momentary deterrent effect, one must also acknowledge that this return to a punishment orientation was once again, unable to create any lasting effects.

Although this study does not absolutely disprove the efficacy of mandatory sentencing, neither has it proved its effectiveness. It is because there is no clear and present answer at this time that there is still great need for concern. Mandatory minimum sentences do not allow us the luxury of discretionary justice, and in many instances eliminate any form of early release. At a time when we are plagued with prison over-crowding, policies such as these add to an already overburdened system. The fact that adoption of this deterrent-based legislation is currently in vogue is even more ironic in light of our limited understanding of its consequences.

**APPENDIX A**

## FLORIDA

## § 775.087 (2)

Possession or use of weapon: aggravated battery: felony reclassification:  
minimum sentence.

(2) Any person who is convicted of:

(a) Any murder, sexual battery, robbery, burglary, arson, aggravated assault, aggravated battery, kidnapping, escape, breaking and entering with intent to commit a felony, or aircraft piracy, or any attempt to commit the aforementioned crimes: or

(b) Any battery upon a law enforcement officer or firefighter while the officer or firefighter is engaged in the lawful performance of his duties, and who had in his possession a "firearm," as defined in § 790.001 (6), or "destructive device," as defined in § 790.001 (4), shall be sentenced to a minimum term of imprisonment of 3 calendar years. Notwithstanding the provisions of § 948.01, adjudication of guilt or imposition of sentence shall not be suspended, deferred, or withheld, nor shall the defendant be eligible for parole or statutory gain-time under § 944.27 or § 944.29, prior to serving such minimum sentence.

## DELAWARE

## § 1447

Possession of a deadly weapon during commission of a felony:  
class B felony.

(a) A person who is in possession of a deadly weapon during the commission of a felony is guilty of possession of a deadly weapon during commission of a felony.

Possession of a deadly weapon during commission of a felony is a class B felony.

(b) Notwithstanding § 4205 of this title, the minimum sentence for violation of this section shall be not less than 5 years which minimum sentence shall not be subject to suspension and no person convicted for a violation of this section shall be eligible for parole or probation during such 5 years.

(c) Any sentence imposed upon conviction for possession of a deadly weapon during the commission of a felony shall not run concurrently with any other sentence. In any instance where a person is convicted of a felony, together with a conviction for the possession of a deadly weapon during the commission of such felony, such person shall serve the sentence for the felony itself before beginning the sentence imposed for possession of a deadly weapon during such felony.

(d) Every person charged under this section over the age of 16 years shall be tried as an adult, notwithstanding any contrary provision of statutes governing the Family Court or any other state law.

(e) A person may be found guilty of violating this section notwithstanding that the felony for which he is convicted and during which he possessed the deadly weapon is a lesser included felony of the one originally charged.

## MICHIGAN

## § 750.227b

Possession at time of commission or attempted commission of felony:  
additional sentence, punishment.

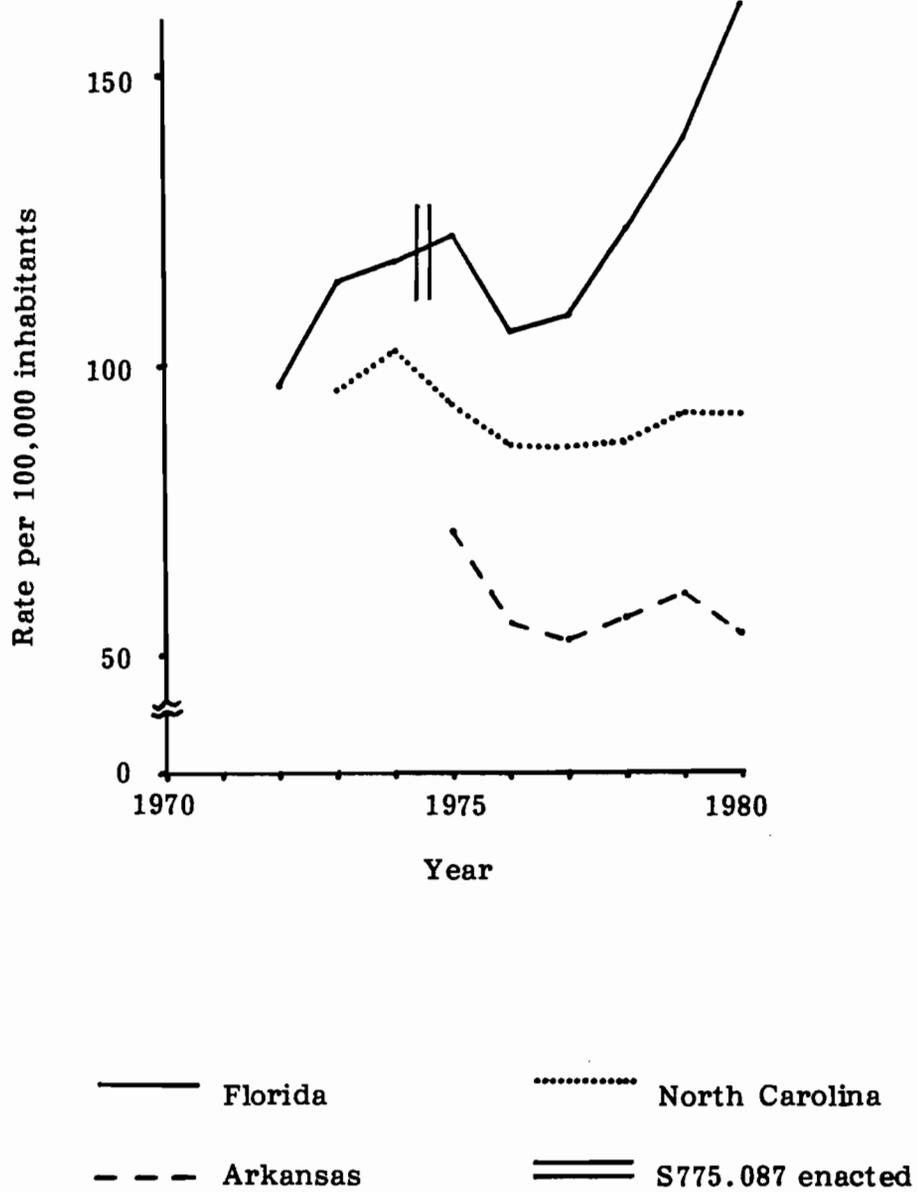
(1) A person who carries or has in his possession a firearm at the time he commits or attempts to commit a felony, except the violation of § 750.227 or § 750.227a, is guilty of a felony, and shall be imprisoned for 2 years. Upon a second conviction under this section, the person shall be imprisoned for 5 years. Upon a third or subsequent conviction under this section, the person shall be imprisoned for 10 years.

(2) The term of imprisonment prescribed by this section shall be in addition to the sentence imposed for the conviction of the felony or the attempt to commit the felony, and shall be served consecutively with and preceding any term of imprisonment imposed for the conviction of the felony or attempt to commit the felony.

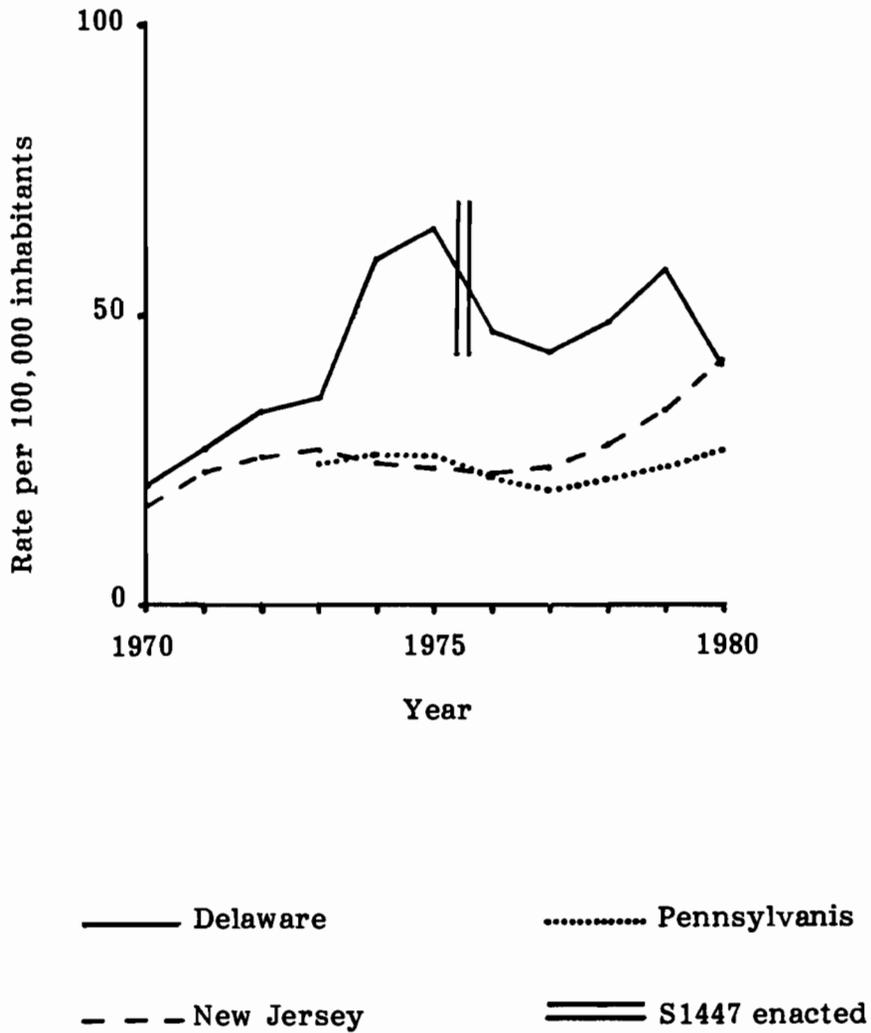
(3) The term of imprisonment imposed under this section shall not be suspended. The person subject to the sentence mandated by this section shall not be eligible for parole or probation during the mandatory term imposed pursuant to subsection (1).

**APPENDIX B**

**Graph 1**  
**Aggravated Assault Committed with a Firearm**  
**Florida and Control States**

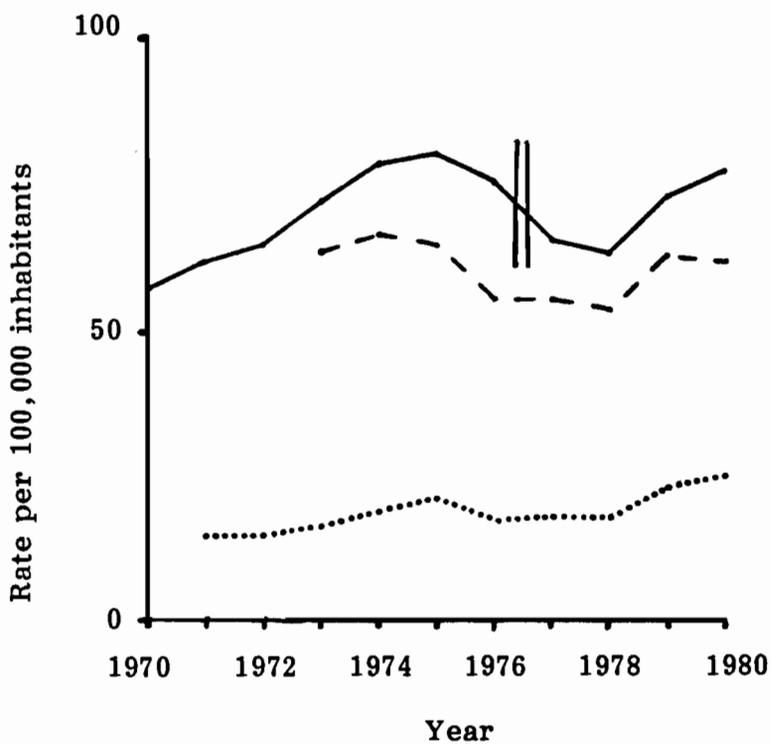


Graph 2  
Aggravated Assault Committed with a Firearm  
Delaware and Control States



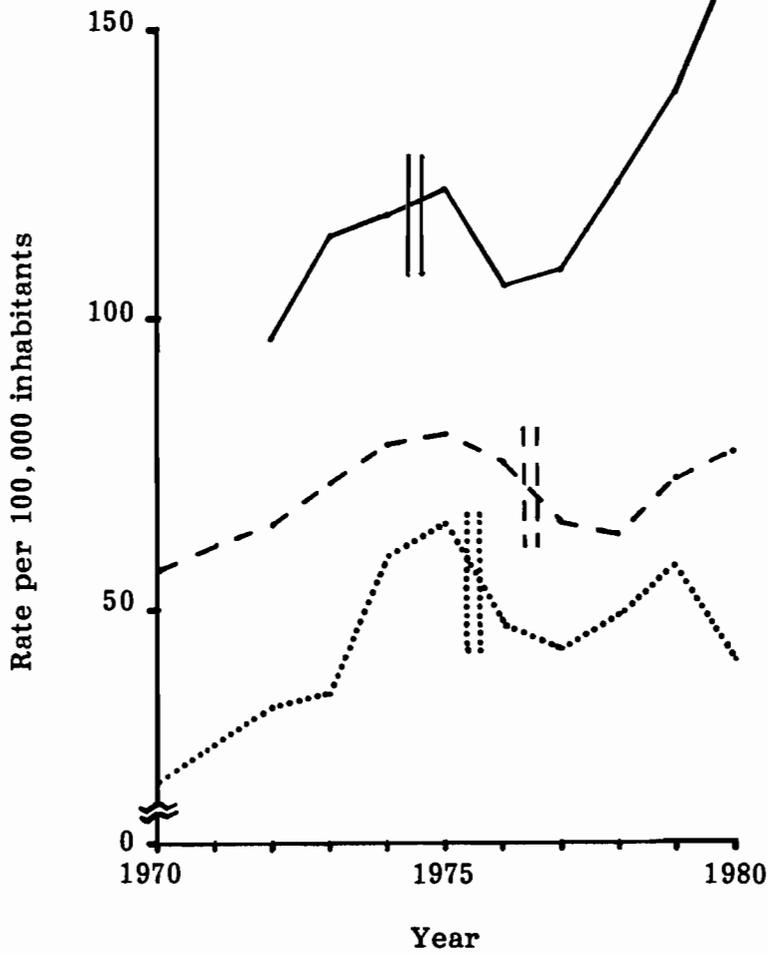
Graph 3

Aggravated Assault Committed with a Firearm  
Michigan and Control States



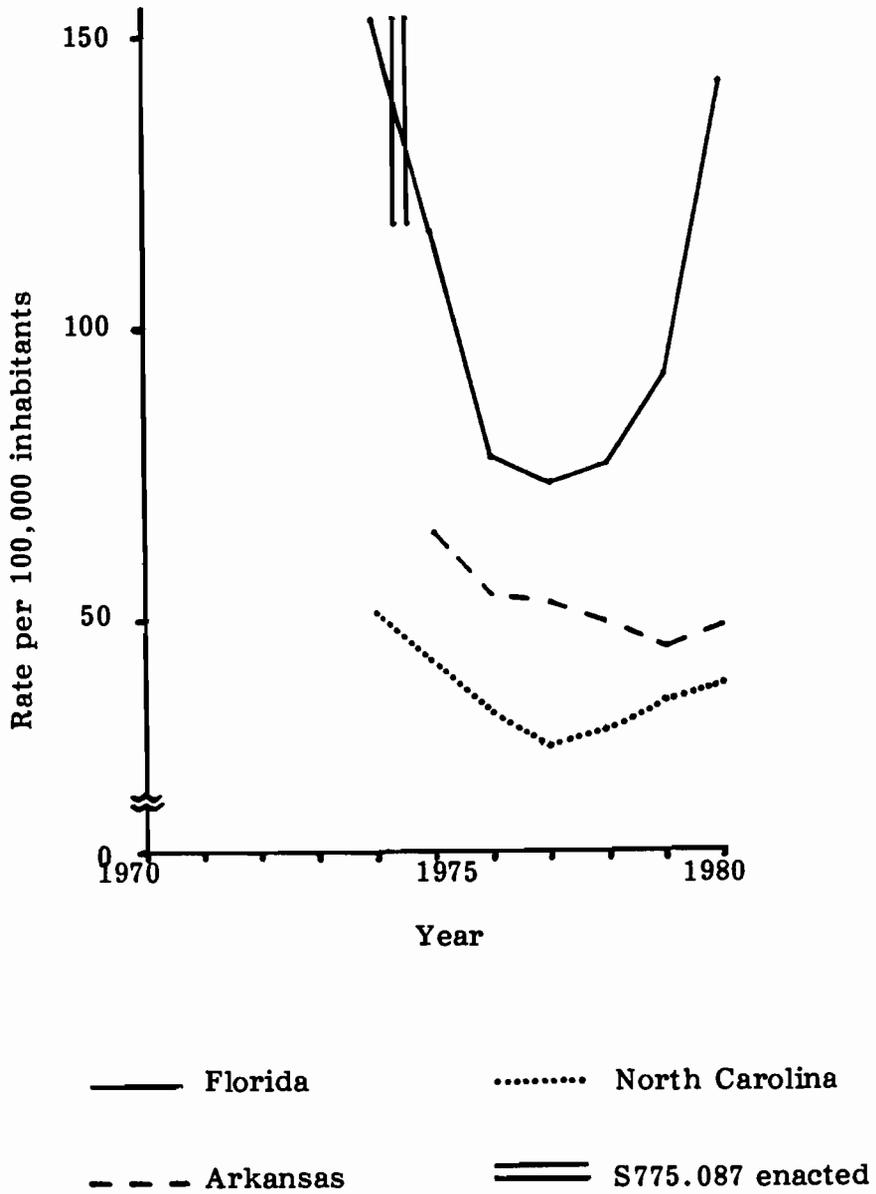
\_\_\_\_\_ Michigan                      ..... Wisconsin  
 - - - - Illinois                              == S750.227b enacted

Graph 4  
 Aggravated Assault Committed with a Firearm  
 Experimental Group

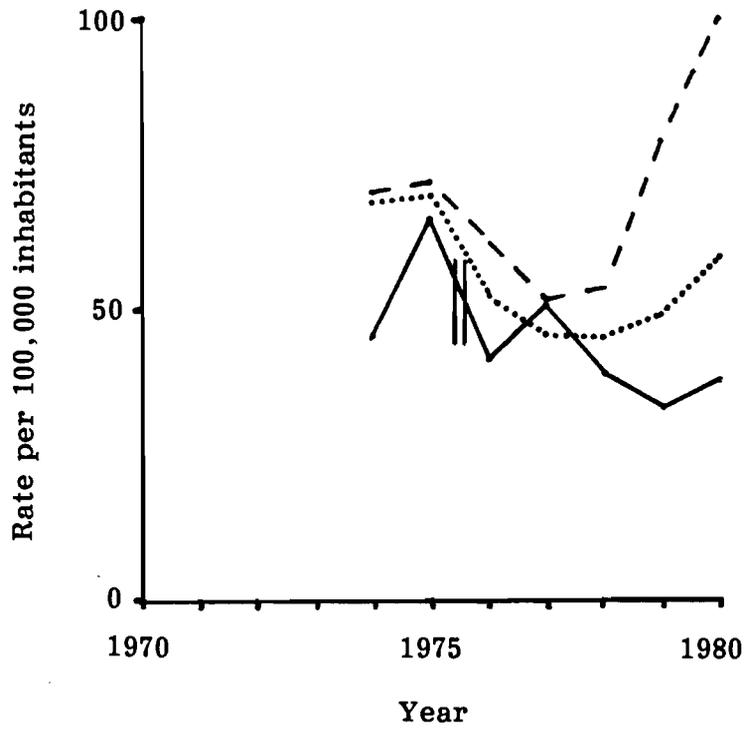


—————	Florida	=====	S775.087 enacted
- - - - -	Michigan	===	S750.227b enacted
.....	Delaware	.....	S1447 enacted

Graph 5  
 Robbery Committed with a Firearm  
 Florida and Control States

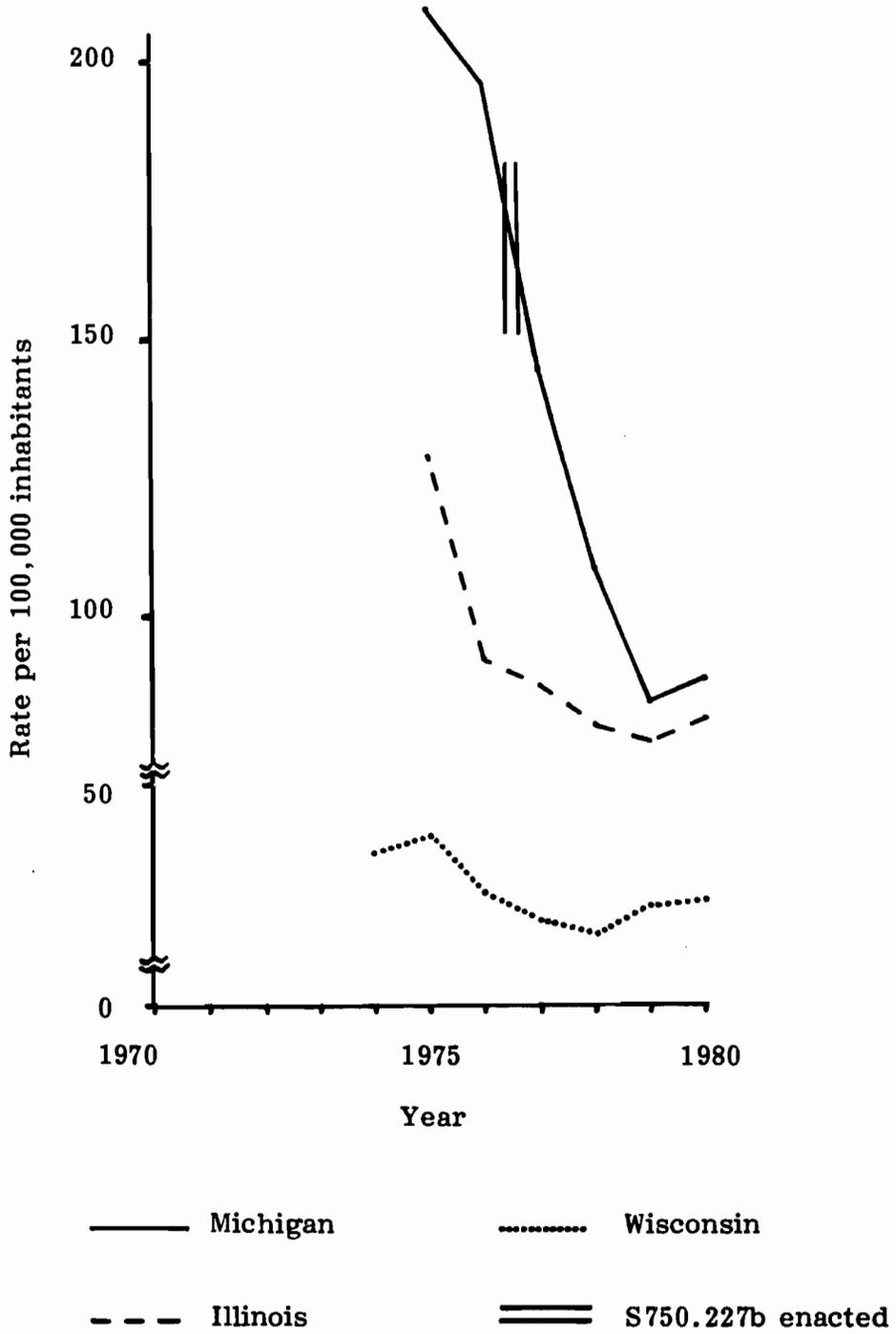


Graph 6  
 Robbery Committed with a Firearm  
 Delaware and Control States

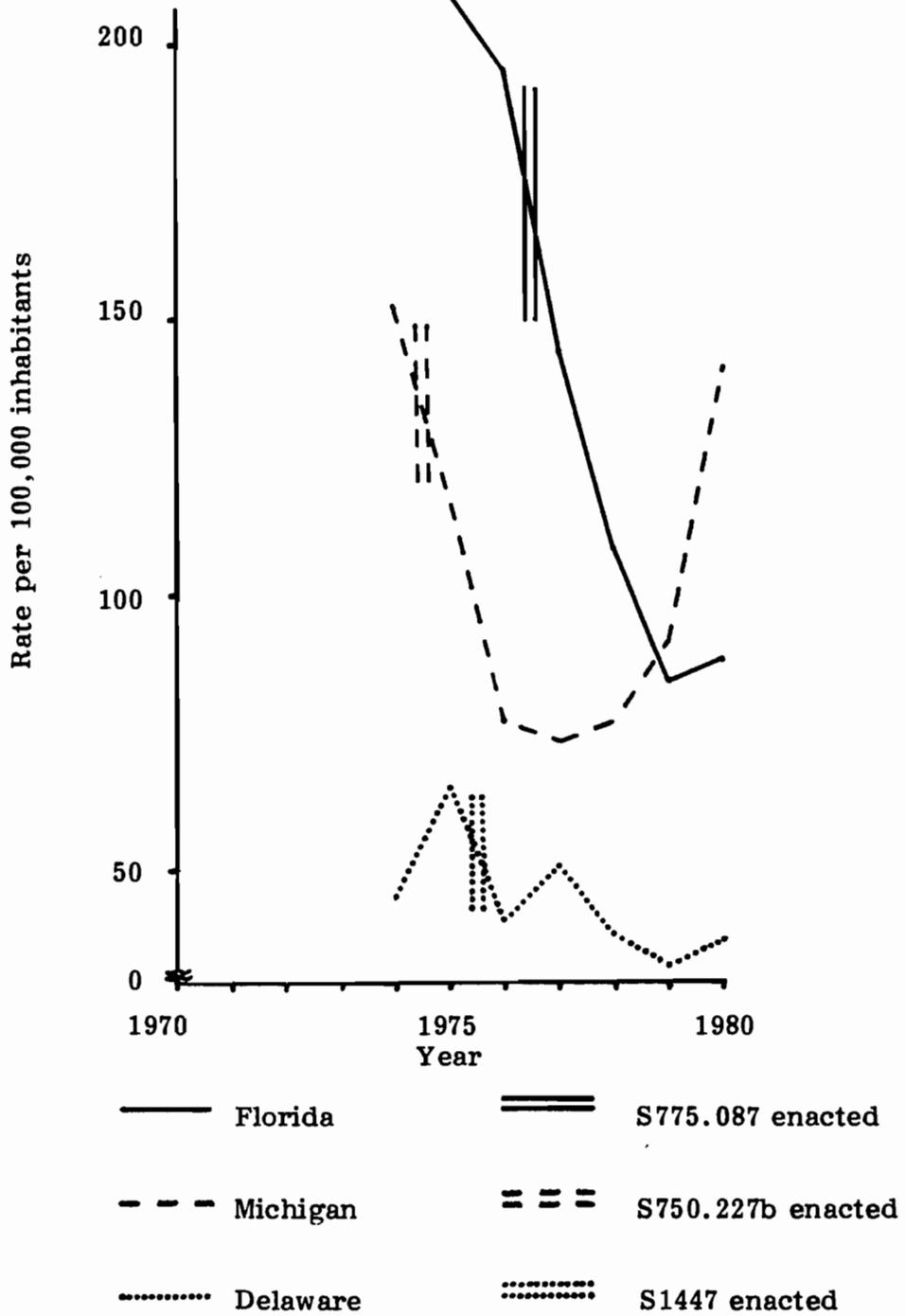


— Delaware                      ..... Pennsylvania  
 - - - New Jersey                == S1447 enacted

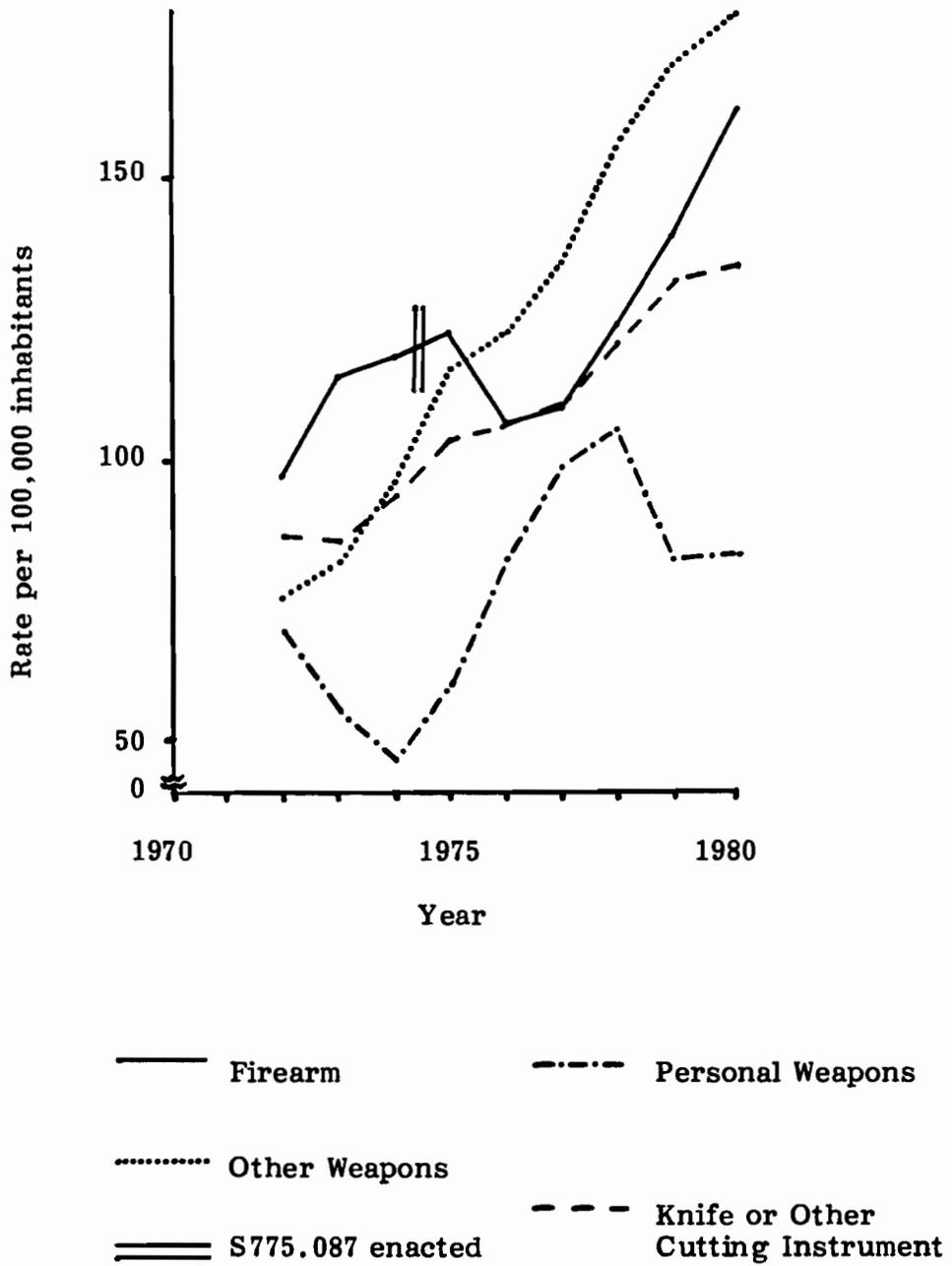
Graph 7  
 Robbery Committed with a Firearm  
 Michigan and Control Group



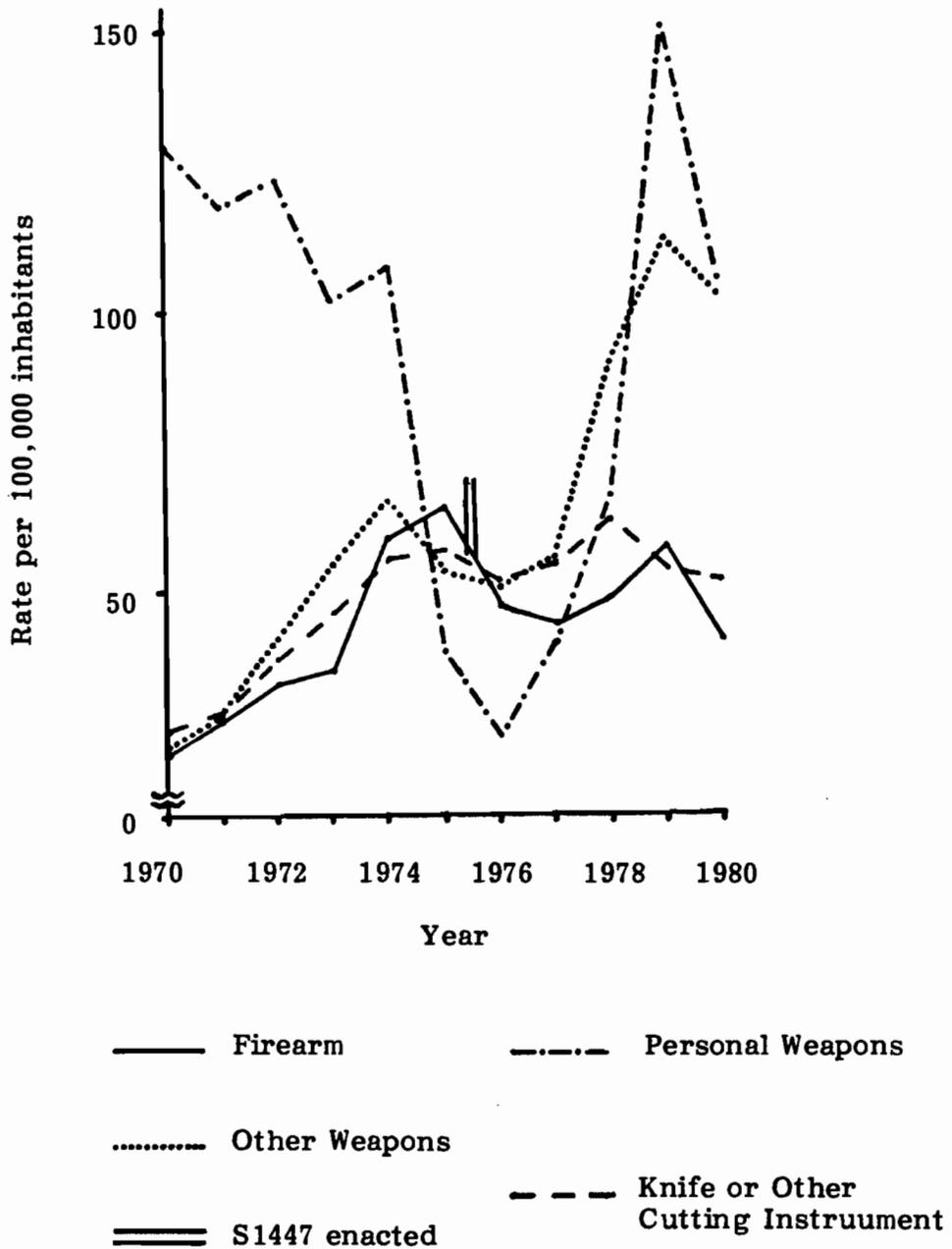
Graph 8  
 Robbery Committed with a Firearm  
 Experimental Group



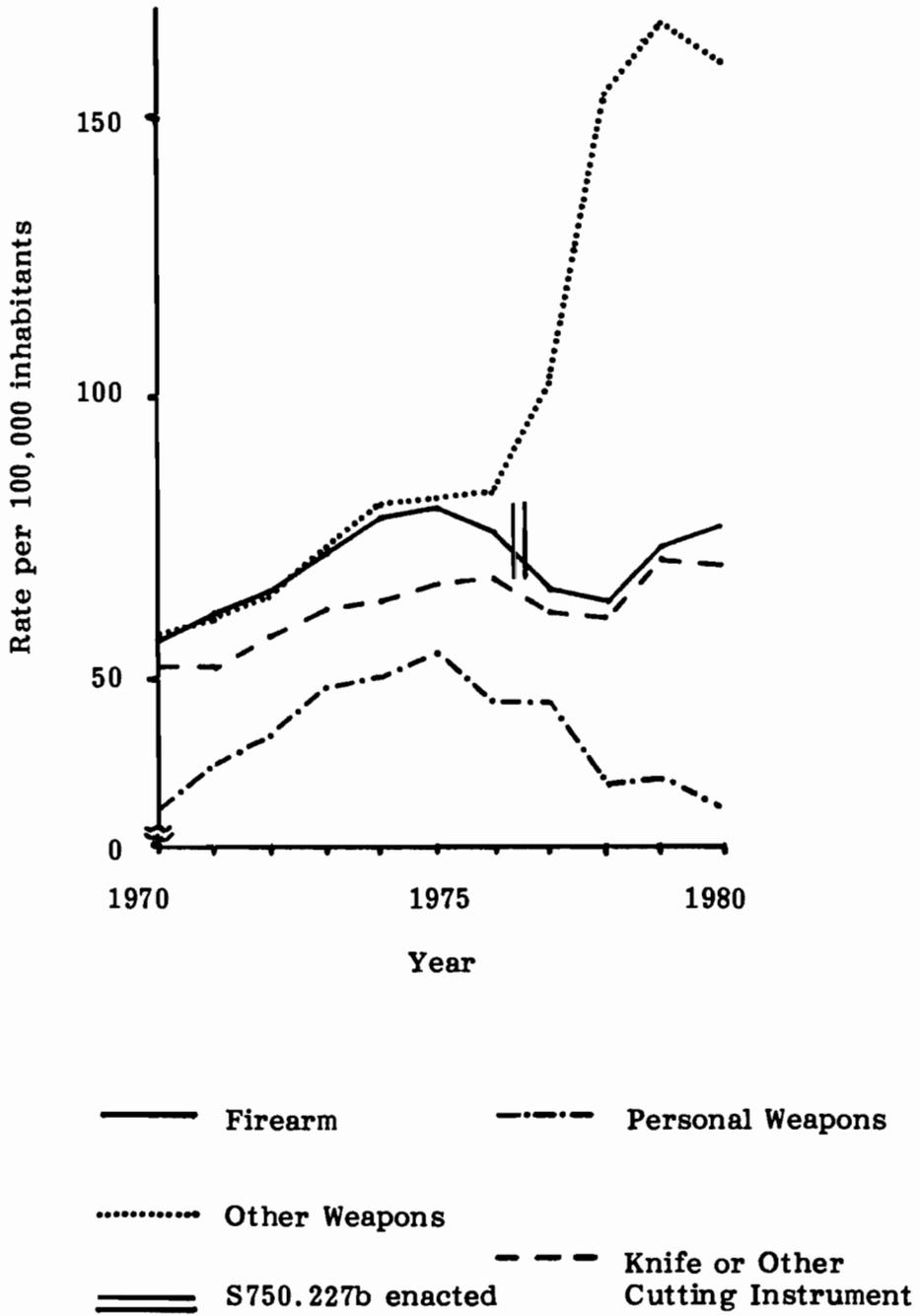
Graph 11  
 Aggravated Assault by Type of Weapon Used  
 Florida



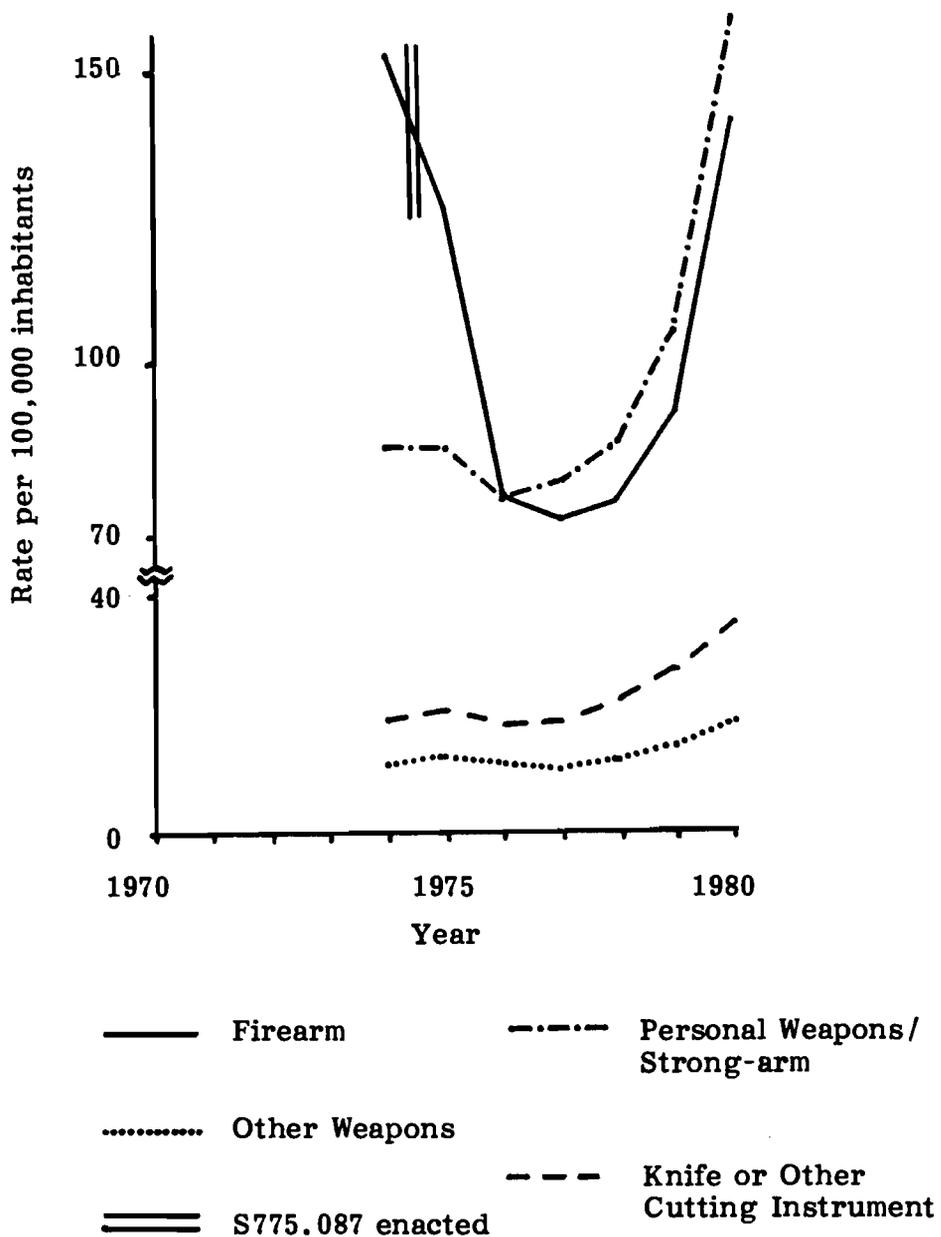
Graph 12  
 Aggravated Assault by Type of Weapon Used  
 Delaware



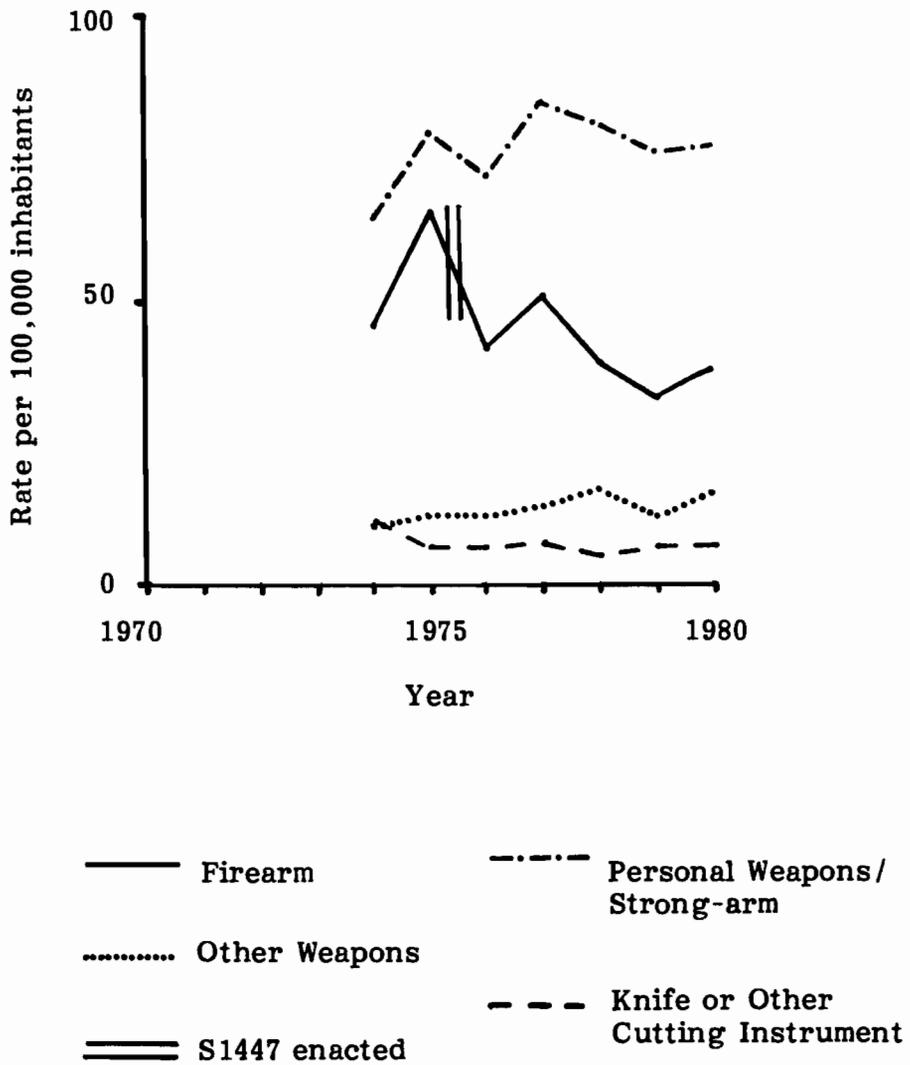
Graph 13  
 Aggravated Assault by Type of Weapon Used  
 Michigan



Graph 14  
 Robbery by Type of Weapon Used  
 Florida

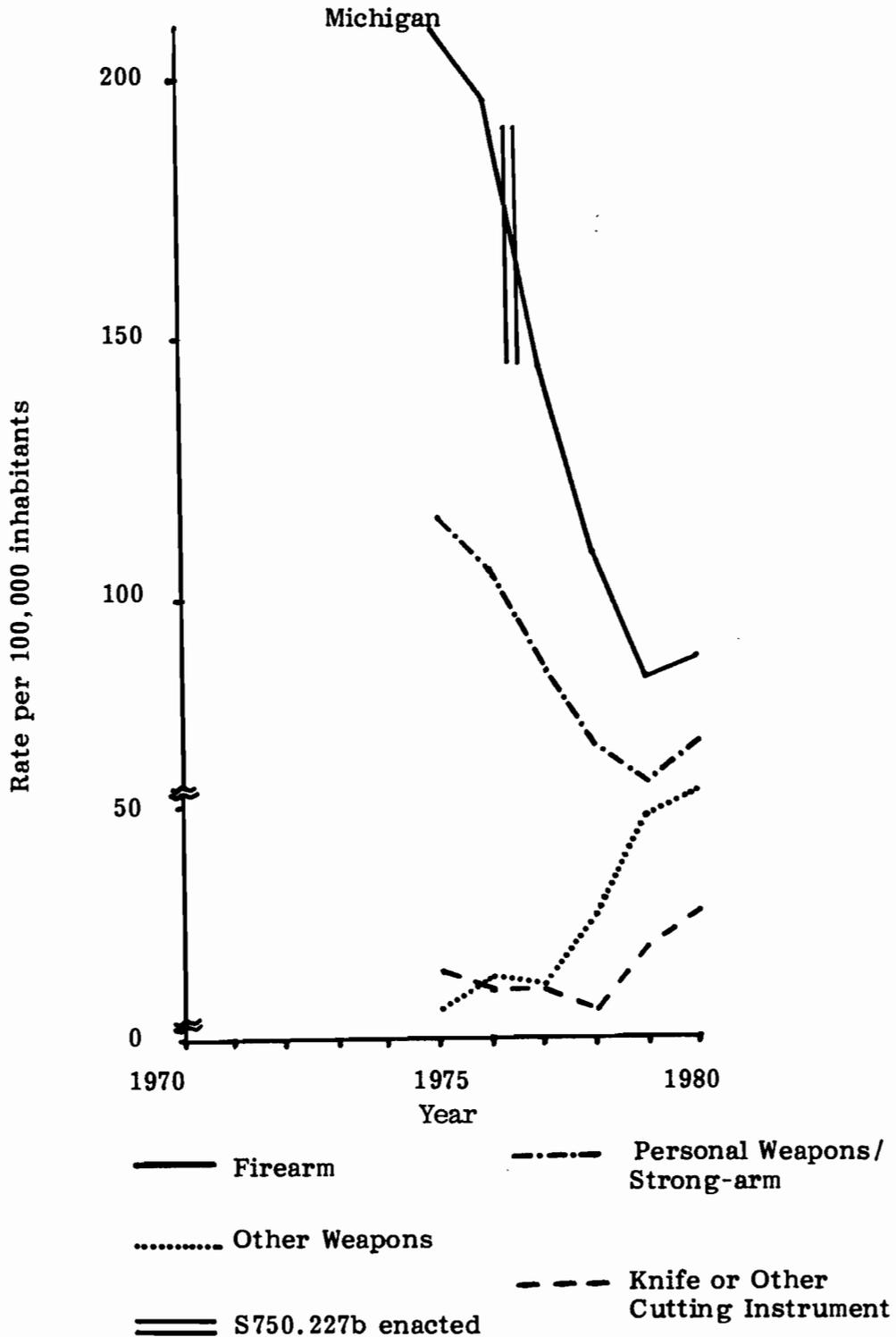


Graph 15  
 Robbery by Type of Weapon Used  
 Delaware



Graph 16

Robbery by Type of Weapon Used



## BIBLIOGRAPHY

117

- ALPER, Benedict S. and Joseph W. WEISS. (1977) "The Mandatory Sentence: Recipe for Retribution." FEDERAL PROBATION. 41 (December): 15-20.
- AMERICAN BAR ASSOCIATION. (1975) "Town Hall Forum on Criminal Justice." Annual Meeting. 12 August 1975. Montreal: ABA Section of Criminal Justice.
- ANDENAES, Johannes. (1975) "General Prevention Revisited: Research and policy implications," in GENERAL DETERRENCE: A conference on current research and standpoints. 2-4 June 1975. Stockholm: The National Swedish Council for Crime Prevention.
- ANDENAES, Johannes. (1974) PUNISHMENT AND DETERRENCE. Ann Arbor: University of Michigan Press.
- ANDENAES, Johannes. (1970) "The Morality of Deterrence." UNIVERSITY OF CHICAGO LAW REVIEW. 37 (Summer): 649-644.
- ANDENAES, Johannes. (1968) "Does Punishment Deter Crime." CRIMINAL LAW QUARTERLY. 11 (November): 76-93.
- ANDERSON, Linda S. (1979) "Deterrent Effect of Criminal Sanctions: Reviewing the evidence," in Paul J. Brantingham and Jack M. Kress (eds.) STRUCTURE, LAW AND POWER: Essays in the Sociology of Law. Beverly Hills: Sage Publications.
- ANNOTATED CODE OF MARYLAND. (1976) Vol. 3A, Art. 27, 36B (d).
- ANTUNES, George and A. Lee HUNT. (1973) "The Impact of Certainty and Severity of Punishment on Levels of Crime in American States: an extended analysis." THE JOURNAL OF CRIMINAL LAW AND CRIMINOLOGY. 64 (December): 486-493.
- ARKANSAS CRIMINAL JUSTICE INFORMATION CENTER. (1981) Crime in Arkansas 1980. Little Rock, AR.: State of Arkansas, Criminal Justice Information Center.
- ARKANSAS CRIMINAL JUSTICE INFORMATION CENTER. (1980) CRIME IN ARKANSAS 1979. Little Rock, AR.: State of Arkansas, Criminal Justice Information Center.
- ARKANSAS CRIMINAL JUSTICE INFORMATION CENTER. (1979) CRIME IN ARKANSAS 1978. Little Rock, AR.: State of Arkansas, Criminal Justice Information Center.
- ARKANSAS CRIMINAL JUSTICE INFORMATION CENTER. (1978) CRIME IN ARKANSAS 1977. Little Rock, AR.: State of Arkansas, Criminal Justice Information Center.

- ARKANSAS CRIMINAL JUSTICE INFORMATION CENTER. (1977) CRIME IN ARKANSAS 1976. Little Rock, AR.: State of Arkansas. Criminal Justice Information Center.
- ARKANSAS CRIMINAL JUSTICE INFORMATION CENTER. (1976) CRIME IN ARKANSAS 1975. Little Rock, AR.: State of Arkansas. Criminal Justice Information Center.
- BAILEY, William C. (1976) "Certainty of Arrest and Crime Rates for Major Felonies: a research note." JOURNAL OF RESEARCH IN CRIME AND DELINQUENCY. 13 (July): 145-154.
- BAILEY, William C. and Ronald W. SMITH. (1972) "Punishment: its severity and certainty." THE JOURNAL OF CRIMINAL LAW, CRIMINOLOGY AND POLICE SCIENCE. 63 (December): 530-539.
- BAILEY, William C., J. David MARTIN and Louis N. GRAY. (1974) "Crime and Deterrence: a correlation analysis." JOURNAL OF RESEARCH IN CRIME AND DELINQUENCY. 11 (July): 124-143.
- BALL, John C. (1955) "The Deterrence Concept in Criminology and Criminal Law." JOURNAL OF CRIMINAL LAW, CRIMINOLOGY AND POLICE SCIENCE. 46 (September-October): 347-354.
- BARROW, Charles Raymond. (1978) "Field Experimentation - - One Approach to Contemporary Issues Concerning the Deterrence Doctrine." Ph.D.-thesis. University of Arizona.
- BECCARIA, Cesare. (1963) ON CRIMES AND PUNISHMENT. Indianapolis, IN.: Bobbs-Merrill.
- BENTHAM, Jeremy. (1931) THE THEORY OF LEGISLATION. London: Kegan Paul, Trench, Trubner Ltd.
- BENTHAM, Jeremy. (1962) THE WORKS OF JEREMY BENTHAM, J. Bowring, ed., vol. 1. New York: Russell and Russell.
- BEYLEVELD, Deryck. (1979) "Deterrence Research as a Bases for Deterrence Policies." HOWARD JOURNAL OF PENOLOGY AND CRIME PREVENTION. 18 (No. 3): 135-149.
- BEYLEVELD, Deryck. (1979) "Identifying, Explaining and Predicting Deterrence." THE BRITISH JOURNAL OF CRIMINOLOGY. 19 (No.3): 205-224.
- BLALOCK, Hubert M., Jr. (1972) SOCIAL STATISTICS, Second edition. New York: McGraw-Hill.
- BLUMSTEIN, Alfred. (1978) "Comment: Research on Deterrent and Incapacitative Effects of Criminal Sanctions." JOURNAL OF CRIMINAL JUSTICE. 6 (Spring): 1-2.

- BLUMSTEIN, Alfred. (1978) "Summary of Report of the Panel on Research on Deterrent and Incapacitative Effects." *JOURNAL OF CRIMINAL JUSTICE*. 6 (Spring): 3-10.
- BLUMSTEIN, Alfred. (1976) "Developing Debate on Crime Control Policy." *CRIMINAL JUSTICE - THE FORENSIC QUARTERLY*. 50 (May): 77-84.
- BOWERS, William J. and Glen L. PIERCE. (1980) "Deterrence or Brutalization: What is the effect of Execution?" *CRIME AND DELIQUENCY*. 26 (October): 453-484.
- BROOKER, Frank. (1972) "The Deterrent Effect of Punishment." *CRIMINOLOGY*. 9 (February): 469-490.
- CAMPBELL, Donald T. and H. Laurence ROSS. (1967) "The Connecticut Crackdown on Speeding: Time-series data in quasi-experimental analysis." *LAW AND SOCIETY REVIEW*. 3: 33-53.
- CAMPBELL, Donald T. and Julian C. STANLEY. (1963) *EXPERIMENTAL AND QUASI-EXPERIMENTAL DESIGNS FOR RESEARCH*. Chicago: Rand McNally.
- CHAMBLISS, William J. (1967) "Types of Deviance and Effectiveness of Legal Sanctions." *WISCONSIN LAW REVIEW*. (Summer): 703-719.
- CHAMBLISS, William J. (1966) "The Deterrent Influence of Punishment." *CRIME AND DELINQUENCY*. 12 (January): 70-75.
- CHIRICOS, Theodore G. and Gordon P. WALDO. (1970) "Punishment and Crime: an examination of some empirical evidence." *SOCIAL PROBLEMS*. 18 (Fall): 200-217.
- CONGRESSIONAL INDEX: 97th Congress. (1981) Vol. 2, H 2147 - - Criminal law - - gun control - - penalties.
- CONGRESSIONAL INDEX: 97th Congress. (1981) Vol. 2, H 27 - - Criminal law - - gun control - - penalties.
- CONGRESSIONAL INDEX: 96th Congress. (1980) Vol. 2, H 8258 - - Criminal law - - gun control - - penalties.
- COOPER, H. H. (1973) "Crime Control and the Deterrence Perspective." *CRIMINOLOGY*. 11 (August): 161-182.
- CRIMINAL JUSTICE STATUTORY INDEX. (1975) Lexington, KY.: The Council of State Governments.
- COURY, Nancy, Bobbi SILBER and Nancy TRADD. (1978) "Disposition of Criminal Charges in Cases Involving Violent Crime, Deadly Weapons, and Mandatory Sentence: a three-month study conducted by Crime Commission Court aides." The Crime Commission of Greater Miami.

- CRAMER, James A., ed. (1978) PREVENTING CRIME. Beverly Hills: Sage Publications.
- DELAWARE CODE ANNOTATED. (1979) Vol. 7, Art. 11, 1447.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1981) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1980) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1979) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1978) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1977) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1976) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1975) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1974) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1973) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1972) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DELAWARE DEPARTMENT OF CRIMINAL JUSTICE STATISTICS. (1971) UNIFORM CRIME REPORTS FOR THE STATE OF DELAWARE. Wilmington, DE.: State of Delaware.
- DEUTSCH, Stuart J. (1978) "Deterrence Effectiveness Measurement." CRIMINOLOGY. 16 (May): 115-131.

- ELLMAKER, Susan. (1978) "Sentencing, Probation and Parole: Mandatory minimum terms for certain offenses involving firearms." THE UNIVERSITY OF KANSAS LAW REVIEW. 26 (Winter): 277-288.
- ERICKSON, Maynard L. and Jack P. GIBBS. (1976) "Further Findings on the Deterrence Question and Strategies for Future Research." JOURNAL OF CRIMINAL JUSTICE. 4 (Fall): 175-189.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1981) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1980) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1979) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1978) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1977) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1976) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1975) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1974) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA DEPARTMENT OF CRIMINAL LAW ENFORCEMENT. (1973) CRIME IN FLORIDA: Annual Report. Tallahassee, FL.: State of Florida.
- FLORIDA STATUTES ANNOTATED. (1980) Vol. 22, Ch. 775, 775.087 (2).
- FLORIDA STATUTES ANNOTATED. (1976) Vol. 22, Ch. 775, 775.087.
- FLYNN, Edith Elisabeth and John P. CONRAD., eds. (1978) THE NEW AND THE OLD CRIMINOLOGY. New York: Praeger Publishers.

- GEERKEN, Michael and Walter R. GOVE. (1977) "Deterrence, Overload and Incapacitation: An empirical evaluation." SOCIAL FORCES. 56 (December): 424-447.
- GENERAL DETERRENCE. (1975) A conference on current research and standpoints. 2-4 June 1975. Stockholm: The National Swedish Council for Crime Prevention.
- GIBBS, Jack P. (1979) "Assessing the Deterrence Doctrine - Challenge for the Social and Behavioral Sciences." AMERICAN BEHAVIORAL SCIENCES. 22 (No. 6): 653-677.
- GIBBS, Jack P. (1978) "Another Rush to Judgement on the Deterrence Question." CRIMINOLOGY. 16 (May): 22-30.
- GIBBS, Jack P. (1975) CRIME, PUNISHMENT, AND DETERRENCE. New York: Elsevier.
- GIBBS, Jack P. (1968) "Crime, Punishment, and Deterrence." SOUTHWESTERN SOCIAL SCIENCE QUARTERLY. 48 (March): 515-530.
- GLICK, Henry R. (1979) "Mandatory Sentencing: The Politics of the New Criminal Justice." FEDERAL PROBATION. 43 (March): 3-9.
- GRASMICK, Harold G. and Donald E. GREEN. (1980) "Legal Punishment, Social Disapproval and Internalization as Inhibitors of Illegal Behavior." THE JOURNAL OF CRIMINAL LAW AND CRIMINOLOGY. 71 (No. 3): 325-335.
- GREEN, Gary S. (1978) "Measuring the Incapacitative Effectiveness of Fixed Punishment," in James A. Cramer (ed.) PREVENTING CRIME. Beverly Hills: Sage Publications.
- HALL, Terrence L. (1976) "Mandatory Minimum Sentencing: The concept, and a controversial new Michigan statute." DETROIT COLLEGE OF LAW REVIEW. 19 (No. 1): 575-591.
- HARAN, James F. and John M. MARTIN. (1977) "The Imprisonment of Bank Robbers: the issue of Deterrence." FEDERAL PROBATION. 41 (No. 3): 27-30.
- HENRY, Frank. (1978) "Imprisonment as a Genral Deterrent." CRIMINAL LAW QUARTERLY. 21 (December): 69-81.
- HERSHEL, Richard L. (1978) "Considerations on the Deterrence and System Capacity Models." CRIMINOLOGY. 16 (May): 35-46.
- ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1981) CRIME IN ILLINOIS 1980. Chicago, IL.: Illinois Law Enforcement Commission.
- ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1980) CRIME IN ILLINOIS 1979. Chicago, IL.: Illinois Law Enforcement Commission.

ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1979) CRIME IN ILLINOIS 1978. Chicago, IL.: Illinois Law Enforcement Commission.

ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1978) CRIME IN ILLINOIS 1977. Chicago, IL.: Illinois Law Enforcement Commission.

ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1977) CRIME IN ILLINOIS 1976. Chicago, IL.: Illinois Law Enforcement Commission.

ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1976) CRIME IN ILLINOIS 1975. Chicago, IL.: Illinois Law Enforcement Commission.

ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1975) CRIME IN ILLINOIS 1974. Chicago, IL.: Illinois Law Enforcement Commission.

ILLINOIS DEPARTMENT OF LAW ENFORCEMENT. (1974) CRIME IN ILLINOIS 1973. Chicago, IL.: Illinois Law Enforcement Commission.

KENNEDY, Edward M. (1976) "Mandatory Sentencing: an answer to recidivism." SECURITY MANAGEMENT. 20 (November): 17-20.

LOGAN, Charles H. (1975) "Arrest Rates and Deterrence." SOCIAL SCIENCE QUARTERLY. 56 (December): 376-389.

LOGAN, Charles H. (1972) "General Deterrent Effects of Imprisonment." SOCIAL FORCES. 51 (September): 64-73.

LOGAN, Charles H. (1972) "Statistical Artifacts in Deterrence Research." SOCIAL FORCES. 51: 64-81.

LOGAN, Charles H. (1971) "On Punishment and Crime (Chiricos and Waldo, 1970): Some Methodological Commentary." SOCIAL PROBLEMS. 19 (Fall): 280-294.

MEIER, Robert F. (1979) "Correlates of Deterrence: Problems of theory and method." JOURNAL OF CRIMINAL JUSTICE. 7: 11-20.

MICHIGAN COMPILED LAWS: Annotated. (1979) Vol. 38, 750.227b.

MICHIGAN DEPARTMENT OF CORRECTIONS. (1978) "First Findings on Use and Apparent Impact of Felony Firearm Legislation." 12 April 1978. Rockville, MD.: National Criminal Justice Reference Service.

MICHIGAN DEPARTMENT OF STATE POLICE. (1981) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1980. East Lansing, MI.: Department of State Police.

MICHIGAN DEPARTMENT OF STATE POLICE. (1980) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1979. East Lansing, MI.: Department of State Police.

MICHIGAN DEPARTMENT OF STATE POLICE. (1979) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1978. East Lansing, MI.: Department of State Police.

- MICHIGAN DEPARTMENT OF STATE POLICE. (1978) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1977. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1977) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1976. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1976) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1975. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1975) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1974. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1974) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1973. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1973) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1972. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1972) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1971. East Lansing, MI.: Department of State Police.
- MICHIGAN DEPARTMENT OF STATE POLICE. (1971) UNIFORM CRIME REPORT FOR THE STATE OF MICHIGAN, 1970. East Lansing, MI.: Department of State Police.
- MINOR, W. William. (1978) "Deterrence Research: Problems of Theory and Method," in James A. Cramer (ed.), PREVENTING CRIME. Beverly Hills: Sage Publications.
- MORRIS, Norval and Gordon HAWKINS. (1959) THE HONEST POLITICIAN'S GUIDE TO CRIME CONTROL. Chicago: University of Chicago Press.
- NAGEL, William G. (1977) "A Statement in Opposition to Mandatory Sentences." Presented before the Joint Committee on the Judiciary of Connecticut's General Assembly, 18 March 1977. Hartford, Connecticut.
- NATIONAL RESEARCH COUNCIL: Panel on Research on Deterrence and Incapacitation. (1978) DETERRENCE AND INCAPACITATION: Estimating the Effects of Criminal Sanctions on Crime Rates. Washington, D.C.: National Academy of Sciences.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1981) CRIME INDEX FOR THE STATE 1980, Trenton, N.J.: Department of Law and Public Safety, Division of Systems and Communications.

- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1980)  
CRIME INDEX FOR THE STATE 1979. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1979)  
CRIME INDEX FOR THE STATE 1978. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1978)  
CRIME INDEX FOR THE STATE 1977. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1977)  
CRIME INDEX FOR THE STATE 1976. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1976)  
CRIME INDEX FOR THE STATE 1975. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1975)  
CRIME INDEX FOR THE STATE 1974. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1974)  
CRIME INDEX FOR THE STATE 1973. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1973)  
CRIME INDEX FOR THE STATE 1972. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1972)  
CRIME INDEX FOR THE STATE 1971. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NEW JERSEY DEPARTMENT OF LAW AND PUBLIC SAFETY. (1971)  
CRIME INDEX FOR THE STATE 1970. Trenton, N.J.: Department  
of Law and Public Safety, Division of Systems and Communications.
- NORTH CAROLINA POLICE INFORMATION NETWORK. (1981) CRIME  
IN NORTH CAROLINA 1980. Raleigh, N.C.: Police Information  
Network.
- NORTH CAROLINA POLICE INFORMATION NETWORK. (1980) CRIME  
IN NORTH CAROLINA 1979. Raleigh, N.C.: Police Information  
Network.
- NORTH CAROLINA POLICE INFORMATION NETWORK. (1979) CRIME  
IN NORTH CAROLINA 1978. Raleigh, N.C.: Police Information  
Network.
- NORTH CAROLINA POLICE INFORMATION NETWORK. (1978) CRIME  
IN NORTH CAROLINA 1977. Raleigh, N.C.: Police Information  
Network.

NORTH CAROLINA POLICE INFORMATION NETWORK. (1977) CRIME IN NORTH CAROLINA 1976. Raleigh, N.C.: Police Information Network.

NORTH CAROLINA POLICE INFORMATION NETWORK. (1976) CRIME IN NORTH CAROLINA 1975. Raleigh, N.C.: Police Information Network.

NORTH CAROLINA POLICE INFORMATION NETWORK. (1975) CRIME IN NORTH CAROLINA 1974. Raleigh, N.C.: Police Information Network.

NORTH CAROLINA POLICE INFORMATION NETWORK. (1974) CRIME IN NORTH CAROLINA 1973. Raleigh, N.C.: Police Information Network.

OSTER, Patrick R. (1976) "How One State's Gun-Control Law is Working." U. S. NEWS AND WORLD REPORT. 81 (30 August): 35.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1981) 1980, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1980) 1979, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1979) 1978, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1978) 1977, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1977) 1976, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1976) 1975, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1975) 1974, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PENNSYLVANIA STATE POLICE BUREAU OF RESEARCH AND DEVELOPMENT. (1974) 1973, CRIME IN PENNSYLVANIA. Harrisburg, PA.: Pennsylvania State Police.

PETERSILIA, Joan and Peter W. GREENWOOD. (1978) "Mandatory Prison Sentences: Their Projected Effects on Crime and Prison Populations." THE JOURNAL OF CRIMINAL LAW AND CRIMINOLOGY. 69 (Winter): 604-615.

- PONTELL, Henry N. (1978) "Deterrence - - Theory versus Practice." CRIMINOLOGY. 16: 3-22.
- ROSS, H. Laurence. (1973) "Law, Science, and Accidents: The British Road Safety Act of 1967." THE JOURNAL OF LEGAL STUDIES. 2 (January): 1-78.
- ROSSMAN, David, Paul FROYD, Glen L. PIERCE, John McDEVITT and William J. BOWERS. (1980) "Massachusetts' Mandatory Minimum Sentence Gun Law: Enforcement, Prosecution, and Defense Impact." CRIMINAL LAW BULLETIN. 16 (March-April): 150-163.
- ROSSMAN, David, Paul FROYD, Glen L. PIERCE, John McDEVITT and William J. BOWERS. (1979) "The Impact of the Mandatory Gun Law in Massachusetts." Boston: Boston University School of Law, Center for Criminal Justice.
- SHEVIN, Robert L. (1975) Letter to Governor Reubin O'D. Askew. 9 May, 1975.
- SILBERMAN, Matthew. (1976) "Towards a Theory of Criminal Deterrence." AMERICAN SOCIOLOGICAL REVIEW. 41 (June): 442-461.
- SIMON, Caroline K. (1976) "Needed: A New Look at Punishments." AMERICAN BAR ASSOCIATION JOURNAL. 61 (October): 1297-1300.
- SKOGAN, Wesley G. (1974) "The Validity of Official Crime Statistics: An Empirical Investigation." SOCIAL SCIENCE QUARTERLY. 55 (June): 25-38.
- STATE OF FLORIDA. (1975) "Senate Judiciary-Criminal Committee: Staff Analysis." May 1975.
- TITTLE, Charles R. (1978) "Arrest and Crime - - More on the Deterrence Question," in Edith Elisabeth Flynn and John P. Conrad (eds.), NEW AND OLD CRIMINOLOGY. New York: Praeger Publishers.
- TITTLE, Charles R. (1978) "Comment on 'Deterrence - - Theory versus Practice.'" CRIMINOLOGY. 16 (May): 31-35.
- TITTLE, Charles R. (1969) "Crime Rates and Legal Sanctions." SOCIAL PROBLEMS. 16 (Spring): 409-423.
- TITTLE, Charles R. and Alan R. ROWE. (1978) "Arrest and Crime: more on the Deterrence Problem," in Edith Elisabeth Flynn and John P. Conrad (eds.), THE NEW AND OLD CRIMINOLOGY. New York: Praeger Publishers.
- TITTLE, Charles R. and Alan R. ROWE. (1974) "Certainty of Arrest and Crime Rates: A Further Test of the Deterrence Hypothesis." SOCIAL FORCES. 51 (June): 455-462.

- TITTLE, Charles and Alan R. ROWE. (1973) "Moral Appeal, Sanction Threat, and Deviance: An experimental test." SOCIAL PROBLEMS. 20 (Spring): 488-498.
- TULLOCK, Gordon. (1974) "Does Punishment Deter Crime?" PUBLIC INTEREST. 36 (Summer): 103-111.
- WALDO, Gordon P. and Theodore G. CHIRICOS. (1972) "Perceived Penal Sanction and Self-Reported Criminality: A Neglected Approach to Deterrence Research." SOCIAL PROBLEMS. 19 (Spring): 522-540.
- WEBB, Stephen D. (1980) "Deterrence Theory: A Reconceptualization." CANADIAN JOURNAL OF CRIMINOLOGY AND CORRECTIONS. 22: 23-25.
- WISCONSIN CRIME INFORMATION BUREAU. (1981) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1980. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1980) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1979. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1979) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1978. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1978) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1977. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1977) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1976. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1976) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1975. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1975) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1974. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1974) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1973. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1973) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1972. Madison, WI.
- WISCONSIN CRIME INFORMATION BUREAU. (1972) WISCONSIN CRIMINAL JUSTICE INFORMATION, CRIME AND ARRESTS, 1971. Madison, WI.

ZIMRING, Franklin E. (1976) "Field Experiments in General Deterrence - - Preferring the Tortoise to the Hare." EVALUATION. 3: 132-135.

ZIMRING, Franklin E. (1971) PERSPECTIVES ON DETERRENCE. Rockville, MD.: National Institute of Mental Health.

ZIMRING, Franklin E. and Gordon J. HAWKINS. (1973) DETERRENCE: The Legal Threat in Crime Control. Chicago: University of Chicago Press.

ZIMRING, Franklin E. and Gordon J. HAWKINS. (1971) "The Legal Threat as an Instrument of Social Change." JOURNAL OF SOCIAL ISSUES. 27 (No. 2): 33-48.