Prison versus Probation in California

Implications for Crime and Offender Recidivism

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and

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ACQUISITIONS

PREFACE

This report presents the findings and recommendations of the second phase of a Rand study funded by the National Institute of Justice, U.S. Department of Justice, which examines the use of prison and probation for felony offenders.

The first report in the series, *Granting Felons Probation: Public Risks and Alternatives*, R-3186-NIJ, January 1985, by Joan Petersilia, Susan Turner, James Kahan, and Joyce Peterson, investigated possible risks posed by felony probation for public safety and steps the system might take to overcome those risks. That study analyzed the effectiveness of probation for a sample of felony probationers in California, identified the criteria used by courts to make the prison/probation decision, and sought to identify sentencing alternatives that reduce the risk for public safety.

This follow-on study examines offender behavior after imprisonment. Using a sample of comparable prisoners and probationers, the authors investigate the association between imprisonment and recidivism, estimate the amount of crime that was prevented when felons were imprisoned rather than placed on probation, and discuss the costs to the criminal justice system to achieve that reduction in crime.

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Although the samples of prisoners and probationers in the study were matched on factors that research and experience have found related to recidivism, and these factors were controlled for, there are undoubtedly other factors that influence both the sentencing decision and recidivism. There is no way of knowing or establishing how the samples may have differed on such factors, and thus whether they were fully "matched." Only random assignment to sentence could guarantee that these factors were not systematically influencing prisoners' behavior. *Consequently, the results presented here are only suggestive and should not be used to support specific policy recommendations.*

SUMMARY

All but eight states in the United States are under federal court orders to do something to alleviate overcrowding in prisons—overcrowding so severe that it constitutes "cruel and unusual punishment." In their efforts, many states have had to reduce the time offenders spend in prison, and some states have placed an increasing percentage of felons on probation. This may mean that convicted felons are spending more post-conviction time on the streets than ever before, a situation that not only severely strains the resources of probation and parole agencies, but also jeopardizes public safety.

PROBATION, IMPRISONMENT, AND CRIMINAL BEHAVIOR

In 1985, we completed a study which found that during the 40 months a group of felony probationers in two California counties were on probation, 65 percent were arrested and 34 percent were sentenced to jail or prison for new crimes.[1] Seventy-five percent of the official charges filed against the probationers involved burglary/theft, robbery, or other violent crimes.

These findings led us to believe that the majority of felons who are placed on probation in California constitute a serious threat to the public and that the increasing use of probation as a sentence for felons is a high-risk gamble. Our findings also showed that with the information currently available to (or legally usable by) the courts, it was not possible to improve the prediction of recidivism to more than 20 percent above chance.

Many would use those findings to support demands for adding prison space or for sending more felons to prison. Obviously, criminals cannot commit crimes in the community while they are in prison. However, it is not clear how felons will behave when they return to the community after imprisonment. To help policymakers and legislators explore the relative costs and effectiveness of imprisonment and probation as sentencing alternatives for selected felons, we have attempted to compare criminal behavior of prisoners and probationers after those sentences, the relative amounts of crime prevented through imprison-

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[1]Joan Petersilia et al., *Granting Felons Probation: Public Risks and Alternatives*, The Rand Corporation, R-3186-NIJ, January 1985.

ment (i.e., the incapacitation effect) during the period of the study, and
the costs to the criminal justice system of that prevention.

DATA AND METHODS

There are basic differences between probationers and prisoners,
many of them correlated with receiving a prison sentence and many
also correlated with recidivism. To determine the association between
the type of sanction and recidivism, we must somehow control for the
effects of those differences. Otherwise, they, rather than the sanction,
are likely to "explain" the variation in recidivism rates between the two
groups. Past research on this subject has generally failed to introduce
stringent controls for such differences. Considering that prisoners gen-
erally are more serious criminals and have more of the characteristics
associated with recidivism, it is not surprising that they have higher
recidivism rates. However, that does not justify the conclusion, which
most studies have drawn, that prison "makes offenders worse"—that is,
more likely to return to crime.

Only an experimental research design can establish definitively the
relative effects of imprisonment and probation on recidivism. Without
random assignment of offenders to one or the other sentencing condi-
tion, we cannot conclude that the sanction itself made the critical
difference in an offender's subsequent behavior. We had neither the
funding nor the jurisdiction to perform such an experiment. However,
the research design we used does allow us to measure the *association*
between prison or probation and recidivism for a sample of prisoners
and probationers, and our results suggest the need for an actual experi-
ment and further research in this critical area of criminal justice
administration.

We attempted to overcome some of the methodological difficulties
by using samples of prisoners and probationers who were as nearly
"matched" as possible in background and criminal characteristics and
other factors known to correlate with recidivism. Using information
supplied by the California Youth and Adult Corrections Agency
(YACA) and data from our earlier study of felony probation, we
attempted to construct comparable groups of prisoners and probation-
ers. We selected 511 probationers from the original study and identi-
fied 511 imprisoned offenders who matched the probationers on the fol-
lowing factors:

- Year of sentencing (1980).
- Gender (male).

- County of conviction (Los Angeles or Alameda).
- Conviction crime (assault, robbery, burglary, theft, or drug sale/possession).
- A summary score reflecting factors shown to be associated with the prison/probation decision in California.

To reliably estimate how strongly going to prison is associated with recidivism, we applied even more stringent controls in the analytic strategy than we used in the initial matching. Using logistic regression techniques, we controlled for (1) other remaining differences between our selected prisoners and probationers on factors shown to be associated with the prison/probation decision; (2) the offender's age at conviction (research has consistently found a relationship between age and recidivism); and (3) additional offender background characteristics that were correlated with recidivism *in our sample*.

Despite this matching effort, we must caution that our results do not establish any *causal* relationship between imprisonment and recidivism. Although we matched our samples on, and controlled for, factors that research and experience have found related to recidivism, there are undoubtedly other factors that influence both the sentencing decision and recidivism. We have no way of knowing or establishing how our samples may have differed on such factors, and thus whether they were fully "matched." Only random assignment to sentence could guarantee that these factors were not systematically influencing prisoners' behavior. Consequently, our results are only suggestive and should not be used to support specific policy recommendations.

MAJOR FINDINGS AND CONCLUSIONS

The Relationship Between Imprisonment and Recidivism

The majority of both the prisoners and the probationers in our sample "failed" during the two years following their release into society. Collectively, the 1,022 felons in the sample had over 1,300 charges filed against them in that period. About 45 percent of the filed charges were for property crimes, about 28 percent were for violent crimes, about 12 percent were for drug offenses, and about 15 percent were for miscellaneous crimes.

The prisoners had higher recidivism rates than the probationers, both across crime types and in the aggregate. In the two-year follow-up period, 72 percent of the prisoners were rearrested, as compared with 63 percent of the probationers; 53 percent of the prisoners had new filed charges, compared with 38 percent of the probationers; and

47 percent of the prisoners were incarcerated in jail or prison, compared with 31 percent of the probationers. However, although the prisoners' recidivism rates were higher than the probationers', their new crimes were no more serious, nor was there a significant difference in the length of time before their first filed charge (the average was about six months for both groups).

These initial, descriptive findings were confirmed when we controlled for other factors related to differences in recidivism rates. Considering all offenders as a group, for the majority of recidivism measures (e.g., rearrest, new filed charges, new convictions), we found that imprisonment was associated with a higher probability of recidivism. When we examined different offender types, we found that the association was significant only for offenders convicted of property crimes, who were 17 percent more likely than other comparable probationers to have a new charge filed against them after imprisonment. Drug offenders who had been imprisoned were 11 percent more likely to have a new filed charge than those who were given probation; and violent offenders were 3 percent more likely.

The positive association between imprisonment and recidivism could be interpreted in several ways: Assuming the prisoners and probationers had the same potential for recidivism, imprisonment might have made offenders more likely to recidivate than they would have been without the prison experience. Alternatively, the offender may not have changed as a result of being in prison, but society's (and the criminal justice system's) *response* to him may have. For example, property offenders in our sample who served time in prison recidivated more often than property offenders placed on probation. If property offenders are motivated primarily by economic considerations, it may be that more of them quit the criminal lifestyle when they find jobs in the community. If being an ex-prisoner reduces their legitimate employment opportunities more than being a probationer does, the prisoner *label*, not the prison experience itself, may account for the greater recidivism. And, as discussed earlier, it could be that some factor or factors not accounted for in our data but known to the sentencing judges explain the differences in post-release behavior.

The Incapacitation Effect

Today, prison sentences are almost universally intended to incapacitate, rather than rehabilitate, offenders. Imprisonment keeps offenders from committing crimes in the community while they are incarcerated. We tried to estimate how much crime imprisonment prevented in our sample, and at what cost, absolutely and relative to probation.

We estimated the number of offenses the probationers and prisoners committed during the three-year period following their 1980 convictions (including the time they spent in jail or prison), using a technique derived from the incapacitation literature. The results indicate that, on average, each prisoner committed an estimated 20 crimes and each probationer committed 25 crimes during the three-year period following his 1980 conviction. On average, each probationer was arrested 2.5 times during that period, and each prisoner, 2 times. At an assumed ratio of 10 crime commissions per arrest (a conservative figure), we estimate that the prisoners committed 20 percent fewer crimes than the probationers during the three years.

The Relative Costs of Probation and Imprisonment

What did the incapacitation effect in our sample cost society, absolutely and relative to probation? Neither the costs nor the benefits to society of incapacitation can be measured simply in terms of public resources and/or the tradeoff between providing prison cells or other public services. Being on the street an average of nine months longer than the prisoners during the three-year period, the probationers committed an estimated 25 percent more crime. Although our study could not quantify the effects, the additional crimes no doubt imposed other critical costs in victim injury and property loss.[2]

In terms of the costs to the criminal justice system, probation is commonly assumed to be considerably less expensive than prison. In policy discussions, probation supervision is generally assumed to cost about $1,500 per year for each probationer; prison (operational) costs are taken to be about $15,000 per prisoner. But these costs do not reflect the secondary costs of either sanction—which are considerable—nor do they reflect the real difference between prison and probation costs. Capturing the full effects of these sanctions requires, at a minimum, consideration of:

- Correction costs of the initial confinement (prison or jail).
- Costs of post-release probation or parole supervision.
- Police and court costs associated with processing post-release arrests.
- Costs of any post-release incarcerations resulting from new crimes.

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[2]See Edwin W. Zedlewski, "When Have We Been Punished Enough?" *Public Administration Review*, November 1985.

We summed these four components for the probationers and prisoners in our sample. Our results suggest that felony probation sentences are more expensive than is commonly assumed, both absolutely and relative to imprisonment, and that prison sentences also cost the system more than is commonly assumed.

We estimate that each of the felony probationers in our sample cost the California criminal justice system about $12,000 in the three-year period following his 1980 conviction—about half of which was used by police and court agencies to process new arrests while the offender was on probation. Each prisoner was estimated to cost the system about $23,000 over the same three-year period, about 70 percent of which was used to pay for his initial year in prison. Thus, the system spent about twice as much on supervising and reprocessing prisoners as it did on probationers over the three-year period.

As with the recidivism results, we caution against overgeneralizing these cost estimates. The figures represent the costs to two urban counties in California, and the offenders in our sample had high recidivism rates, which drove up their reprocessing costs considerably. The costs of supervising lower-risk probationers (e.g., juveniles or misdemeanants) or adult probationers with higher success rates might be quite different. Also, other costs related to recidivistic crimes, such as the costs imposed on victims, are not included.

CONSIDERATIONS FOR CRIMINAL JUSTICE POLICY

Our findings suggest that imprisonment did not deter most of the offenders in the sample from further crime but *did* achieve its incapacitation objective. However, this objective was achieved at very high costs to the criminal justice system, both absolutely and relative to probation. Given current resources, only a fraction (currently about 10 percent) of arrestees can be imprisoned in existing facilities.

Our major conclusion is that public safety would clearly benefit from somehow incapacitating a larger proportion of the felony offenders represented in this study, and for a longer time. However, building more prisons can accomplish only part of this goal—even if the system can find less costly and less time-consuming prison-building methods.

The U.S. Department of Justice recently introduced a federal initiative aimed at reducing the time and cost of constructing new correction facilities. In connection with this initiative, a new prison has just been completed in Florida, using prefabricated concrete components. The prison took only 8 months to build and cost $16,000 per cell. Past prison construction has often taken as long as 5 years and has cost an

average of $50,000 per cell. If states with different climates, construction and land costs, etc., can duplicate Florida's experience, construction of correctional institutions could become more economical in the future.

These findings are encouraging in view of the widespread interest in reducing the costs of imprisonment. However, even at one-third of the current cost of conventional construction, the price to increase the present prison population by only 1 percent (5,000 beds) is about $75 million (using a conservative $15,000 per-bed cost). Moreover, even if national prison capacity could be increased by that number of cells and at the lower cost, the prison system would still hold less than 25 percent of the felony convicts society wishes to monitor. Therefore, our results also lead us to suggest the need for more effective control of felons outside of prison.

We believe that the U.S. criminal justice system might be able to get additional return on the resources that are actually or potentially available by examining the benefits and costs of various intermediate-level sanctions for felony offenders, such as community-based programs that provide more intensive supervision than routine probation but are less restrictive than prison.

A number of counties are experimenting with intermediate sanctions such as intensive probation supervision, electronic monitoring, house arrest, and community service sentencing. Early results suggest that there may be feasible, cost-effective alternatives to prison for some of the offenders we studied. These alternatives may extend the incapacitation effect to some of the felony offenders who are presently only nominally supervised on traditional probation. They may also ease prison overcrowding by having less serious offenders supervised in the community and by avoiding any negative effects that might result from being in prison or being labeled an ex-prisoner. Consideration might also be given to increasing the time spent in prison by selected prisoners.

Many counties question the costs of intensified probation programs. However, our results show that when current police and court costs are added to the expenses of probation supervision, felony probationers cost the system a great deal. If intensive supervision programs actually reduce recidivism, they could ultimately be less costly than the present system, because they could recapture a significant portion of the present post-release processing and incarceration costs associated with recidivism. And, more important, they would reduce the pain and loss suffered by new victims.

ACKNOWLEDGMENTS

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I. INTRODUCTION

STUDY BACKGROUND AND ISSUES

In recent years, increases in serious crime, prison overcrowding, and fiscal constraints have resulted in a serious sentencing dilemma for the criminal justice system. States have been unable to expand prison capacity fast enough to accommodate the increase in felony convictions. The number of prison inmates nationwide increases by 1,000 every month, and every prison in the United States now houses more inmates than it was designed to hold. In 1971, the courts began to intervene, and by 1986, all but eight states were under federal court orders to bring prison populations in line with prison capacity.[1] The U.S. Government Accounting Office has forecast that the national prison population will reach 566,170 by 1990, a net increase of 100,000 over the next five years and an all-time high historic incarceration rate of 227 prisoners per 100,000 population (GAO, 1984).

Under the circumstances, states are being forced to consider new options for managing prison crowding. Most of these options are designed to reduce the amount of time an inmate spends in prison or to reduce intake, i.e., the number of felons who are sentenced to prison. In 1984, fourteen states released 17,000 inmates early to ease overcrowding (BJS, 1985a). The only option most states presently have for reducing prisoner intake is probation.[2]

Probation allows the sentenced offender to remain in the community, subject to imposed conditions. Probation has become, overwhelmingly, the sentence of choice: About 80 percent of the offenders convicted of misdemeanors and about 60 percent of those convicted of felonies are given probation. As a result, probation agencies have been placed under an even greater financial strain than prisons—probation populations increased about 70 percent in the past decade, while probation budgets have declined by about 25 percent (Petersilia, 1985a).

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[1]The remaining states are Alaska, Minnesota, Montana, Nebraska, New York, New Jersey, North Dakota, and Vermont. The court orders generally rule that prison overcrowding has become so severe that the conditions of confinement violate constitutional prohibitions against cruel and unusual punishment. (For example, see *Wilson v. Deukmejian*, a California Superior Court ruling handed down in 1985.)

[2]Courts may also impose split sentences, i.e., a specified jail term followed by a period of probation during which offenders are allowed to remain in the community under the supervision of a probation officer. Probation should not be confused with parole, which is the conditional release of an offender after he has served a prison term. Probation is an alternative to prison.

The increasing tendency of the courts to place serious felons on probation not only causes concern about the adequacy of probation agency resources, it raises a more fundamental policy question: Is probation equipped—in terms of personnel, training, or its mandate—to supervise such serious offenders? Probation was conceived and structured to handle much less serious offenders; using it as a sanction for felons is, admittedly, a gamble with public safety. In a recently completed research study, we concluded that this gamble is not paying off very well, at least not in California (Petersilia et al., 1985; Petersilia, 1985b). We tracked a sample of California felony probationers and found that they had high recidivism rates: 65 percent of them were rearrested, and 34 percent were incarcerated during the study's 40-month follow-up period. These results imply that, in California at least, the courts have not been very successful at identifying which felons can safely be placed on probation. We further concluded that even the use of advanced statistical methods and the availability of exhaustive data may not make it possible to predict recidivism among such serious offenders with an accuracy of better than 20 percent above chance.

These results would seem to support the contention that routine probation is not an appropriate or effective sanction for convicted felons. It evidently could not provide the kind of supervision that might have prevented the majority of our sample of felony probationers from returning to crime.

But do these findings and the statistics on violent crime mean that building more prisons to incarcerate most of the felony offenders is society's best, if not only, solution? The answer depends on what society expects imprisonment to accomplish and what it is willing, or able, to pay to achieve those ends.

At the present rapid rate of growth of the inmate population nationwide, it would be necessary to build the equivalent of two new prisons every week just to keep pace (BJS, 1985a). At an average construction cost of $50,000 per cell, this would amount to $70 million per week—a staggering expenditure by any standard (DeWitt, 1986). Aside from the expense involved, prisons cannot be built quickly enough to solve the immediate crowding problem; three to seven years may be required to provide usable bed space.[3] However, innovations in correctional facility construction in Florida and two other states have resulted in much lower costs and much shorter construction time, suggesting that

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[3]The length of stay for an average generation of prisoners is about 2.5 years; thus it is difficult to see how construction that is only now in the planning stages can relieve near-term crowding problems (Mullen, 1985).

the crowding problem may not be as intractable as it now seems. We discuss this possibility in more detail in Section VI.

Even if the nation could afford all the prisons it "needs," imprisoning all or most convicted felons would not keep them off the street for more than an average of 2 years. The average prison stay in the United States is 1.5 to 2.5 years for all persons imprisoned as a result of felony convictions; for those convicted of serious violent crimes, it is about 2.5 to 4 years (BJS, 1984). The behavior of felony offenders after prison is thus important to examine.

A fundamental rationale for sentencing is "just deserts," i.e., appropriate punishment to fit the seriousness of the crime. Under that rationale, some offenders must go to prison. Their conviction crimes are serious enough and their criminal records bad enough to demand severe punishment. However, jurisdictions and judges use prison sentences to serve other objectives as well, including rehabilitation, deterrence, and incapacitation. Directly or indirectly, all three of these objectives are ultimately aimed at reducing crime. Prison overcrowding and other conditions have made rehabilitation increasingly less viable as an objective of prison sentencing. Nevertheless, most prisons still offer training and treatment programs to provide offenders with better coping skills, in the hope of keeping them from returning to crime. Many people believe that prison sentences reduce crime rates through deterrence, by convincing offenders that the crime is not worth the punishment. However, the alarming rise in crime rates during the 1970s reduced expectations that imprisonment would act as an effective deterrent. As a result, most jurisdictions use sentencing primarily for incapacitation. James Q. Wilson, a proponent of sentencing for incapacitation purposes, has written:

> Society at a minimum must be able to protect itself from dangerous offenders. Whatever else imprisonment can or cannot accomplish, it does keep offenders from committing crimes in the community while they are behind bars. (Wilson, 1985)

Imprisonment certainly does incapacitate criminals, and the drop in crime rates between 1982 and 1984 was interpreted as evidence of its effectiveness.[4] However, no one has established how much crime

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[4]After a 12 percent decline between 1982 and 1984, major crimes reported to police rose 4 percent in 1985. Decreases in crime rates are usually explained by changes in criminal sanctions, demographics (particularly age composition), economic deprivation (e.g., unemployment rates), and cultural variables (e.g., family structure). Recent analyses indicate that, depending on crime type, change in age composition accounts for roughly 10 to 25 percent of the annual change in crime rates over the last 20 years, and sanction severity accounts for an additional 25 to 30 percent. There are also significant effects for measures of family structure and a contextual effect for cohort size (Blumstein, 1985).

imprisonment prevents or at what costs—absolutely and relative to probation. Moreover, exactly how do we measure cost? Probation supervision is certainly less expensive than imprisonment. It costs about $1,500 per year to supervise a probationer in the community, and about $15,000 to keep a felon in prison. But what of the costs to victims of crimes that might have been prevented had the offender been imprisoned? Further, if probationers are continually being rearrested and retried, the police and court costs incurred for reprocessing, as well as the confinement costs for those whose probation is revoked, must be added to the direct costs of probation supervision. The total might provide a more accurate estimate of the costs for rearrests and convictions of both probationers and ex-prisoners.

The question of rehabilitation and deterrence has another dimension as well: How does imprisonment ultimately affect criminal behavior and thus crime rates when serious criminals return to the streets? In other words, will society pay delayed costs for incapacitation in future increased crime and system expenses if, as some claim, prison actually makes many offenders more dangerous to society?

FOCUS OF THE PRESENT STUDY

Largely because of methodological problems, research has been unable to provide legislators, voters, or even the criminal justice system itself with unambiguous evidence on these issues. The National Academy of Science concluded:

> The major challenge for future research is to estimate the magnitude of the effects of different sanctions on various crime types, an issue on which none of the available evidence provides very useful guidance. (Blumstein and Cohen, 1978)

In the first phase of the study reported here, we attempted to sort out the effects that different sanctions have on different criminal populations, focusing on probation as a sentencing alternative for felons (Petersilia et al., 1985). In the second phase, we examined imprisonment as an alternative, exploring its relative effectiveness as a sanction in the terms discussed above. We examined three basic issues and their implications:

- The relationship between imprisonment and length of time served on recidivism.
- The amount of crime that is prevented by imprisoning offenders rather than placing them on probation.
- The costs to the system for achieving that reduction in crime.

We have attempted to overcome some of the methodological problems inherent in establishing the relationship between serving prison sentences and recidivism.

Our findings indicate that in our sample imprisonment is associated with a higher recidivism rate than probation. The only objective that imprisonment was found to meet unequivocally is incapacitation, although imprisonment costs the criminal justice system a great deal, both absolutely and relative to probation.

The major conclusion of this study is that public safety would clearly benefit from control of a larger proportion of the felons represented by the study sample, for a longer time. But it is not economically feasible to build enough prisons to house *all* the felony offenders who may pose a serious risk to society. At present, about 10 percent of all arrestees, 20 percent of all convictees, and 40 percent of all felony convictees are imprisoned (Boland and Brady, 1985). According to the Executive Director of the American Correctional Association, that level of imprisonment cost the nation $7.2 billion in 1984—an increase of $1.2 billion over 1983 and an all-time historic high. Economists estimate that each new offender sentenced to prison costs the taxpayers $23,000 per year in operational and construction costs (Funke, 1985). A total of 490,000 offenders are now imprisoned; an increase of as little as 5 percent in the number of offenders sentenced would cost the corrections system an additional $560 million per year—and 50 percent of convicted offenders would still have to be given a sentence other than prison. At present in most states, probation is the only alternative.

Intermediate sanctions, such as the intensive community supervision programs that some states are testing, are attempts to reduce recidivism rates for offenders similar to those in our study. If such sanctions are shown to be successful in this, they could be used to incapacitate offenders for a lower cost than the costs of building and operating enough prisons to hold them. Although intensive community supervision costs more per offender than probation supervision does, if it resulted in lower recidivism rates, some of the total system costs generated by reprocessing probation and parole failures could be recaptured. And whatever negative effects may be associated with imprisonment could be avoided.

ORGANIZATION OF THE REPORT

In Section II, we discuss prior research on these issues, explore the methodological problems that have made the results ambiguous, and

explain our method and data. Section III presents the descriptive find-
ings for our matched sample of prisoners and probationers and suggests
why we needed to impose further statistical controls to analyze the
relationship between recidivism and imprisonment and time served. In
Section IV, we present the results of these analyses, their limitations,
and their implications for policy. Section V describes the analysis used
to establish the incapacitation (crime reduction) effects and costs of
imprisonment, relative to probation. Finally, in Section VI, we discuss
our analytical findings as they relate to policy and suggest areas for
additional research.

II. METHODOLOGY AND DATA FOR MEASURING THE RELATIVE EFFECTS OF SANCTIONS

THE METHODOLOGICAL PROBLEM

Arguments about the merits of sanctions usually center on the relationship between a given sanction and recidivism. For example, the least complex way of measuring how effectively probation or prison rehabilitates offenders is to look at recidivism rates. However, simply comparing those rates does not necessarily establish the relative effectiveness of the sanctions. Most previous research in this area has compared the recidivism rates of all released prisoners with the recidivism rates of all probationers, for particular time periods and/or geographical locations. Generally—and not surprisingly—the probationers' recidivism rates are lower, usually around 25 percent, compared with prisoner recidivism rates of around 60 percent.[1] Thus, most studies have concluded that imprisonment is less successful at rehabilitation and may even increase the probability of recidivism. But the conclusion rests on flawed logic and methodology.

Our earlier study of felony probation (Petersilia et al., 1985) showed that many of the same factors that correlate with receiving a prison sentence also correlate with recidivism. That is, people go to prison because they are serious criminals, and they return to crime for the same reason. However, these correlations do not lead to the conclusion that having been in prison makes criminals more likely to commit crimes when they get out. That, in logical terms, is a *post hoc* fallacy and reveals the methodological flaw in comparing all prisoners with all probationers.

There are basic differences between probationers and prisoners, as groups, differences that certainly influence recidivism. Consequently, analyses that attempt to determine how the type of sentence influences recidivism must somehow control for the effects of those differences.

True experiments involve random assignment of subjects to experimental and control conditions, to assure that the observed results are

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[1]For reviews of such studies see Allen et al., 1979; Gottfredson et al., 1973; Babst and Mannering, 1965; and Lipton et al., 1975. An exception to the finding that probationers have lower recidivism rates than prisoners is reported by Murray and Cox (1979), who found that more intensive interventions (including institutional confinement) reduced the probability of recidivism for chronic juvenile offenders.

due to the manipulated variables, rather than to systematically biasing factors. Selection of experimental or control-group membership on the basis of chance is expected to ensure that in the long run all relevant characteristics are evenly distributed across groups. (For a complete discussion of these methodological considerations, see Rezmovic, 1979). For the present study, an experimental design would have required randomly assigning offenders to prison or probation sentences, to guarantee that factors we have not identified or cannot discover are not systematically influencing the prison/probation decision.

Despite their scientific attractiveness, randomized experiments are seldom used in criminal justice research. Arguments against them are usually based on the ethical imperative of delivering the most effective treatment or service available to every client. Criminal justice practitioners generally believe that they "know" intuitively what the appropriate treatment is, without having to rely on research. Therefore, denying the appropriate treatment to any client, when such treatment is actually available and when the criminal justice system has the legal responsibility to provide it, causes ethical concerns. In the case of something as important as the prison/probation decision, legal and ethical considerations make it very difficult to conduct random experiments.

STUDY DATA AND BASIC METHODOLOGY

Since we were unable to perform a full-fledged experiment, we used a quasi-experimental design that incorporates matching and statistical controls to construct a sample of prisoners and probationers who were comparable (in terms of county of conviction, offense type, and risk of imprisonment), except that some went to prison while others were placed on probation. This design requires a database that includes:

- Comprehensive information on both prisoners and probationers.
- Large samples.
- Offenders whose conviction crimes, criminal records, and other characteristics could cause them to receive either a prison or a probation sentence.

Our earlier study of felony probation provided the necessary data to construct such comparable groups. One of the major research objectives of the earlier study was to document the factors associated with being given a prison rather than a probation sentence for offenders convicted of the same felony offense in California Superior Court in 1980. For that analysis, we used data provided us by the California

Youth and Corrections Agency (YACA) on all offenders sentenced to prison in 1980 and on a sample of approximately 6,000 adult males who were sentenced to probation following convictions for certain felonies. From these data, we constructed a database that represented approximately 16,500 males convicted in Superior Court in the largest 17 counties in California of robbery, assault, burglary, larceny/theft, forgery, or drug sale/possession. We selected these crimes, because, by law, offenders convicted of them may be sentenced to either prison or probation.

For each offender, our database contained over 200 items, including the following:[2]

- *Personal characteristics:* age, race, sex, employment, juvenile and adult criminal history, drug and alcohol use.
- *Important aspects of the case:* number of charges, number of codefendants, weapon used, injury inflicted, number of victims, relationship of offender to victims.
- *Final outcome:* conviction charges and type and length of sentence.

With this database, we developed statistical models of the prison/probation decision for each of the six crimes. On the basis of these models, each offender was assigned a score reflecting his predicted probability of imprisonment.[3] We found that about one-fourth of the prisoners and probationers received sentences that were at odds with their "statistically predicted" sentences, suggesting that similar offenders may sometimes receive different sentences. Judges have a great deal of discretion in imposing sentences, and researchers have found that in jurisdiction after jurisdiction, sentencing can be described as disparate or, at best, inconsistent. These findings suggest that, in terms of their crimes or criminal records, many felony probationers cannot be distinguished from their counterparts who went to prison.[4]

A second important goal of our earlier study was to document the recidivism behavior of a sample of probationers in Los Angeles and Alameda counties. We tracked 672 felony offenders who had been sentenced to probation in these two counties, coded their arrests, subsequent filings, convictions, and incarcerations, and developed models

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[2]For more detailed discussion of the database and the information it contains, see Petersilia et al., 1985.

[3]These scores were the predicted scores from ordinary least squares (OLS) regression models of the decision to imprison, developed for each of the six offenses.

[4]Of course, it can be argued that these inconsistencies resulted from information the judges had about the offenders that was not reflected in the data to which we had access.

that predicted several measures of recidivism.[5] It should be noted, however, that no truly effective means of predicting recidivism are currently available, and consequently this must be taken into consideration.

METHODOLOGY: MATCHING PRISONERS AND PROBATIONERS

Our first task was to attempt to match the tracked 672 probationers with prisoners who resembled as closely as possible the probationers at the time of sentencing. Two matching variables are obvious: the county of conviction and conviction offense type. These variables would help assure that we had controlled for any differences due to county prosecution and supervision strategies, as well as some differences due to offender types. We chose a variable reflecting the risk of imprisonment as our third and final matching variable.[6] As discussed earlier, each of the 672 probationers had a probability-of-imprisonment score that reflected his likelihood of receiving a prison sentence. Some probationers had relatively high probabilities of receiving prison sentences, while others had fairly low probabilities. To simplify our matching procedure, the probability-of-imprisonment scores were divided into three categories: low, moderate, and high.[7]

The three dimensions yielded 30 (2 counties × 5 offense types[8] × 3 probability of imprisonment) subgroups of probationers. Our next task was to match the probationers in each subgroup with the same number of prisoners.

The pool of potential prisoner matches consisted of over 3,000 male prisoners sentenced in 1980 in Alameda and Los Angeles counties for the same five offenses for which the probationers were sentenced. We wanted to ensure that we had 24 months of post-release behavior for follow-up study, so we further required the prisoners to have been released prior to July 1, 1982.[9] This requirement reduced the potential

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[5]Our first study weighted the 672 offenders to reflect a representative sample of 1,672 in Los Angeles and Alameda counties.

[6]This third matching variable is similar to the "propensity score" discussed by Rosenbaum and Rubin (1985). The score predicted by OLS regression summarizes in a single measure the set of factors predicting the prison/probation decision.

[7]This collapsing was based on the distribution of predicted scores from OLS regressions for prisoners and probationers within each of the six offense categories in our 17-county database.

[8]None of the 672 probationers had been convicted of forgery.

[9]We collected official criminal record ("rap sheet") data for the prisoners during summer 1984.

pool to approximately 2,000 prisoners, among whom we tried to find matches for the probationers in each of the 30 subgroups we defined.

We were unable to find the same number of prisoners as probationers for each of the 30 subgroups (in some groups, we had many more prisoners than we needed).[10] The matching exercise produced a study sample of 1,022 offenders (511 each of probationers and prisoners). The sample had the following characteristics:[11]

- Roughly 25 percent of the offenders were convicted in Alameda County, the remainder in Los Angeles County.
- 324 of the offenders had been convicted of violent crimes (robbery or assault), 438 of property crimes (burglary or theft), and 260 of drug sale/possession.
- 430 had low probability-of-imprisonment scores; 384 had moderate scores; and 208 had high scores.

The characteristics of this sample may raise questions about the generalizability of the results. The matching requirement produced a group of probationers who are more serious offenders than probationers in general and a group of prisoners who are less serious offenders than prisoners in general. However, these are the very offenders who are most problematic for the system. They are not so serious that prison is the only appropriate sanction for them, under current sentencing objectives. Yet they cannot be dismissed as minor offenders who present no threat of recidivism on probation. Our matched prisoners and probationers could be considered representative of the most serious offenders on probation and the least serious offenders sentenced to prison from Los Angeles and Alameda counties (see Fig. 2.1).

In addition, it must be noted that Los Angeles and Alameda are not typical of California counties; they have larger populations and operate with less adequate resources than most other counties. They were selected because they sentence nearly half of all California offenders. Counties with fewer serious offenders in their conviction populations or with more resources might have lower recidivism rates than those presented here.

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[10]In these cases, we randomly selected the prisoners to match the number of probationers. Property offenders without lengthy prior records seldom go to prison, so we had fewer possible matches for such probationers. In contrast, we had many more matches than we needed for probationers convicted of robbery. We retained only the probationers for whom we could find prisoner matches.

[11]Although we originally requested rap sheets for 521 offenders, we were unable to obtain records for 10 of them (three were deceased, five could not be located in the California Bureau of Criminal Statistics files, and two had records purged).
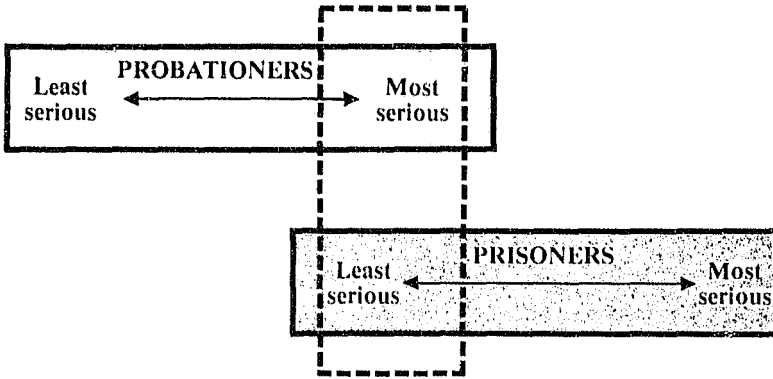
Fig. 2.1—Composition of sample obtained by matching
prisoners and probationers

How comparable were the prisoners and probationers at this stage? The means and proportions for the factors used to derive the probability-of-imprisonment score for *all* Alameda and Los Angeles prisoners and probationers (from the original study) and our matched sample of 1,022 prisoners and probationers are given in Appendix Tables A.1 and A.2. In general, the mean differences between prisoners and probationers were reduced through the matching; however, some significant differences do remain, and there is no assurance that the two groups have equal potential for recidivating. Our method for dealing with these differences is discussed below, in our analytic strategy.

MEASURING RECIDIVISM

We obtained information on each offender's behavior on probation or parole from his official criminal record, or rap sheet. (The rap sheets contain information about arrests and their dispositions in California; they do not usually contain information about out-of-state arrests.[12]) Based on that information, we analyzed arrests, filings, and

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[12]Our recidivism measures do not include crimes committed while the offender was incarcerated. Also, we did not code individual arrest events prior to the 1980 conviction, so we could not conduct "suppression-rate" recidivism analyses, as suggested by Maltz (1984). Finally, the 24-month follow-up period in this study differs from the 40-month follow-up period of the earlier study (Petersilia et al., 1985).

convictions for the first 24 months after each offender's release to the community.[13] Figure 2.2 shows the follow-up time frames for the two samples. The prisoners and probationers all received sentences in 1980. The estimated average jail term served by probationers was 3.3 months; the average prison term served by prisoners was 12.5 months.

Follow-up information included the total number of nonfiled arrests and, for filed charges, the date, charge type, final disposition (e.g., guilty, dismissed) and sentence (length, type).[14]
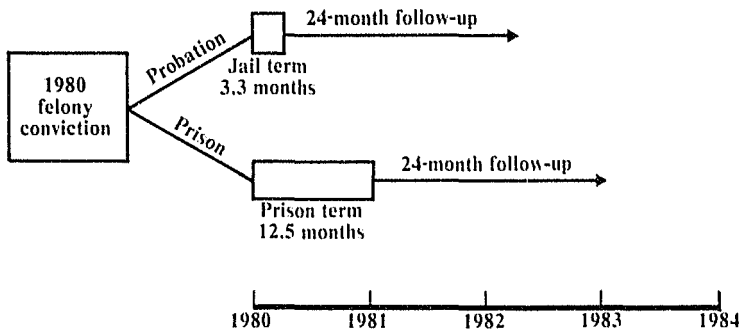
Fig. 2.2—Time frame for recidivism analysis

ANALYTIC STRATEGY

To make our inferences about the prison/probation decision as strong as possible, our analytic strategy went beyond simply using the matched sample of prisoners and probationers. First, small differences between the two groups in the characteristics associated with imprisonment remained, and we controlled for these in our models (see Appendix Table A.2). Second, we controlled for original county of conviction, because this may be an important factor in the processing of arrests, and also for age of offender at conviction (studies have consistently found offender age to be related to recidivism). Finally, we controlled

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[13]The rap sheets contained the prison release date for the prisoners. We estimated that probationers served one-half of their court-imposed jail term before release to the community. California rap sheets do not record information about the length of time spent in jail, only the sentence imposed. Using information from the Bureau of Criminal Statistics and other agencies dealing with offenders sentenced to jail, we estimated the average portion of jail term served to be 50 percent.

[14]Although we had information on the sentence length imposed for convictions occurring during the two-year follow-up, we did not have actual release dates for jail terms served. Therefore, we estimated post-release incarceration periods, using the procedures described in Section V.

for additional variables that are related to each of our recidivism measures, determined using stepwise regression.

We developed separate models for three major recidivism measures: any arrest, any filed charge, and any conviction for all offenders combined and for subgroups defined by original conviction offense type.[15] The steps we followed are summarized below:

1. We selected a study sample based on factors related to the imprisonment decision.
2. We statistically controlled for other known differences between the prisoners and probationers relating to the imprisonment decision.
3. We statistically controlled for county of original conviction and age at conviction.
4. We determined and statistically controlled for the effects of other available factors known to be related to recidivism for the sample.
5. Finally, we estimated how *going to prison* is related to recidivism, after the previous factors have been controlled for.

To measure the relationship between length of prison term actually served and recidivism, we included a final step:

6. For prisoners only, we tested the effect of the length of time served, controlling for the factors we identified in steps 1 through 4 above. We measured time served as the number of months served before first release from the 1980 prison term.

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[15]All of our models contain the same variables for the first three steps. The additional factors associated with particular recidivism measures and groups of offenders differ.

III. DESCRIPTIVE FINDINGS
FOR THE MATCHED SAMPLE OF
PROBATIONERS AND PRISONERS

This section describes some of the characteristics of the probationers and prisoners in our matched sample: their recidivism rates, the nature of their new crimes, and the time between their release into society and their return to crime.

COMPARATIVE CHARACTERISTICS OF THE MATCHED SAMPLE

Table 3.1 shows how closely we were able to match prisoners and probationers. The only appreciable differences among them are in their parole status and the percentage who knew their victims. About 5 percent more of the prisoners than the probationers were on parole at the time of their current arrest, and 4 percent more of the probationers than prisoners knew their victims. (Tables A.1 and A.2 present these characteristics for the entire Los Angeles and Alameda County samples, as well as our recidivism sample.)

Table 3.1

CHARACTERISTICS OF FINAL SAMPLE OF
PROBATIONERS AND PRISONERS[a]

Characteristic	Probationers (n = 511)	Prisoners (n = 511)
Number of prior adult convictions	3.2	3.7
Number of prior prison terms	0.2	0.4
Number of conviction counts	1.1	1.2
% on adult parole	4.8	9.0
% on juvenile parole	1.8	6.0
% who knew their victim	12.5	8.8
% causing serious injury	5.9	4.9
% armed with gun	8.2	9.6
% using weapons	19.3	17.4
% under drug influence during crime	4.4	4.7
% classified as drug addict	5.4	8.6
Average age at start of sentence	26.9	26.5

[a]The items in this table, with the exception of age, were shown to be associated with the prison/probation decision in California in Petersilia et al. (1985).

LENGTH OF TIME INCARCERATED

As mentioned earlier, felony probation usually involves serving some time in a local jail facility. The incarceration time served by the offenders in our sample is shown in Table 3.2. Nearly all of the probationers in the sample served some jail time, averaging an estimated 3.3 months. (These estimates are of post-conviction time served; they do not take into account pre-trial incarceration time.) The prisoners had an average incarceration time of 12.5 months.

Table 3.2

INCARCERATION TIME SERVED

(In months)

Original 1980 Conviction Crime	Probationers (jail time)	Prisoners
Violent crime	4.0	15.0
Property crime	3.3	10.6
Drug sale/possession	2.5	12.8
All offenders combined	3.3	12.5

NOTE: This table shows time actually served, not the length of imposed sentences. In California, prisoners typically serve two-thirds of their court-imposed sentences.

OVERALL RECIDIVISM RATES

Recidivism has no universally accepted definition among criminal justice researchers. It has been defined by some researchers as a new arrest, by others as a new conviction or a new sentence of imprisonment. To present as comprehensive a picture as possible, we therefore report measures for arrests, filed charges, convictions, incarcerations (jail or prison), and imprisonment.

The prisoners in our matched sample had higher recidivism rates than the probationers, across crime types and in the aggregate. Figures 3.1 through 3.4 present our findings for the total sample, and then for each offender type. Almost three-fourths of the prisoners were subsequently arrested, compared with about two-thirds of the probationers. The property crime prisoners *and probationers* had much higher rates than drug or even violent offenders on all recidivism measures. (Prior research has consistently found higher recidivism rates for property offenders than for violent offenders.)
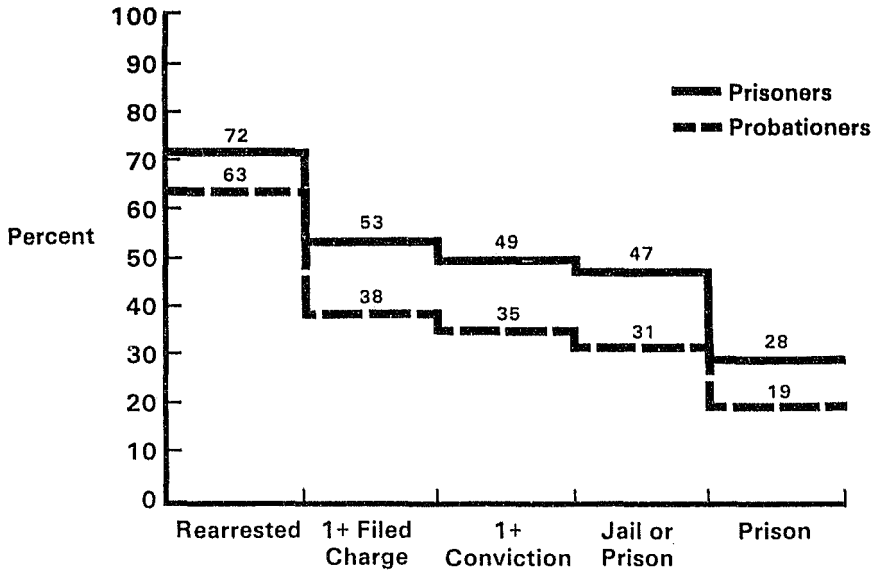
Fig. 3.1—Recidivism among probationers and matched prisoners:
total sample combined
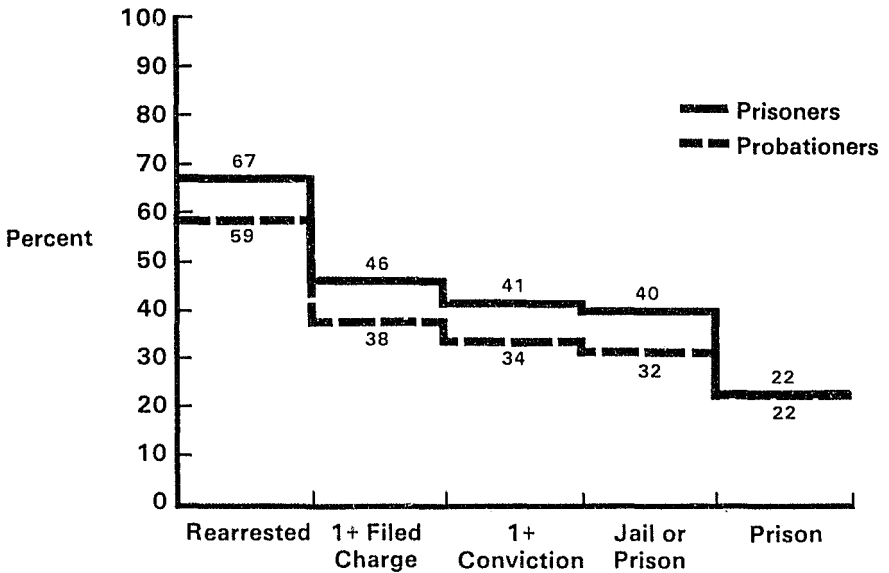
Fig. 3.2—Recidivism among probationers and matched prisoners:
violent offenders
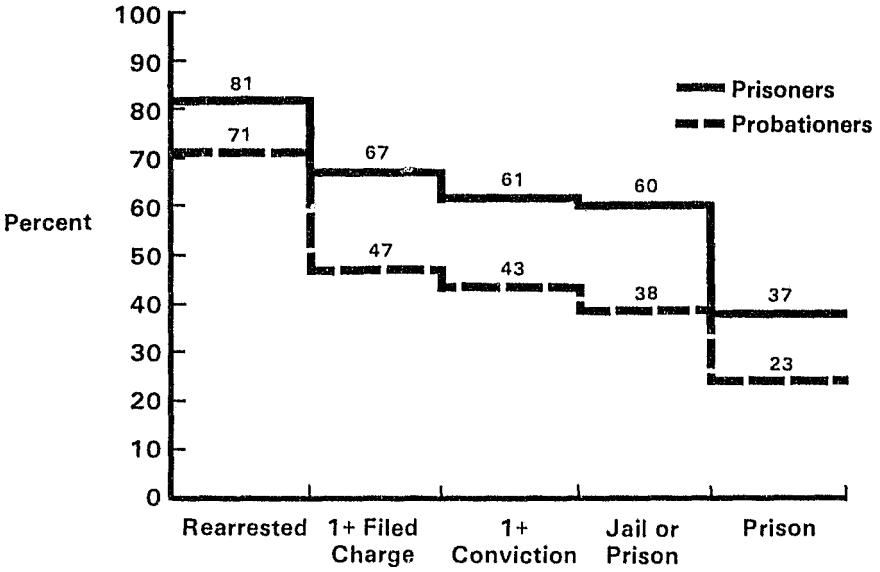
Fig. 3.3—Recidivism among probationers and matched prisoners:
property offenders
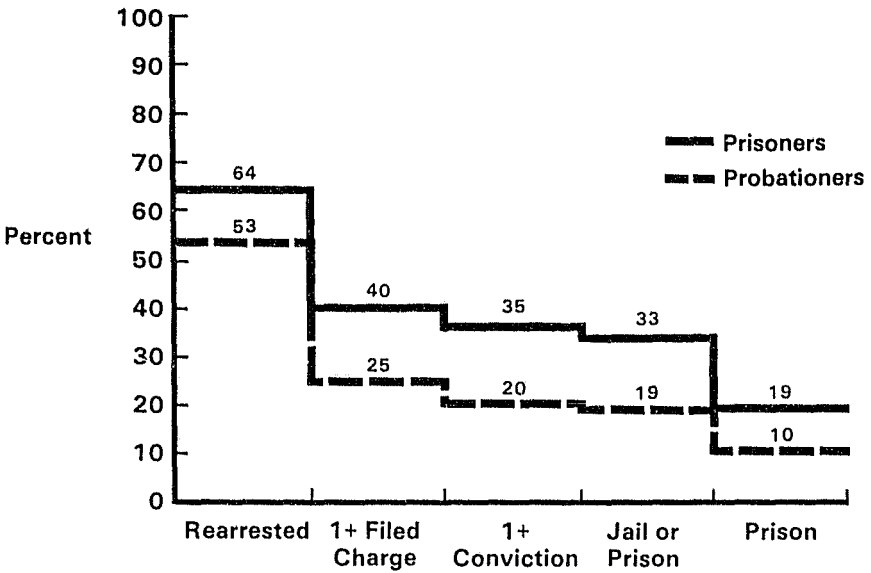
Fig. 3.4—Recidivism among probationers and matched prisoners:
drug offenders

NATURE OF NEW CHARGES FILED

The majority of both prisoners and probationers "failed" during the two-year follow-up period. Figure 3.5 shows the distribution of charges in each major crime class for both groups.[1] Over 1,300 charges were filed against the prisoners and probationers in our sample. The charges encompassed over 170 penal code violations, ranging from disturbing the peace to homicide. But it does not appear that the prisoners, as a group, were charged with more serious crimes than the probationers.

These findings suggest that the probationers and prisoners were generally similar in the kinds of crimes they committed. Probationers did not commit only minor crimes, and prisoners only serious crimes. However, in analyses not reported here, a higher percentage of prisoners than probationers had charges filed for property crimes, even though the number of offenders originally convicted of property crimes was the same in both groups. In Section IV, we look at these data more closely and examine whether "crime escalation" (i.e., progression to a more serious filed charge) is associated with imprisonment.
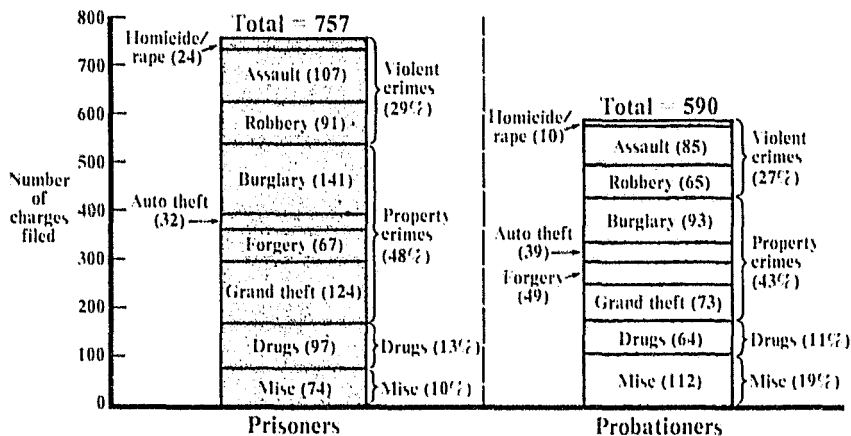
Fig. 3.5—New criminal charges filed on prisoners
and probationers: 24-month follow-up period

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[1]Miscellaneous crimes in Fig. 3.5 include disorderly conduct, resisting arrest, sexual perversion, and vandalism; drug crimes include possession, sale, transporting, and use.

TIME TO RECIDIVISM

The time it takes offenders to return to crime has important impli-
cations for comparing the relative merits of alternative sanctions. For
example, if prisoners return to crime at a faster rate than probationers
do, the benefits of incapacitation may be only temporary. Over an
extended period that includes incarceration and street time for both
probationers and prisoners, the prisoners may commit as much or more
crime than the probationers. Because we followed up each individual
in our sample after his release, we can measure that potential effect.

Figure 3.6 shows the time from release to first filed charge for the
prisoners and probationers in the sample.[2] We use first filed charge as
our measure here because filed charges appear to be a more realistic
indicator of actual criminal activity than arrests are.[3] The median
time to first filed charge for all offenders was about 6 months. After
about 6 months, a greater proportion of prisoners than probationers
have had charges filed against them. This is consistent with the differ-
ences in recidivism shown in Fig. 3.1. However, the magnitude of this
divergence for all offenders again reflects the relatively large difference
for property probationers and prisoners shown in Fig. 3.3. There is
less divergence among drug offenders and much less among violent
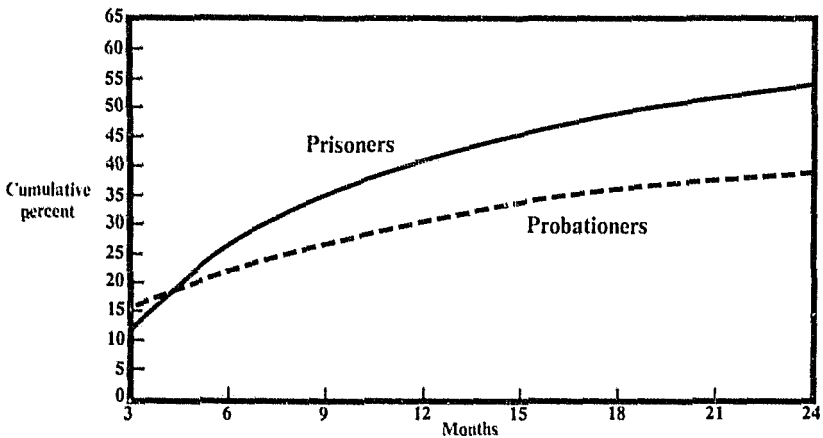
Fig. 3.6—Cumulative percentage of offenders with filed charges
during 24-month follow-up period: total sample combined

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[2]As noted in Section II, we had dates for filed charges only, not for charges that did
not result in filing.

[3]This issue is discussed more fully in Section VI.

offenders. From Fig. 3.6, we see that almost 80 percent of all prisoners and probationers who recidivated during our study period experienced their first filed charge within the first 12 months after release.

CONCLUSIONS

Our analysis shows that in our sample, prisoners have higher recidivism rates than probationers, but their new crimes do not appear more serious. Since efforts were made to closely match our prisoners and probationers, this might be interpreted to mean that something about imprisonment may have actually made them worse than they would have been if they had been given probation (previous studies have drawn that conclusion from even poorer evidence—i.e., from samples that were "unmatched"), but it does not necessarily follow. Our design does not enable us to choose among all the possible explanations of these differences; however, we have tried to eliminate some of them. For example, other factors that correlate with recidivism may be more prevalent among prisoners than probationers, and those factors, not imprisonment alone, may explain the differences between the two groups. In the next section, we describe analyses controlling for these differences.

IV. THE RELATIONSHIP BETWEEN IMPRISONMENT AND RECIDIVISM

To avoid confounding the effects of imprisonment with the effects of other factors known to correlate with recidivism, we used multivariate logistic regression analyses. That is, we used statistical methods to estimate how strongly imprisonment is associated with recidivism, *holding the other known major factors constant.* For each of our recidivism measures and for our different offender groups, we statistically controlled for the factors identified on p. 14.

EFFECT OF IMPRISONMENT RELATIVE TO PROBATION

Figures 4.1 through 4.3 present summary results of our analysis of the relationship between imprisonment and recidivism. (Detailed model results are presented in Appendix Tables A.3 through A.6.) These figures show the estimated probability of a new arrest, new filed charge, and new conviction for prisoners and probationers.[1] In terms of subsequent arrests, any filed charges, and any convictions, serving prison time was associated with a higher probability of recidivism across crime types and for each measure; however, it is statistically significant for only 4 of the 12 comparisons in Figs. 4.1 through 4.3.

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[1]Using logistic models, the percentage increase associated with imprisonment is not a constant. The estimate depends upon the particular values associated with the individual factors in the model. Figures 4.1 through 4.3 present the estimated effect of imprisonment evaluated at the average probability of recidivism for the probationers, assuming everything else is constant. Estimates of the increased probability of recidivism can be calculated at other than the average probationer recidivism rate. To calculate the prisoner probability, the probationer probability is converted to odds and the log is taken. The logistic regression beta coefficient is added to this and the sum is then exponentiated (base e) to convert to the new odds for prisoners, which are then translated back into a probability. For example, the following table shows the probability of having a new filed charge for property probationers and prisoners at differing probabilities (using the beta coefficient of 0.712 from Table A.5):

Probationer probability of new filed charge	Probability for an otherwise identical prisoner
0.10	0.18
0.25	0.49
0.50	0.67
0.75	0.86
0.90	0.95
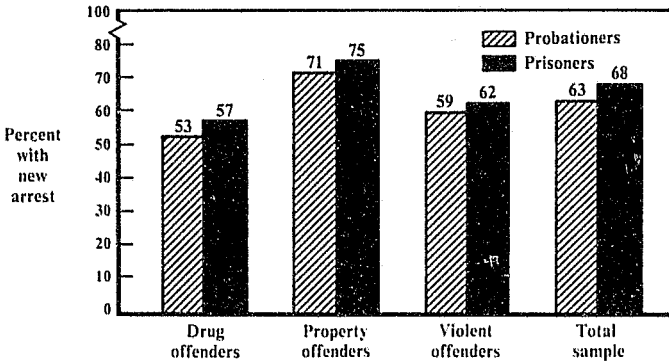
Fig. 4.1—Estimated probability of new arrest for probationers and prisoners (with statistical controls)
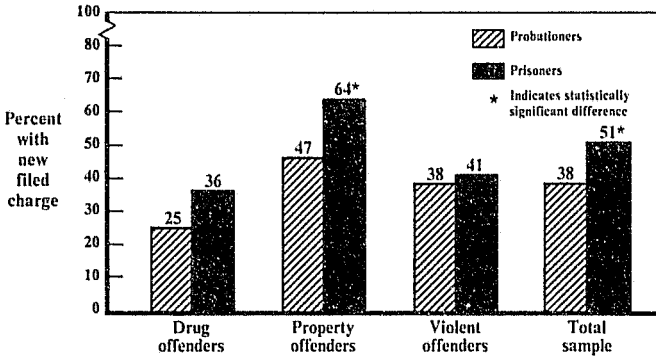
Fig. 4.2—Estimated probability of new filed charge for probationers and prisoners (with statistical controls)
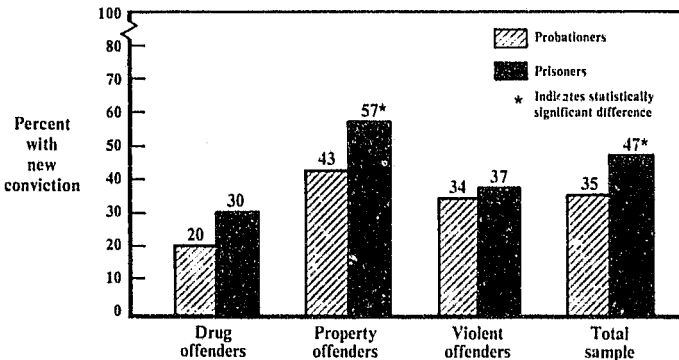
Fig. 4.3—Estimated probability of new conviction for probationers and prisoners (with statistical controls)

Imprisonment is not significantly associated with an increase in the probability of arrest for any offender category. It is associated with increased probabilities of new filed charges and new convictions for property offenders. Because property offenders comprise the bulk of the sample, they drive the significant relationship between imprisonment and new filed charges and convictions for the total sample group. Drug offenders who have been imprisoned are about 10 percent more likely to have a new filed charge and conviction than otherwise similar probationers. However, the effects do not reach statistical significance. As the figures show, imprisonment is not associated with a significant increase in any recidivism measure for violent offenders.

If imprisonment is associated with a higher probability of recidivism, especially for property offenders, an obvious concern is whether prisoners are more likely than probationers to escalate to more serious crimes after release.

For this analysis, we ranked our offenders' subsequent filed charges from most serious to least serious: violent, property, drug, and other. We then determined whether the offender had any filed charge that was more serious than his original conviction offense. We excluded violent offenders because, by definition, they could not have a more serious filed charge than their original offense. We found no evidence that our sampled prisoners were more likely than similar probationers to have more serious filed charges. (Results of this analysis are presented in columns 5 and 6 of Tables A.3, A.5, and A.6.)

RECIDIVISM AND LENGTH OF PRISON TERM

Prison overcrowding has generated renewed interest in the relationship between length of time served and recidivism—especially the possibility that shorter terms may deter as effectively as longer terms. We wanted to see whether the relatively higher recidivism rates among our prison sample were related to how long an offender served.

More serious offenders (who also have a higher risk of recidivism) are likely to get (and serve) longer sentences, and less serious offenders are likely to get and serve shorter terms. If this selection is based on factors not controlled in our samples, then comparative analysis of recidivism behavior may test the risk classification rather than the effects of time served.[2]

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[2]Prior research has generally indicated that the length of time served is unrelated to recidivism. (See Austin, 1986; Beck and Hoffman, 1976; Jaman, 1968; Babst et al., 1972; Berecochea et al., 1973; Jaman et al., 1972; Gottfredson et al., 1973.)

In this analysis, we did not match prisoners on the basis of length of terms; we relied solely on statistical controls, using regression analyses. (The results are correspondingly more tentative.) Our prison offenders served an average of 12 months, and our estimates of the effects of time served are applicable for this group only. This may not be the most relevant study group for more general policy questions, since these are the least serious offenders sentenced to prison, and they serve relatively short terms.[3] Selective incapacitation strategies, which target high-risk offenders, may be much more applicable to offenders serving longer terms than to our sample of prisoners. However, our data may be useful for examining less serious offenders sentenced to prison.

To test the effect of time served, we used the models we developed for assessing the effects of prison versus probation on recidivism. We tested the effect of time served as a continuous variable representing the number of months the prisoner served before first release.[4] (Full model results are given in Tables A.7 through A.10.) Table 4.1 presents a summary of our estimates, evaluated at the average recidivism rate,[5] of the decrease in the probability of recidivism for each additional month of time served in prison. Our results suggest that serving longer terms slightly decreased the probability of recidivism for the total sample. Within offender groups, however, the decrease was

Table 4.1

DECREASE IN RECIDIVISM FOR EACH MONTH SERVED
IN PRISON

(In percent)

Original Conviction Crime	Rearrest	Filed Charge	Conviction
Drug sale/possession	−1.8	−3.1[a]	−2.8[a]
Property crime	−0.9	−0.8	−1.1
Violent crime	−0.8	−1.8	−1.9
Total sample	−1.1[a]	−1.8[a]	−1.8[a]

[a]Beta coefficient statistically different from zero, $p < .05$.

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[3]The median time served by male felons discharged in 1980 was 26 months (YACA, 1985).

[4]We also tested the effect of time served, using time intervals of less than 9 months, 9 to 17 months, and 18 or more months. Results using these "dummy" categories were consistent with the results using the continuous variable.

[5]The estimates control for factors related to imprisonment, county, and age, and additional factors related to recidivism.

statistically significant only for drug offenders. Thus, whatever is causing the association between prison and recidivism, it does not appear to be exacerbated by longer time served. In fact, the probabilities are in the other direction.

CONCLUSIONS

For most of our sample, imprisonment is associated with an increased probability of recidivism, particularly for property offenders. However, this effect does not appear to be explained by length of time served. Our analysis suggests that longer prison sentences are associated with decreased recidivism, particularly for drug offenders. These findings are consistent with our descriptive findings.

We cannot explain why imprisonment is significantly related to recidivism only for property offenders—historically, the most criminally active offenders and thus those with the highest recidivism rates. However, we can suggest several reasons why longer imprisonment may slightly decrease the probability of recidivism for drug offenders.[6]

First, drug traffickers depend on a network of contacts, and most drug offenders who get prison sentences are traffickers, not simply users. Imprisonment cuts them out of that network, and it may take longer than our follow-up period for them to get "connected" again. Second, if their trafficking was largely motivated by their own drug use (8.6 percent of the prisoners in our sample were drug addicts), they may not go back to trafficking if they "kick" their habit while in prison. Third, drug offenders may simply be better at weighing the "opportunity costs" of crime—that is, they may decide that they have better things to do with their time than spend it in prison and decide not to return to crime after they are released. Finally, because the probability of arrest is so low for drug offenses (it is estimated to be less than 1 percent), these offenders may simply take longer to show up on official arrest records.

PROPORTION OF VARIANCE EXPLAINED

Knowing whether an offender served time in prison or knowing the actual length of time he spent adds little to our ability to correctly predict whether he will recidivate. As has been shown in other

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[6]Other studies have also found a negative relationship between time served and recidivism for drug offenders (see Gottfredson et al., 1973; Berecochea et al., 1973).

research, statistical models have been able to predict recidivism with an accuracy only about 20 percent above chance.

Our results are consistent with these earlier findings. The proportion of variance that our statistical models explain varies from about 0.17 to 0.30 (depending on offender type and outcome measure used). Knowing whether the offender served a prison term or how long he served explained only 1 or 2 percent of the variance in our recidivism measures. That is, all of the factors we controlled for explained only a small proportion (about 20 percent) of the "recidivism effect." The remaining 80 percent is "unexplained variation." Clearly, recidivism rates have much more to do with factors other than whether the offender was or was not imprisoned or how long he spent in prison. *Therefore, our results must be interpreted cautiously as guides for corrections policy.*

In sum, while we cannot provide definitive evidence about the relative merits of prison and probation as sanctions, our data and analytic methods do enable us to provide more solid estimates of criminal behavior after those sanctions have been applied. We turn next to the implications of these findings for public safety and economic costs.

V. THE COSTS AND INCAPACITATION BENEFITS OF IMPRISONMENT

The tendency of most jurisdictions to view incapacitation as the primary objective of prison sentencing may reflect a pragmatic recognition that prisons neither rehabilitate most prisoners nor deter them from committing new crimes after release. Given the public pressure to incapacitate criminals, policymakers have had little incentive to question what felons do after they are released from prison.

Nevertheless, criminal activity after imprisonment is an issue of continuing concern in criminal justice research and policy discussions. If prisoners are going to "make up for lost time" by committing crimes at a much higher rate after they are released, locking them up will not serve the public as well as it might appear to in the short term. Society may exchange a higher future price in street crime for the immediate incapacitation effect. Sentencing policy cannot afford to ignore that possibility. The ultimate value of incapacitation can be measured only over an extended period of time, which includes, of course, the time spent in prison.

Present circumstances also raise another question concerning the incapacitation effect: How much crime does imprisonment actually prevent and at what financial cost? Neither factor is simple to estimate. Moreover, there are other kinds of costs and benefits that cannot be readily quantified but must not be ignored—most important, the potential costs to people who might have become crime victims if certain offenders were not incapacitated.[1] Because the prisoners and probationers in this study were matched on the basis of criminal seriousness, their post-release behavior provides a reasonable basis for preliminary estimates of the more readily quantifiable benefits and costs of incapacitation.

ESTIMATING AND COMPARING CRIMES COMMITTED

Ideally, incapacitation effects should be calculated using the actual crime commission rates for the sample. It is well known that most crimes do not end in an arrest, and therefore, official criminal records do not provide an accurate picture of offenders' total criminal activity.

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[1]For more comprehensive discussions of the social and system costs of crime, see Zedlewski, 1985; Greer, 1986; Haynes and Larsen, 1984; Funke, 1982, 1985.

Our data likewise do not provide information on *actual* crimes committed by the offenders in our sample but are limited to officially recorded arrests. We estimated post-release crime rates based on officially recorded data for each group for the three years following their original 1980 sentence (see Fig. 5.1).

The steps we followed are summarized below:[2]

1. We calculated how many arrests resulting in filed charges each offender had during the 24 months after release from jail or prison.
2. We estimated the total number of arrests, based on the assumption that only 40 percent of arrests result in filed charges.
3. We estimated the total annualized arrest rate for offenders (total arrests divided by 2 (years)).
4. We estimated the number of post-release days offenders spent incarcerated.
5. We estimated the number of crimes committed by each offender during a three-year period.
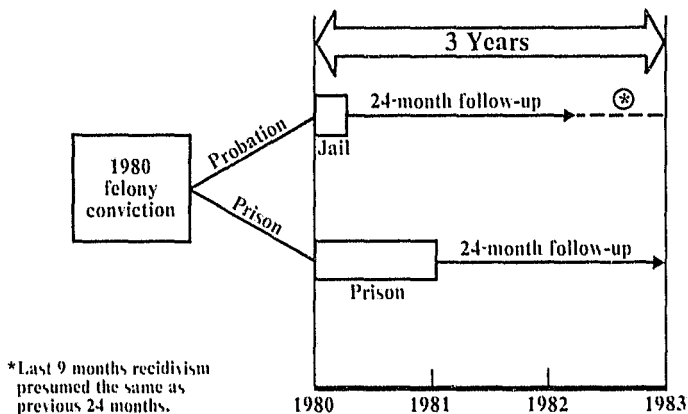
Fig. 5.1—Time frame for incapacitation and cost analysis

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[2]All steps except the first used estimates derived from other sources. The probability of arrest given crime commission was estimated to be 0.10 (from Blumstein and Cohen, 1978; and Peterson et al., 1980). The probability of filing, given arrest, was estimated to be 0.40 (Bureau of Criminal Statistics, 1984).

Steps 1 through 3 produced average annualized post-release arrest rates of 1.08 for prisoners and 0.98 for probationers.

Step 4 was fairly complicated. We assumed that any offenders who continue to commit crimes and get arrested have some probability of being incarcerated. Thus, after release from their initial placement, offenders can be expected to spend some time incarcerated. We could not determine how much time they would be incarcerated, but we could estimate the average fraction of time an offender would be free to commit crime (F), using the following equation (Shinnar and Shinnar, 1975):

$$F = \frac{1}{(1 + LqJS)}$$

where L = the number of crimes committed per year,
$\quad q$ = the probability of arrest and conviction for each crime,
$\quad J$ = the probability of being incarcerated, given conviction,
$\quad S$ = the average time served.

The product qJS is the average time served for each crime committed. It reflects the efficiency and severity of the criminal justice system in convicting and sentencing offenders. The actual number of crimes per year that an offender with offense rate L will commit if he is free F percent of the time is

$$C = FL$$

We must estimate F, the percent of time each offender will be free after his release from initial placement until the end of the three-year period. To do this, we need to make assumptions about the above parameters. We estimated the average time served by our offenders for each post-release arrest, JS, based on the experiences of all adult offenders in California in 1983.[3] This estimate was derived by dividing the total number of days served by adults in jails and prisons for 1983 (82,000 persons times 365 days) by the number of adult arrests. The result was 20 days served per arrest. We did not know the value of Lq, but we could use our estimate of the arrest rate (1.08 for prisoners and 0.98 for probationers) as a proxy.

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[3]Our estimates of F use arrest rates and time served for arrests, as opposed to offense rates and time served for each incarceration (defined in the equation above).

Using these figures, we estimated that prisoners would be free approximately 94 percent of the time between their release from prison and the end of the three-year study period, whereas probationers would be free 95 percent of the time. The remaining time would be spent incarcerated. Because the average post-release time during our three-year period was 23.5 months for prisoners (36 months minus 12.5 months of incarceration) and 32.7 months for probationers (36 months minus 3.3 months), we estimated that the prisoners had 43 days of additional post-placement incarceration (6 percent of 23.5 months), and the probationers had 50 additional incarceration days (5 percent of 32.7 months).

We then estimated the number of crimes committed per year by the average prisoner and probationer during the three-year period by multiplying the arrest rate by 10.[4] This yielded the number of crimes that would have been committed per year if the offender had been on the street the whole time (10.8 per prisoner and 9.8 per probationer). But because our prisoners and probationers were not on the street the full three years, we needed to subtract the time spent in their initial placement along with the estimated number of post-release incarceration days. This gave an average street time for each prisoner of 22.1 months and an average street time for probationers of 31.1 months. We then multiplied the estimated months free during the three-year period by the offense rate. This yielded an estimated 20 crimes per prisoner and 25 crimes per probationer (see Fig. 5.2).
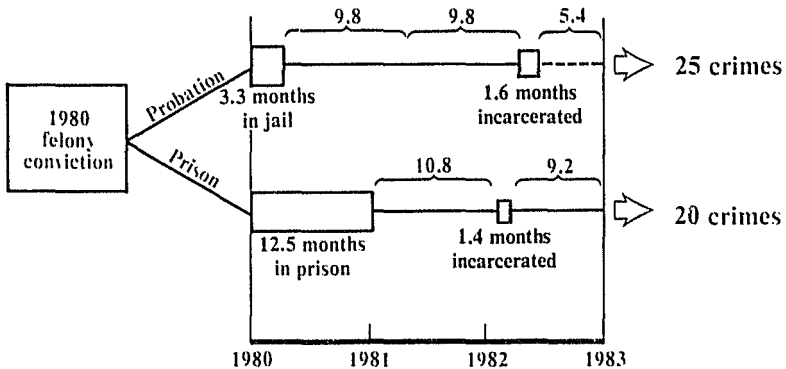
Fig. 5.2—Estimated crimes committed in three years
following conviction

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[4]See footnote 2 on p. 29.

These estimates indicate that society definitely benefited from having the prisoners incarcerated an average of nine months longer than the probationers. The prisoners committed an estimated 20 percent fewer crimes than the probationers during the three-year period following their 1980 sentencing.

ASSESSING THE COST OF INCAPACITATION

Despite the association between imprisonment and higher recidivism rates, the incapacitation due to confinement resulted in a 20 percent reduction in street crime over the three-year period. But what did this incapacitation effect cost, and how much more would it cost to increase the effect by imprisoning the more serious of those offenders who are now being placed on probation?

To answer those questions, it is necessary to know the costs per offender for a given reduction in crime. These costs consist of much more than the relative costs per day for imprisonment and jail-plus-probation supervision (the figures most often cited in policy and budget discussions of sentencing). The secondary costs of both sanctions include at least the following:[5]

1. Correctional costs of prison and probation.
2. Costs of post-release supervision.
3. Costs of processing post-release arrests.
4. Costs of post-release incarceration.

Costs for different sanctions vary enormously. Annual costs for keeping an adult offender in state prisons range from $5,000 to $23,000; nonfederal probation or parole costs range from $220 to $1,700 (Clear and Cole, 1986). We used a figure of $15,000 for the average yearly cost to keep an offender in prison, $8,000 for jail, $1,300 for parole supervision, and $650 for probation. We assumed that prisoners would be supervised on parole for one year after release and probationers would be supervised for two years. Our estimated daily cost of post-release incarcerations reflects an even mixture of prison and jail costs (one-half the cost of a prison day and one-half the cost of a jail day, or $31). Finally, we estimated that the average cost of processing a post-release arrest was $2,554.[6]

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[5]In addition, there are social costs of crime involved in dealing with the harm to victims and society's response to crime. Some of these social costs have been outlined by others, including Zedlewski (1985).

[6]These estimates come from a variety of sources. The jail, probation, and parole costs were drawn from Bureau of Justice Statistics, 1983; and Funke, 1985. The prison cost was drawn from a 1985 speech by Tony Travisiano, Executive Director of the American

The estimated total costs during the three-year period were obtained by summing these four component costs. We did not attempt to assign dollar values to the suffering and damage inflicted on victims, the taxes paid by probationers who are working, the welfare funds used to support prisoner families, etc. These elements are likely to be substantial, however, so our cost picture will be necessarily incomplete. Even so, we believe our data quantify the most obvious of the economic costs incurred and thereby contribute new and useful information to the debate over prison versus probation sentencing.

Table 5.1 presents the parameters used to estimate the costs, and Fig. 5.3 presents the cost estimates (calculated as the daily costs times the average number of days). California felony probation sentences are more expensive, both absolutely and relative to prison, than has previously been assumed, but prison sentences also cost more than is commonly assumed. Over the three-year period considered in this study, the system paid twice as much ($12,000 more) for each prisoner than for each probationer. For this greater expense, society realized an estimated 20 percent reduction in crime. While $12,000 per offender is not a trivial amount, the benefits that we cannot quantify may be considered by some to be worth the $2,000+ expense for each crime that would be prevented by sending the felony probationers to prison as

Table 5.1

PARAMETERS USED TO ESTIMATE COSTS

Parameter	Prisoners	Felony Probationers
Cost per day for initial incarceration	$41	$22 (jail)
Average length of stay	380 days	100 days
Cost per day for post-incarceration supervision	$3.60[a]	$1.80[b]
Average length of post-incarceration supervision	365 days	730 days
Average cost for processing each post-release arrest	$2554	$2554
Average number post-release arrests	2.0	2.5
Average cost per day post-release incarceration	$31	$31
Average number post-release incarceration days	43	50

[a]Parole supervision.
[b]Probation supervision.

Correctional Association. The number of days offenders would be supervised on probation or parole was calculated directly from our data. The cost of processing post-release arrests was based on data from Haynes and Larsen, 1984.
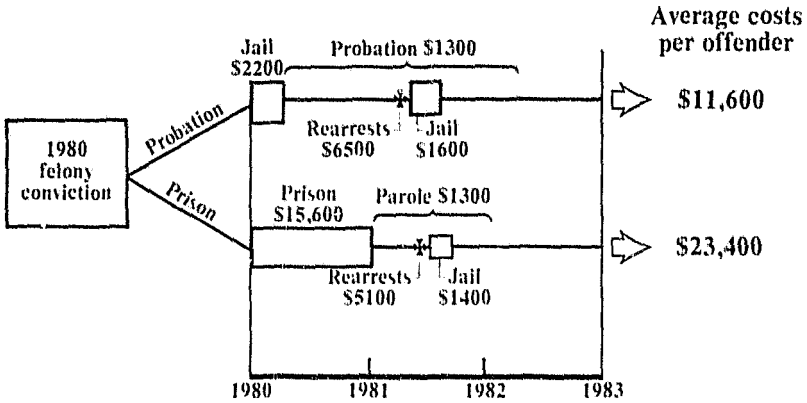
Fig. 5.3—Estimated average costs for prisoners and felony probationers
in Los Angeles and Alameda counties, California

well. However, as the next section will show, the costs would actually
be higher than that when prison construction costs are figured in.

As with the recidivism results, we caution against overgeneralizing
these cost estimates. The figures were generated from data on adult
felony probationers in two urban California counties. The offenders
had high recidivism rates, which drove their "reprocessing" costs up
considerably. The cost of supervising lower-risk probationers (e.g.,
juveniles, misdemeanants, or adult probationers with higher success
rates) might be quite different.

VI. THE DEBATE OVER SANCTIONS: PRISON VS. PROBATION

Our purpose in this study was to explore means for judging how well imprisonment meets the objectives of deterrence and incapacitation and at what cost. Our findings suggest that the only objective imprisonment meets unequivocally in California is incapacitation, but the costs to the criminal justice system are considerable, both absolutely and relative to the costs of probation. Additional alternatives for incapacitating some felons might provide a greater return in public safety. These results not only reinforce the current interest in reducing the costs of imprisonment, they also lead us to suggest the need for more effective control of felons outside of prison. The results also suggest the possibility of using longer time in prison for selected offenders.

STUDY FINDINGS

Our study findings are suggestive rather than definitive. For the reasons discussed in Section II, we could not use an experimental design, which would have allowed us to select among competing hypotheses about the causes of the recidivism rates we observed. Also, we have relied on *estimates* of crime rates based on official record data. If any bias makes the system more likely to record events for one group than another, those biases will be reflected in our analyses as well. Finally, as was true for our earlier study of felony probation, the California counties involved may not be typical of jurisdictions nationally. Nevertheless, we believe that our findings, summarized below, may be applicable to other jurisdictions that have large numbers of offenders similar to those in our sample:

- Both prisoners and felony probationers in our sample had high rates of return to criminal activity.
- After controlling for the known factors associated with both prison sentencing and recidivism, we found that across offender types and recidivism measures, imprisonment was associated with a higher probability of recidivism than was probation.
- For property offenders, the increased probability was statistically significant: The prisoners were 17 percent more likely than the probationers to have a new filed charge, and 14 percent more likely to have a new conviction.

- During the three-year study period, the prisoners, who served an average of 12.5 months in prison, committed an estimated 20 percent less crime than the probationers, who served an average of 3.3 months in local jails.
- The incapacitation effect for the prisoners is nontrivial, and public safety is clearly served by incapacitating these offenders.
- In terms of extended effects (i.e., post-release arrests, convictions, and incarcerations) and total system resources, both prison and probation are more expensive than has previously been assumed, and the cost difference between the two sanctions is smaller than previously assumed. Our estimates show that on average, felony probationers convicted in California in 1980 cost the system about $12,000 in the three-year period after their conviction, while the average prisoner cost about $23,000 over the same three-year period.

ASSESSING THE RELATIONSHIP BETWEEN IMPRISONMENT AND RECIDIVISM

Do these findings support the claim that imprisonment not only fails to deter, but actually makes the offender worse? Criminologists have long argued that the prison experience is criminogenic in itself— that prisons breed crime. That is one of several possible explanations for the higher recidivism rates we observed among prisoners. However, there are also other plausible explanations.

It may be that the prisoners and probationers in our sample were not *exactly* matched, and that something about the prisoners that was not captured in their official records but was recognized by the sentencing judges is systematically influencing the recidivism rates. For example, felons who do not express remorse may be sentenced to prison, while probation may be granted to those who do. Variables related to offenders' attitudes are not included in our database, but if they systematically influence both the prison/probation decision and the probability of recidivism and are not somehow represented by one of the measured variables (e.g., prior record), those unmeasured variables may explain the increased probability of recidivism among prisoners.

Alternatively, it may be that the offender did not change as a result of being in prison, but society's and the criminal justice system's *response* to him did. Employers may be more reluctant to employ ex-prisoners than probationers, landlords may be more reluctant to accept them, and families may be less likely to reconcile with them. The

criminal justice system may treat ex-prisoners more harshly, increasing their probability of arrest and prosecution. If the nature of society's response makes it more difficult for the offender to resume (or establish) a noncriminal lifestyle, imprisonment may still be said to have increased the probability of recidivism. In this case, the imprisonment effect is simply mediate rather than immediate.

Given our research design and our data, we cannot confidently choose among these competing explanations.

MAJOR CONCLUSIONS OF THE STUDY

The major conclusions drawn from this study (and from our earlier study of felony probation) are the following:

1. Public safety would clearly benefit from somehow incapacitating a larger proportion of the felons represented in the study's matched sample of prisoners and felony probationers.
2. Building more prisons can move toward accomplishing this goal, but cannot fully realize it.
3. Relying on only one form of incapacitation necessarily limits society's ability to respond to the overall crime problem. In addition to imprisonment, other means of incapacitating felony offenders may be necessary to control the threat of serious crimes from felony offenders released to the community from prison and on probation.
4. Intensive probation supervision, electronic monitoring, house arrest, and other "intermediate" sanctions are untested, but promising new ways to ease prison overcrowding while better incapacitating felony offenders who now receive traditional probation sentences.

CONSIDERATIONS FOR CRIMINAL JUSTICE POLICY

The recidivism rates of both prisoners and probationers during the follow-up period of this study are high enough to argue for both increasing the incapacitation period for prisoners and finding some better means for incapacitating probationers. Under the present arrangement, the California criminal justice system spent more than an estimated $18 million during a 3-year period supervising and reprocessing the 1,022 very criminally active offenders who made up our sample. But it incapacitated only half of them for one-third of that period; the remainder were incapacitated for less than one-tenth of that time.

Society realized a 20 percent reduction in crimes committed by these prisoners over the 3-year period, of which an average of 12.5 months was spent in prison. During their second post-release year, most of the ex-prisoners had no supervision at all. The probationers, who spent an average of 3.3 months in jail, were on routine probation for 2 to 3 years.

The system is apparently failing to consider the fact that the 24 months after offenders are released from jail or prison constitute a watershed for recidivism. If released offenders have not returned to crime after two years, it is less likely that they will.[1] Yet some probationers in California are nominally supervised (at considerable cost to the system) for a year after that point, while ex-prisoners are not even nominally supervised after the first year. The vital point is that neither group is incapacitated during this "at-risk" period—and their recidivism rates indicate the price that society is paying.

Building more prisons would not solve the problem of this high-risk period, for three reasons. First, although there is evidence that after a certain age prisoners are less likely to return to crime, the system obviously cannot keep offenders in prison longer than is warranted by just deserts.[2] Second, no matter how long offenders are incarcerated, they still go through the high-risk period after their release. Third, if prisoners have a higher probability of recidivism than probationers, they will continue to contribute disproportionately to crime, and hence, to imprisonment.

Building more prisons will allow the system to incapacitate more of the high-risk offenders who are now put on probation. However, the costs of that will be greater than the costs calculated in our study. Building more prison space will require considerably more than the system could "recapture" from saved police, court, and incarceration costs during the period when the offenders would have been on probation.

Recent analyses have found that prison construction costs are considerably higher than is commonly believed. According to Gail Funke (1985), a new 500-bed prison will require an outlay of nearly $350 million, in current dollars, over 30 years: $135 million for construction and $210 million for operation, or an average of $11.5 million per year.

These figures demonstrate how much more the system would have to spend to incapacitate offenders like the 511 felony probationers in our study sample, all other things being equal. Such people represent

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[1]See Hoffman and Stone-Meierhoefer, 1979; and Jaman et al., 1972.

[2]Research has consistently shown that people are most crime-prone between the ages of 16 and 25 years, and that they are significantly less so thereafter. However, it is not known whether this relationship holds true for imprisoned offenders.

about 35 percent of the total 180,000 adult probation population in California (Petersilia et al., 1985). Imprisoning an additional 60,000 adults would more than double the current prison population. Funke (1982) has estimated that for each 1 percent increase in prison population, the nationwide corrections bill rises by about $25 million.

The criminal justice system nationwide currently imprisons about 45 percent of all those convicted of the felony offenses considered in this study, and it spends about 60 percent of its corrections dollars on housing them. If th? number of prisoners rises another 100,000 by 1990, as expected, the 200 new corrections-related buildings that were under construction in the United States as of mid-1985 (according to the American Correctional Association) will still be inadequate to hold them—the new construction is expected to add 80,000 new beds.

States have allocated nearly $800 million to underwrite this building effort. An additional $2.2 billion has been allocated for prison construction through bond issues or other revenue mechanisms. And during the next nine years, $10 billion will be spent nationally on prison construction (Burger, 1985). Yet, by 1990, even given the vast expenditures for prison beds, prison facilities will still be more than 20 percent short of meeting the demand.

These figures are based on current prison construction and operating costs. It might be possible to reduce imprisonment costs by using other types of facilities (e.g., converted military housing) or different management strategies (e.g., privately operated prisons), or by developing less expensive, less time-consuming building methods. Florida has recently dramatically lowered costs and time for building new prison space by using innovative design and construction techniques. For example, a maximum security unit was added to an existing corrections facility by using concrete modular cells. The new units (which consisted only of housing) took eight months to build and cost about $16,000 per cell (DeWitt, 1986).

If states with differing climates, construction costs, land costs, etc., can duplicate this experience, it may be possible to construct new prisons at about one-third of the anticipated costs. Nevertheless, imprisonment will still cost more than twice as much as probation—and there are other considerations. First, even at one-third of the conventionally accepted cost of construction, the price for 2,500 new cells would be $40 million. Second, even if national prison capacity could be increased by 2,500 cells, and at the lower cost, the prisons would still hold less than half of the felony offenders who present a serious threat to public safety.

The public also appears resistant to allocating more dollars to ease prison overcrowding. Recent bond issues for new prisons were rejected

by voters in New York, Virginia, and Oregon. Michigan voters turned down an increase of 0.1 percent in state income taxes earmarked for prison construction. A recent Gallup poll reported that a majority of Americans believe there is a need for new prisons, but less than half of them are willing to pay more taxes for them (Kennedy, 1985).

Under these circumstances, a serious reconsideration of current prison construction policies is clearly in order. As Funke notes:

> The public is beginning to recognize that having more of something is only possible by having less of something else. Thus, if demand for punishment is to be filled by providing more prisons, citizens must be prepared to forego other social and private amenities to release resources for construction. Economically speaking, a vote for prison construction may be a vote against public education, libraries or parks, or more future disposable income. It will impose financial burdens on future generations—and it will not stop crime. (Funke, 1985)

The situation is not without political irony. Legislators polled in a recent survey in Maryland said that they were driven to push for prison construction because the voters were not supportive of community correctional options and would not consider anything less than imprisonment as acceptable. However, the same poll found that the general public was not especially punitive and was supportive of reform strategies that stressed rehabilitation and "increasing localization of correctional programs and facilities." (Gottfredson and Taylor, 1984.)

It thus appears that the criminal justice system and public safety would both benefit from a reorientation in thinking about sanctions for serious offenders. A number of experiments currently under way offer some evidence that intermediate sanctions for felony offenders may be feasible and cost-effective alternatives to prison for the group in question. These alternatives could extend the incapacitation effect to some of the felony offenders who are presently only nominally supervised on traditional probation. They could also ease prison overcrowding by supervising less serious offenders in the community and avoiding any negative effects that imprisonment or having a prison record may have. Finally, such programs could cost less than the present total system costs for these groups.

One form of intermediate sanction is intensive probation supervision (IPS). IPS programs increase oversight and restrict freedom of probationers in varying degrees.[3] Georgia instituted an IPS program in 1982 that has since supervised over 2,300 offenders in the community who would otherwise have gone to prison. An IPS probationer in the

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[3]See Petersilia et al., 1985, Section VI.

Georgia program must either hold a full-time job or be a full-time student, perform community service, observe a strict curfew, submit to random urine testing for drugs, pay part of his supervisory costs, and make restitution to his victim(s).

Under the usual terms of probation, an offender might have two or three contacts with his probation officer each month, some of them by telephone; the probation officer may have as many as 300 cases to supervise. In Georgia's IPS program, the probation officer must see his client face to face at least five times a week, including both daytime and nighttime meetings.

State officials regard the program as successful in terms of both cost and effect on recidivism. Although the IPS probationers have been more expensive to monitor than Georgia's regular probationers—$1,650 per year as compared with $275—this is considerably less than the $10,814 annual cost for each prisoner.[4] All of the IPS program costs are also offset by the supervisory costs that probationers pay. Georgia officials estimate that they collect $3.3 million per year in probationer fees (Erwin, 1984). Not only do intensive probation programs cost less than prison, they may end up costing no more than (or even less than) traditional probation, because much of the present cost of post-release processing and incarceration associated with recidivism may be recaptured.

But can IPS programs actually prevent offenders from committing crimes while in the community? These programs are too new to provide data on long-term effects, but their record to date in preventing offenders from returning to crime *while in the program* is promising. Only 8 percent of the participants in the Georgia program have had their probation revoked for new criminal behavior (Erwin, 1986). Results from other IPS programs in Florida, New Jersey, Ohio, and Texas appear similarly encouraging.

These results suggest that there may be alternative sanctions that incapacitate offenders better than traditional probation, while exacting some social retribution from participating offenders. It may be argued that these sanctions are too lenient and do not meet the sentencing objective of "just deserts," but the results of our analyses tend to counter that objection.

Sentencing appears to have been inconsistent for our matched sample of prisoners and probationers. Lower-risk probationers almost never go to prison, and higher-risk prisoners rarely get probation, but the more serious probationers and less serious prisoners seem to be

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[4]These costs are reported by Georgia officials. They differ from the figures we cited in Section V and appear to be below the nationwide average.

treated inconsistently. The sentences this group actually received were often at odds with statistical sentencing predictions based on the individual offender's criminal seriousness (Petersilia et al., 1985). Consequently, it is not at all clear which sanction represents "just deserts" for this group.

It has been generally accepted for at least a decade that nothing can rehabilitate offenders and that no sanction makes any difference in offender behavior (Lipton, Martinson, and Wilkes, 1975), but our findings indicate that these generalizations may be wrong. Imprisonment may have made at least one of the offender groups more likely to resume their criminal careers. The difference in the post-release records of prisoners and probationers in our sample argues for the possibility that keeping offenders in the community under intensive supervision is less likely to produce such an effect. That is an important consideration. If imprisonment intensifies criminal activity, using it to incapacitate less-serious felony offenders will not only aggravate prison overcrowding but will also increase the need for new prison space.

Until recently, it has been assumed that imprisonment could reduce street crime, and that building more prisons was therefore the only way around the prison crisis. Our study leads us to suggest a broader array of sanctions aimed at incapacitation. However, this is a local policy matter. Each state must approach these issues in its own context, considering its preferences for punishment and its ability to financially support those preferences. It is our hope that this study will enhance local deliberations by empirically demonstrating the relative costs and benefits of prison and probation sentencing.

RECOMMENDATIONS FOR FUTURE RESEARCH

Replication of this Study

Our first recommendation is for replication of the present study's findings, using the type of matching and statistical controls employed here. Assessing the "costs and benefits" of prison versus probation is a complex task, and this study is but a first attempt to understand the association between different sentences and offenders' subsequent criminality and to weigh those outcomes against financial costs and public safety benefits. For such a fundamentally important topic, the existing research base is remarkably shallow.

Our results reflect the situation in California; whether they hold true for other locations is not known. California probation agencies and prisons are among the most overburdened in the nation. Studies conducted in less fiscally constrained locations might produce different

results. For example, if probation agencies in other areas were shown to be more successful at restraining offenders' future criminality, the relative effectiveness of prison and probation might be different. Prisons that emphasize work and education programs might yield lower prisoner recidivism rates.

The high probationer failure rate in the two counties in our study drove up the cost of probation significantly, because of the high reprocessing costs associated with each rearrest. In counties where a higher proportion of felony probationers successfully reenter the community, the overall cost associated with probation supervision would be considerably lower. Moreover, California imposes lengthy probation supervision periods (averaging 2 to 3 years), and this also drives up the total cost of probation sentencing. States that impose shorter average probation sentences might have lower overall costs.

Evaluation of Graduated-Sanctions Programs

The escalating costs associated with traditional, full-time secure confinement, combined with the pressure generated by institutional overcrowding, require policymakers to seek innovative and less costly methods of providing public protection and appropriate sanctions. These factors are creating a kind of grass-roots movement toward the development of graduated or alternative sanctions. These innovative programs, which are designed to be safe, punitive, and inexpensive, include intensive probation supervision, house arrest, electronic monitoring, community service orders, victim-offender reconciliation, work-furlough programs, community network teams, police-probation cooperatives, and shock incarceration.

Graduated-sanctions experiments can be expected to generate both strong interest and conflicting evidence about their value, since the programs will be implemented differently under different conditions. Researchers and practitioners will have to cooperate in evaluating this conflicting evidence. Research on the social costs of crime also merits more attention, in particular, research on the relative impact of these costs in relation to the costs of various sentencing options for controlling offenders.

Investigation of the Process of Returning to Crime

The graduated-sanction movement will provide an opportunity to advance our understanding of individual criminal behavior and our perception of risk by enabling researchers to study offender patterns much more closely than is possible when offenders are under less intensive

forms of supervision. It may be possible to collect detailed daily information about offenders' movements and activities, such as attendance and performance at work, family activities, drug and alcohol use, and interactions with potential crime partners.

Changes in these activities may be useful indicators of when offenders turn back to crime. Further, the disciplinary and revocation procedures of these programs could systematically alter the certainty and severity of sanctions to which program participants would be subject, and offender perceptions of and attitudes toward these changes could be probed through periodic interviews.

Researchers evaluating intensive community programs should consider ways of obtaining data from the participants on their daily activities, their responses to various implied and actual risks, and "triggers" that may precede their return to criminal behavior.

Studies of the Rehabilitative Potential of Intensive Probation

A recent survey of county probation departments indicates that more than 50 jurisdictions are now operating IPS programs, most of them modeled on the Georgia program. While these programs are explicitly designed to control rather than to rehabilitate participants, they may produce other benefits as well. IPS participants are required to maintain employment, to refrain from drug and alcohol use, and to perform community service. These conditions may help offenders break out of the criminal spiral associated with unemployment and lack of law-abiding community ties. Other aspects of the program, such as training for new job skills and psychological counseling, may help participants to develop non-criminal self-images and to see more in life than criminal possibilities.

Most of the IPS evaluations now in progress track participants until they are formally off probation supervision. Researchers should be encouraged to track program participants for at least two years after their formal sentence has expired. In this way, we may begin to identify the long-term deterrence effects associated with these newer sanctions.

Funding for Community-Based Sentencing

Payment by offenders of fees for supervision has become an important corrections issue, particularly in the case of parole and probation. Nearly all states now have legal provisions for collecting fees from people they supervise, and states are increasingly implementing such pro-

cedures. Research must be undertaken to assess this and other funding strategies for community corrections. Are "user fees" a legitimate new source of funding for strapped criminal justice agencies? Or do such fees represent a type of economic discrimination, where only those who can afford to pay remain in the community, while the less advantaged are imprisoned?

We must also think about the broader issue of state versus local support. Prisons are always state-funded, but probation is often funded by counties. There have been great increases in state-subsidized prison budgets, while local probation agencies have had corresponding budget decreases. If probation assumes responsibility for more otherwise prison-bound offenders, perhaps some probation subsidy should be arranged. Such subsidies are now being paid in several states; the experiences of these programs should be closely monitored.

Further Research on the Relationship Between Length of Time Served and Recidivism

Empirical investigations have generally concluded that length of time served has either no association or a slightly positive association with recidivism (i.e., people serving longer recidivate more). These conclusions are questionable, however, because more serious offenders generally serve longer terms, and degree of criminality is also associated with increased recidivism. Our study attempted to improve upon the existing methodology, and our analysis controlled for more factors than did most of the previously reported studies on this subject. Our results showed that after other offender and offense characteristics were controlled for, in the case of drug offenders, longer terms were associated with *decreased* recidivism.

Again, we urge replication of this finding, using other databases. If the finding holds true, then further investigation is warranted into why longer prison terms decreased recidivism for this group alone. We hypothesized that longer terms might break the drug dealer's "connections" or the drug addict's dependency. A longer follow-up period might show that these offenders were simply slower to resume their criminal careers—perhaps because of the problem of getting back into the "network." Or because the probability of arrest is so low for drug offenses (it is estimated to be less than 1 percent), these offenders may simply take longer to show up on official arrest records. Before our results can be used to guide policy, further research is needed on these important issues.

Policy Experiments on Alternative Sentences

While the methodology employed here represents a significant advance for the field in assessing the effects of alternative sanctions, we did not have random assignment of offenders to prison or probation, so we cannot be certain whether the "prison experience," the "prison label," or some other factor about the prisoner that we could not measure accounted for the prisoners' higher recidivism rates. We included every factor that common sense or research would suggest is related to recidivism, but the possibility of an unknown factor remains.

The criminal justice system's resistance (often with good reason) to experimental designs has hampered the development of solid empirical evidence about what works, and with whom. New research techniques that do not require total randomization are now being developed,[5] and researchers should encourage practitioners to consider employing such techniques as they implement new practices.

Criminal justice policy in the United States has, at various times, wholeheartedly endorsed rehabilitation, deterrence, and incapacitation as *the* method for handling all offenders. The system has yet to develop an integrated approach that recognizes offenders as individuals for whom one strategy might be more appropriate than another. We hope this and other research in this area will provide evidence of the urgent need to develop such an approach and to expand the range of sanctions for felony offenders.

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[5]"Regression discontinuity analysis" is an example of such a technique (Trochim, 1984). Regression discontinuity is a pre-test/post-test design in which all subjects are assigned to conditions based on a cutoff score on a pre-program measure (not random assignment). It is thus possible to determine whether the observed pre/post relationship in the program group differs from the expected relationship developed from the comparison group.

Appendix

DETAILED RESULTS OF ANALYSES

Table A.1

COMPARABILITY OF DECISION-TO-IMPRISON FACTORS FOR FULL TWO-COUNTY SAMPLE: LOS ANGELES AND ALAMEDA COUNTIES

(N = 5,038)

Decision Factor	Drug Offenders		Property Offenders		Violent Offenders		All Offenders Combined	
	Probation	Prison	Probation	Prison	Probation	Prison	Probation	Prison
No. of conviction counts	1.0	1.5**	1.1	1.5**	1.1	2.0**	1.1	1.8**
No. of adult convictions	3.2	4.7**	2.4	4.9**	2.0	3.8**	2.4	4.4**
No. of prior prison terms	.2	.7**	.2	.6**	.1	.5**	.2	.6**
% on adult parole	3.1	12.3**	3.8	22.3**	3.3	16.3**	3.6	19.3**
% on juvenile parole	.6	1.9	3.2	7.9**	2.1	9.1**	2.7	8.0**
% known or related to victim	0	.6	13.0	9.8	28.2	14.8**	14.9	11.7**
% caused serious injury	0	0	.6	1.5	27.9	21.0**	5.0	10.0**
% armed with gun	5.6	11.2	2.0	19.8**	20.6	51.6**	5.5	25.8**
% weapon used	.6	1.9	3.0	7.1**	61.1	80.8**	12.2	39.0**
% influence/drugs	7.4	8.2	2.1	2.7	.7	4.4**	2.4	3.7**
% drug addict	8.6	26.4**	4.0	13.2**	.7	12.1**	4.1	13.5**

NOTE: Differences between prisoners and probationers on the first three continuous variables were tested with t-tests; remaining categorical variables were tested with chi-square tests of association; * = p < .05; ** = p < .01.

Table A.2

COMPARABILITY OF DECISION-TO-IMPRISON FACTORS FOR RECIDIVISM SAMPLE:
LOS ANGELES AND ALAMEDA COUNTIES

(N = 1,022)

Decision Factor	Drug Offenders		Property Offenders		Violent Offenders		All Offenders Combined	
	Probation	Prison	Probation	Prison	Probation	Prison	Probation	Prison
No. of conviction counts	1.0	1.1	1.1	1.2**	1.0	1.1*	1.1	1.2**
No. of adult convictions	3.5	3.9	3.7	4.1	2.1	3.1*	3.2	3.7*
No. of prior prison terms	.3	.4	.3	.4	.1	.3**	.2	.4**
% on adult parole	3.2	9.2*	6.9	12.3	3.1	4.3	4.8	9.0**
% on juvenile parole	.8	2.3	1.8	7.8**	2.5	6.8	1.8	6.0**
% known or related to victim	0	0	13.8	9.1	20.6	15.4	12.5	8.8
% caused serious injury	0	0	0	0	18.8	15.4	5.9	4.9
% armed with gun	6.4	6.2	2.8	4.1	16.9	19.8	8.2	9.6
% weapon used	.8	.8	3.2	2.3	55.6	51.2	19.3	17.4
% influence/drugs	8.8	7.7	4.6	1.4*	.6	6.8**	4.4	4.7
% drug addict	10.4	11.5	6.0	10.5	.6	3.7	5.4	8.6*

NOTE: Differences between prisoners and probationers on the first three continuous variables were tested with t-tests; remaining categorical variables were tested with chi-square tests of association; * = p < .05; ** = p < .01.

Table A.3

EFFECT OF PRISON ON ANY ARREST, ANY FILED CHARGE, MORE SERIOUS FILED CHARGE, AND ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR ALL PRISONERS AND PROBATIONERS COMBINED

(Los Angeles and Alameda counties)

Independent Variables	Dependent Variable							
	Any Arrest		Any Filed Charge		More Serious[c] Filed Charge		Any Conviction	
	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	0.469	0.310	-0.707	0.271	-2.072	0.430	-0.824	0.273
To prison?	0.202	0.154	0.543	0.147	0.073	0.216	0.481	0.148
Imprisonment variables								
No. of conviction counts	-0.198	0.182	0.123	0.173	-0.126	0.268	0.189	0.173
No. of adult convictions	0.076	0.028	0.012	0.045	0.050	0.038	0.056	0.051
No. of prior prison terms	0.252	0.158	0.218	0.127	0.119	0.146	0.197	0.132
On juvenile parole?	0.048	0.503	0.283	0.416	0.697	0.481	0.445	0.407
On adult parole?	0.757	0.453	0.576	0.341	0.031	0.387	0.468	0.333
Drug addict?	0.641	0.351	0.532	0.309	-0.166	0.377	0.331	0.303
Under drug influence?	0.078	0.380	-0.179	0.351	0.476	0.462	-0.176	0.358
Know/related to victim?	-0.250	0.247	0.064	0.246	-0.813	0.477	0.074	0.247
Gun involved?	0.048	0.275	0.150	0.275	0.077	0.527	0.036	0.280
Weapon used?	-0.391	0.228	-0.167	0.222	0.473	0.725	-0.272	0.224
Serious injury?	-0.415	0.339	-0.465	0.373	(b)		-0.226	0.372
County and age								
Convicted in Alameda?	0.162	0.202	0.737	0.175	0.772	0.221	0.640	0.173
Age 21-25?	-0.248	0.219	-0.378	0.203	-0.046	0.302	-0.280	0.203
Age 26-30?	-0.307	0.257	-0.529	0.245	-0.604	0.381	-0.440	0.248
Over 30?	-0.814	0.297	-1.477	0.308	-0.798	0.457	-1.359	0.313
Additional variables related to recidivism								
No. of juvenile convictions	0.264	0.072	0.174	0.053			0.138	0.051
Out of incarceration ≤1 yr?	0.590	0.202	0.525	0.176	0.508	0.238	0.558	0.174
No. of jail terms			0.155	0.066			0.206	0.074
No. of probation terms							-0.148	0.080
First conviction under 16?					0.494	0.241		
Drugs involved in offense?	-0.347	0.184	-0.409	0.185			-0.566	0.190
Lives with parents?					0.487	0.228		
Married?	-0.334	0.162						
Black?	0.543	0.181						
Hispanic?	0.387	0.197						
High school graduate?			-0.299	0.151			-0.450	0.153
R-square[c]	.13		.16		.10		.16	
(Adjusted R-square)	(.09)		(.13)		(.05)		(.12)	
N	1001		1000		391		1000	

NOTE: Blanks mean variable was not included in the model; model Ns differ from 1,022 because of missing data.

[a]Only drug and violent offenders included here.

[b]Serious injury not tested because no drug or property offenders caused serious injury.

[c]Model R-square = (model chi-square)/(-2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square -2p)/(-2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

Table A.4

EFFECT OF PRISON ON ANY ARREST, ANY FILED CHARGE, AND ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR VIOLENT OFFENDERS (PRISONERS AND PROBATIONERS)

(Los Angeles and Alameda counties)

	Dependent Variable					
	Any Arrest		Any Filed Charge		Any Conviction	
Independent Variables	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	1.181	0.560	−0.109	0.587	−0.544	0.562
To prison?	0.109	0.278	0.124	0.267	0.127	0.269
Imprisonment variables						
No. of conviction counts	−0.489	0.404	−0.432	0.450	−0.160	0.419
No. of adult convictions	−0.068	0.089	−0.037	0.102	−0.175	0.095
No. of prior prison terms	0.182	0.353	0.154	0.325	0.469	0.317
On juvenile parole?	−0.490	0.798	0.330	0.668	0.125	0.659
On adult parole?	0.253	0.914	0.104	0.719	−0.192	0.722
Drug addict?	7.350	21.281	1.475	1.154	1.747	1.177
Under drug influence?	0.695	0.874	1.188	0.760	0.805	0.739
Know/related to victim?	−0.482	0.372	0.491	0.380	0.338	0.382
Gun involved?	−0.014	0.361	0.269	0.356	−0.009	0.361
Weapon used?	−0.344	0.299	−0.199	0.291	−0.211	0.292
Serious injury?	−0.407	0.371	−0.680	0.404	−0.321	0.401
County and age						
Convicted in Alameda?	−0.094	0.394	0.563	0.368	0.334	0.366
Age 21–25?	−0.439	0.347	−0.378	0.331	−0.379	0.333
Age 26–30?	0.344	0.441	−0.400	0.406	−0.495	0.407
Over 30?	−0.183	0.553	−1.097	0.569	−1.090	0.577
Additional variables related to recidivism						
No. of juvenile convictions	0.480	0.156	0.259	0.104	0.305	0.106
No. of jail terms	0.317	0.143	0.672	0.185	0.481	0.144
Married?	−0.710	0.289				
No. of probation terms			−0.372	0.179		
R-square[a]	.15		.14		.12	
(Adjusted R-square)	(.06)		(.05)		(.03)	
N	319		319		319	

NOTE: Blanks mean variable was not included in the model; model Ns differ from 324 because of missing data.

[a]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square −2p)/(−2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

Table A.5

EFFECT OF PRISON ON ANY ARREST, ANY FILED CHARGE, MORE SERIOUS FILED CHARGE, ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR PROPERTY OFFENDERS (PRISONERS AND PROBATIONERS)

(Los Angeles and Alameda counties)

	Dependent Variable							
	Any Arrest		Any Filed Charge		More Serious Filed Charge		Any Conviction	
Independent Variables	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	0.811	0.390	−1.304	0.406	−2.111	0.513	−0.818	0.359
To prison?	0.216	0.260	0.712	0.232	−0.031	0.279	0.565	0.222
Imprisonment variables								
No. of conviction counts	−0.217	0.240	0.248	0.233	−0.078	0.318	0.282	0.225
No. of adult convictions	0.124	0.050	0.148	0.046	0.064	0.049	0.123	0.042
No. of prior prison terms	0.403	0.255	0.101	0.188	0.086	0.193	0.179	0.184
On juvenile parole?	1.393	1.072	1.096	0.695	1.444	0.532	1.441	0.663
On adult parole?	2.436	1.086	0.687	0.524	0.556	0.460	0.595	0.476
Drug addict?	0.885	0.562	0.517	0.477	−1.461	0.669	−0.072	0.431
Under drug influence?	−0.693	0.677	−1.540	0.717	0.191	0.851	−1.398	0.742
Know/related to victim?	−0.353	0.365	−0.408	0.352	−0.724	0.496	−0.294	0.340
Gun involved?	0.488	0.755	−0.684	0.649	−0.403	0.853	−0.338	0.640
Weapon used?	0.094	0.770	0.721	0.711	1.009	0.766	0.441	0.655
Serious injury?	(a)		(a)		(a)		(a)	
County and age								
Convicted in Alameda?	0.406	0.282	0.974	0.256	1.242	0.281	0.846	0.231
Age 21–25?	−0.177	0.342	−0.349	0.308	−0.107	0.373	−0.389	0.296
Age 26–30?	−0.659	0.399	−0.666	0.374	−0.526	0.491	−0.553	0.360
Over 30?	−1.814	0.507	−1.779	0.506	−0.565	0.630	−1.660	0.484
Additional variables related to recidivism								
No. of juvenile convictions	0.269	0.110	0.145	0.074				
Out of incarceration < 1 yr?			0.710	0.263			0.570	0.250
Lives with parents?					0.646	0.288		
Hispanic?			0.717	0.288				
High school graduate?					−0.613	0.292	−0.521	0.230
R-square[b]	.14		.19		.12		.15	
(Adjusted R-square)	(.07)		(.12)		(.04)		(.09)	
N	429		429		436		436	

NOTE: Blanks mean variable was not included in the model; model Ns differ from 438 because of missing data.

[a]Serious injury not tested because no drug or property offenders caused serious injury.

[b]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square −2p)/(−2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

Table A.6

EFFECT OF PRISON ON ANY ARREST, ANY FILED CHARGE, MORE SERIOUS FILED CHARGE, ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR DRUG OFFENDERS (PRISONERS AND PROBATIONERS)

(Los Angeles and Alameda counties)

	Dependent Variable							
	Any Arrest		Any Filed Charge		More Serious Filed Charge		Any Conviction	
Independent Variables	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	−0.551	0.974	−1.928	0.952	−1.592	0.978	−2.834	0.965
To prison?	0.181	0.294	0.524	0.336	0.272	0.368	0.544	0.353
Imprisonment variables								
No. of conviction counts	0.381	0.669	0.604	0.695	−0.279	0.735	0.997	0.696
No. of adult convictions	0.022	0.050	0.031	0.055	0.075	0.059	0.046	0.056
No. of prior prison terms	0.472	0.301	0.401	0.281	0.257	0.245	0.231	0.276
On juvenile parole?	−1.?36	1.423	−2.703	1.510	−1.773	1.354	−1.596	1.421
On adult parole?	−0.592	0.775	0.313	0.687	0.647	0.669	0.934	0.695
Drug addict?	0.178	0.543	0.624	0.539	1.283	0.556	0.515	0.561
Under drug influence?	0.185	0.583	−0.019	0.577	0.470	0.593	0.125	0.583
Know/related to victim?	(a)		(a)		(a)		(a)	
Gun involved?	0.222	0.668	0.332	0.704	0.844	0.748	0.081	0.742
Weapon used?	0.204	1.623	(b)		−5.659	19.767	(b)	
Serious injury?	(a)		(a)		(a)		(a)	
County and age								
Convicted in Alameda?	−0.275	0.479	0.528	0.484	0.861	0.476	0.322	0.510
Age 21–25?	0.067	0.623	−0.093	0.628	0.179	0.622	0.377	0.647
Age 26–30?	−0.269	0.665	−0.462	0.682	−1.001	0.703	−0.586	0.706
Over 30?	−0.184	0.567	−1.085	0.741	−2.053	0.808	−0.795	0.753
Additional variables related to recidivism								
Out of incarceration < 1 yr?	2.089	0.567	1.573	0.444			1.952	0.449
First incarceration under 16?			2.627	1.229			2.167	0.856
First conviction under 16?			1.054	0.511	1.179	0.457		
Lives with parents?	0.994	0.405						
Lives with spouse/children?			−0.920	0.385			−0.883	0.403
High school graduate?	−0.513	0.300						
R-square[c]	.18		.26		.18		.26	
(Adjusted R-square)	(.08)		(.15)		(.05)		(.15)	
N	255		255		255		255	

NOTE: Blanks mean variable was not included in the model; model Ns differ from 260 because of missing data.

[a]Serious injury and know/related to victim not tested because no drug offenders caused serious injury or knew victims.

[b]Beta assumed to be infinite—LOGIST considers a parameter "to be infinite when the absolute value of its estimate is ≥ 5 divided by the range of the corresponding variable, and its standard error is ≥ 15 divided by the range." (*SUGI Supplemental Library Users' Guide*, 1983 ed., p. 190.)

[c]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square −2p)/ (−2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

Table A.7

EFFECT OF TIME SERVED ON ANY ARREST, ANY FILED CHARGE, AND ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR ALL OFFENDERS COMBINED (PRISONERS ONLY)

(Los Angeles and Alameda counties)

Independent Variables	Dependent Variable					
	Any Arrest		Any Filed Charge		Any Conviction	
	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	1.682	0.541	0.892	0.427	0.651	0.419
Months served	−0.053	0.021	−0.072	0.020	−0.074	0.020
Imprisonment variables						
No. of conviction counts	−0.259	0.222	0.217	0.207	0.245	0.206
No. of adult convictions	0.093	0.044	−0.015	0.067	0.019	0.073
No. of prior prison terms	0.469	0.247	0.346	0.179	0.288	0.181
On juvenile parole?	0.146	0.671	0.277	0.546	0.517	0.524
On adult parole?	0.593	0.592	0.694	0.463	0.480	0.443
Drug addict?	1.371	0.606	0.633	0.425	0.377	0.394
Under drug influence?	−0.017	0.533	0.075	0.491	0.058	0.492
Know/related to victim?	0.147	0.434	0.464	0.397	0.449	0.382
Gun involved?	0.540	0.406	0.722	0.379	0.569	0.372
Weapon used?	−0.570	0.346	−0.290	0.331	−0.441	0.331
Serious injury?	−0.453	0.536	−0.367	0.550	−0.073	0.531
County and age						
Convicted in Alameda?	0.626	0.328	1.039	0.269	0.789	0.254
Age 21–25?	−0.914	0.397	−0.796	0.320	−0.498	0.307
Age 26–30?	−0.785	0.467	−0.816	0.384	−0.390	0.371
Over 30?	−1.757	0.524	−1.933	0.470	−1.324	0.452
Additional variables related to recidivism						
No. of juvenile convictions	0.171	0.103	0.108	0.079	0.049	0.072
Out of incarceration ≤1 yr?	0.282	0.302	0.285	0.260	0.426	0.252
No. of jail terms			0.214	0.103	0.278	0.114
No. of probation terms					−0.186	0.114
Drugs involved in offense?	−0.130	0.283	−0.233	0.259	−0.386	0.256
Married?	−0.360	0.251				
Black?	0.775	0.279				
Hispanic?	0.579	0.317				
High school graduate?			−0.480	0.217	−0.616	0.214
R-square[a]	.18		.19		.16	
(Adjusted R-square)	(.10)		(.13)		(.10)	
N	506		506		506	

NOTE: Blanks mean variable was not included in the model; model Ns differ from 511 because of missing data.

[a]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square −2p)/(−2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

Table A.8

EFFECT OF TIME SERVED ON ANY ARREST, ANY FILED CHARGE, AND ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR VIOLENT OFFENDERS (PRISONERS ONLY)

(Los Angeles and Alameda counties)

Independent Variables	Dependent Variable					
	Any Arrest		Any Filed Charge		Any Conviction	
	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	2.206	1.019	1.466	1.023	0.915	0.949
Months served	−0.037	0.040	−0.071	0.041	−0.078	0.040
Imprisonment variables						
No. of conviction counts	−0.481	0.509	−0.516	0.607	−0.206	0.538
No. of adult convictions	−0.222	0.134	−0.095	0.140	−0.177	0.132
No. of prior prison terms	0.468	0.462	0.272	0.402	0.440	0.393
On juvenile parole?	−0.335	1.058	0.406	0.938	0.238	0.903
On adult parole?	0.724	1.283	0.559	1.157	0.917	1.120
Drug addict?	7.231	23.605	0.992	1.203	1.256	1.158
Under drug influence?	2.201	1.242	2.485	0.980	1.803	0.882
Know/related to victim?	0.599	0.666	1.390	0.650	1.332	0.630
Gun involved?	0.812	0.571	1.141	0.540	0.641	0.520
Weapon used?	−0.856	0.470	−0.660	0.471	−0.678	0.458
Serious injury?	−1.177	0.652	−1.093	0.660	−0.599	0.635
County and age						
Convicted in Alameda?	0.494	0.678	1.282	0.578	1.030	0.550
Age 21–25?	−0.699	0.655	−0.711	0.574	−0.459	0.562
Age 26–30?	0.459	0.844	−1.078	0.714	−0.875	0.693
Over 30?	−0.074	1.001	−1.501	0.933	−1.151	0.907
Additional variables related to recidivism						
No. of juvenile convictions	0.385	0.207	0.285	0.170	0.286	0.161
No. of jail terms	0.367	0.209	0.521	0.258	0.356	0.200
No. of probation terms			−0.266	0.224		
Married?	−0.717	0.459				
R-square[a]	.19		.20		.16	
(Adjusted R-square)	(.00)		(.03)		(.00)	
N	160		160		160	

NOTE: Blanks mean variable was not included in the model.

[a]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square −2p)/(−2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

Table A.9

EFFECT OF TIME SERVED ON ANY ARREST, ANY FILED CHARGE, AND
ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION
RESULTS FOR PROPERTY OFFENDERS (PRISONERS ONLY)

(Los Angeles and Alameda counties)

Independent Variables	Any Arrest		Any Filed Charge		Any Conviction	
	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	2.189	0.724	−0.062	0.612	0.274	0.540
Months served	−0.059	0.038	−0.035	0.034	−0.045	0.033
Imprisonment variables						
No. of conviction counts	−0.059	0.340	0.113	0.301	0.185	0.297
No. of adult convictions	0.150	0.080	0.241	0.076	0.191	0.068
No. of prior prison terms	0.449	0.397	0.141	0.326	0.284	0.335
On juvenile parole?	0.998	1.137	0.887	0.801	1.006	0.728
On adult parole?	1.853	1.209	0.953	0.840	0.335	0.721
Drug addict?	0.474	0.752	0.575	0.657	0.209	0.577
Under drug influence?	−4.213	2.334	−3.315	2.164	−2.768	1.754
Know/related to victim?	−0.348	0.640	0.063	0.563	0.007	0.525
Gun involved?	0.701	1.126	−0.251	0.860	0.061	0.842
Weapon used?	−1.438	1.134	−0.071	1.112	−0.307	1.022
Serious injury?	(a)		(a)		(a)	
County and age						
Convicted in Alameda?	0.539	0.440	0.707	0.385	0.554	0.354
Age 21–25?	−0.989	0.597	−0.610	0.452	−0.544	0.425
Age 26–30?	−1.269	0.734	−0.650	0.595	−0.372	0.561
Over 30?	−2.606	0.870	−2.102	0.807	−1.715	0.750
Additional variables related to recidivism						
No. of juvenile convictions	0.148	0.151	0.057	0.103		
Out of incarceration ≤1 yr?			0.722	0.423	0.702	0.395
Hispanic?			0.670	0.459		
High school graduate?					−0.704	0.337
R-square[b]	.17		.18		.17	
(Adjusted R-square)	(.02)		(.05)		(.05)	
N	216		216		219	

NOTE: Blanks mean variable was not included in the model; model Ns differ
from 219 because of missing data.

[a]Serious injury was not tested because no property offenders caused serious injury.

[b]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-
likelihood with only the intercept in the model. Adjusted R-square = (model chi-
square −2p)/(−2L(0)), where p is the number of variables in the model, excluding the
intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983
ed.

Table A.10

EFFECT OF TIME SERVED ON ANY ARREST, ANY FILED CHARGE, AND ANY CONVICTION DURING FOLLOW-UP: LOGISTIC REGRESSION RESULTS FOR DRUG OFFENDERS (PRISONERS ONLY)

(Los Angeles and Alameda counties)

Independent Variables	Any Arrest		Any Filed Charge		Any Conviction	
	Beta	(Std. Error)	Beta	(Std. Error)	Beta	(Std. Error)
Intercept	3.471	1.758	0.661	1.684	−0.896	1.481
Months served	−0.076	0.041	−0.130	0.049	−0.123	0.048
Imprisonment variables						
No. of conviction counts	−0.678	1.049	1.617	1.044	1.972	1.075
No. of adult convictions	0.144	0.096	−0.055	0.081	−0.083	0.079
No. of prior prison terms	0.814	0.507	0.379	0.313	0.132	0.286
On juvenile parole?	−1.560	2.522	−3.705	2.143	−2.103	1.843
On adult parole?	−0.562	1.014	0.256	0.864	0.528	0.876
Drug addict?	2.543	1.391	1.108	0.847	0.778	0.819
Under drug influence?	−1.519	0.932	−0.859	0.910	−0.714	0.902
Know/related to victim?	(a)		(a)		(a)	
Gun involved?	0.397	1.191	0.043	1.035	0.190	1.022
Weapon used?	(a)		−4.257	22.942	−4.458	23.682
Serious injury?	(b)		(b)		(b)	
County and age						
Convicted in Alameda?	0.534	0.920	0.972	0.774	0.110	0.706
Age 21–25?	−1.084	1.240	−1.534	1.275	−0.474	0.943
Age 26–30?	−1.286	1.265	−1.507	1.291	−0.653	0.973
Over 30?	−2.508	1.357	−2.399	1.381	−0.881	1.030
Additional variables related to recidivism						
Out of incarceration ≤1 yr?	0.733	0.794	1.154	0.661	1.908	0.635
First incarceration under 16?	6.519	21.538	1.670	1.457	2.048	1.157
First conviction under 16?			0.972	0.825		
Lives with parents?	−0.169	0.572				
Lives with spouse/children?			−0.563	0.536	−0.672	0.538
High school graduate?	−1.072	0.517				
R-square[c]	.29		.30		.25	
(Adjusted R-square)	(.08)		(.10)		(.05)	
N	130		130		130	

NOTE: Blanks mean variable was not included in the model.

[a]Beta was assumed to be infinite; see footnote (b) to Table A.6.

[b]Serious injury was not tested because no drug offenders caused serious injury.

[c]Model R-square = (model chi-square)/(−2L(0)); L(0) is the maximum log-likelihood with only the intercept in the model. Adjusted R-square = (model chi-square −2p)/(−2L(0)), where p is the number of variables in the model, excluding the intercept. See LOGIST procedure in *SUGI Supplemental Library Users' Guide*, 1983 ed.

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