HEROIN CRACKDOWNS IN TWO MASSACHUSETTS CITIES

Mark A. R. Kleiman

Christopher E. Putala

Rebecca M. Young

David P. Cavanagh

24 August 1988

Prepared for the Office of the District Attorney for the Eastern District, Commonwealth of Massachusetts, The Honorable Kevin M. Burke, under National Institute of Justice Grant Number 85-IJ-CX-0027. Submitted to National Institute of Justice, Drugs, Alcohol, and Crime Program, Dr. Bernard Gropper, Program Manager.

EXECUTIVE SUMMARY

In September, 1983, a small task force of state and local police began a program of intensive street level drug enforcement against the open air heroin market in Lynn, Massachusetts. The task force almost completely eradicated the market; what had been a flagrant drug bazaar reverted to a quiet, law-abiding neighborhood. Heroin users flocked to Lynn's largest drug treatment program, where demand for treatment increased 87%. Further, robberies in Lynn decreased 25%, burglaries 36%, and crimes against the person (homicides, rapes, and aggravated assaults) an astounding 75% after the task force began operations. Neither chance fluctuations nor state-wide trends explain these reductions in crime. Nor does crime or heroin dealing appear to have increased in surrounding communities.

In the wake of the success of the Lynn crackdown, a similar program was begun in Lawrence, Massachusetts, in September, 1984. This program did succeed in suppressing some of the most flagrant heroin dealing in Lawrence and seems to have increased demand for heroin treatment services on the part of residents of Lawrence and its surrounding areas. It did not eliminate the Lawrence heroin market, nor did it appear to influence rates of violent and property crime.

Several major differences between the Lynn and Lawrence situations may help to account for the greater success in Lynn:

o The ratio of enforcement effort to market size was greater in Lynn than in Lawrence.

o The Lawrence market was more geographically dispersed than the Lynn market.

o The Lawrence Task Force put substantial resources into Lawrence's thriving wholesale cocaine market, diverting effort from heroin.

o The Lawrence efforts were compormised by a largely unchecked heroin market in a neighboring jurisdiction.

Another effort aimed at drug-related crime was mounted in Lawrence: a program of mandatory drug abstinence for drug-involved offenders, with abstinence monitored by urine testing and backed by sanctions. This program fell victim to various difficulties of implementation. Consequently, it is not possible to judge whether a successfully implemented program would have helped control crime or how much burden it would have placed on the jail and prison systems.

The benefits of the Lynn effort clearly exceeded its costs, and exceeded as well the benefits of any likely alternative use of the resources it employed. Even the less spectacular results of the Lawrence effort seem cheaply bought. This suggests that crackdowns on open heroin markets ought to be considered wherever such markets exist. What mix of conditions and tactics will recreate the effects observed in Lynn remains the outstanding drug research problem in this area. Both many more case studies and some formal microeconomic and simulation modelling will be required to throw light on the issues involved.

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I. BACKGROUND AND RESEARCH ISSUES

A. Introduction

The share of local police activity directed at drug enforcement is currently on the upswing. However, there is a dearth of well worked-out and empirically supported accounts of how this local enforcement contributes to the achievement of such widely held social objectives as a reduction in drug abuse or a decrease in crime rates. The most important question is whether local enforcement is effective, and if so, in what way? More specifically, what type of local drug enforcement successfully addresses what social problem?

The primary focus of this study is a single technique -- concentrated street-level heroin enforcement -- as it was used in two Massachusetts cities. The enforcement effort in Lynn began in September 1983, and a similar program was started in Lawrence in September 1984. A preliminary analysis of the first year of the Lynn operation indicated that it was very successful in both eliminating the flagrant heroin market and decreasing rates of street crime. This study will examine the results of the Lynn operation, from 1983-86, in greater detail, and will also evaluate the effort in Lawrence. In addition, we consider another approach to the control of drug dealing and related property crimes -- mandatory drug abstinence verified by urine monitoring -- as it was attempted in Lawrence.

B. Background

1. Lynn Drug Task Force (1983-1984)

In early 1983, the Massachusetts state police narcotics unit was decentralized. Its agents were dispersed into county drug task forces under the direction of the elected district attorneys. Kevin Burke, the district attorney for Essex County, was assigned six narcotics officers.

Burke felt that spreading six drug officers over a county with a population of 750,000 was pointless. He decided to concentrate the entire Task Force in Lynn, Massachusetts, which had the second highest crime rate of all Massachusetts cities and a police department whose sworn strength had fallen by one-third (from 180 to 120) due to fiscal pressures. Burke had been confronted by chronic complaints from merchants and residents about open heroin dealing in the High Rock neighborhood, just four blocks from the central business district. He elected to focus the Task Force on street-level heroin dealing in Lynn in order to, as he described it, "improve the quality of life."[1]

Burke's goal for the program -- "to improve the quality of life in Lynn" -- was a broad one. At a minimum, it entailed halting the open dealing of heroin, and thus stilling the complaints of citizens who were offended and frightened by the open heroin market. More ambitiously, it aimed to reduce the level of heroin use in Lynn (and perhaps elsewhere if the Lynn market supported consumption in other areas) by making heroin less accessible to

[1]Kevin Burke. Interview by Mark A.R. Kleiman. District Attorney's Office, Salem, Massachusetts, August 1984.

experimental drug users, and by giving current users good reasons to quit, either voluntarily, under pressure of the law, or with the assistance of treatment programs. Most ambitiously, Burke's goal encompassed reducing levels of street crimes such as robbery and burglary in Lynn, either by dispersing crime-committing heroin users to other communities, reducing the drug consumption and criminal activity of users, or by incapacitating heroin-using offenders. The results after one year of Task Force activity were unexpectedly gratifying.[2]

a. Heroin Market

Quality of Life. The operation rapidly brought about a marked decrease in the volume and flagrancy of the Lynn heroin market. After one year of Task Force activity, a visitor walking though the High Rock area on a summer afternoon saw a placid, suburban-looking neighborhood rather than the drug bazaar that once existed. High Rock residents, local politicians, and merchants in the nearby business district, interviewed nine months after the inception of the Task Force, were pleased with the changes.

Heroin Consumption. The impact of drug enforcement on drug consumption is extremely difficult to measure in the absence of a group of heroin users or potential heroin users whose behavior can be monitored over time. However, most of the available evidence suggests that heroin consumption in Lynn declined substantially after the inception of the Task Force.

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[2]Mark A.R. Kleiman, William E. Holland, and Christopher Hayes, "Report to the District Attorney for Essex County: Evaluation of the Lynn Drug Task Force." Working Paper No. 84-01-03. (Cambridge, Massachusetts: Program in Criminal Justice Policy and Management, John F. Kennedy School of Government, Harvard University, October 1984).

Drug treatment workers in Lynn believe that the easy availability of good quality (i.e., high purity) heroin in the early 1980s resulted in the re-addiction of many heroin users who had been abstinent during the late 1970s.[3] They report that, as a result of the Task Force, heroin users in Lynn found it increasingly difficult to buy drugs and were more concerned about being arrested for possession of narcotics if they were successful in buying. As a result, some of them went into drug treatment.

The impression that increased enforcement pressure tended to decrease heroin use is confirmed by the pattern of demand for drug treatment services in Lynn. Unlike treatment facilities elsewhere in Massachusetts, Lynn drug treatment programs experienced a greater than 85% increase in demand for service over the 10 months starting in September of 1983. By that point, all treatment slots were full, a waiting period had begun to develop, and further changes in treatment demand became hard to measure.[4]

b. Violent and Property Crime

Perhaps the most surprising result of the Lynn Drug Task Force was its impact on street crime: specifically, crimes against the person[5], robbery, and burglary. Comparing the 12 months starting September, 1983, with the previous 12 months, reported crimes against the person declined 66%, reported

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[3]Drug treatment workers, interview by William E. Holland, at Project COPE, Lynn, MA, August 1984.

[4]Kleiman, Holland, and Hayes, p. 8 and Figure 1.

[5]Murder, rape, and aggravated assault are combined in the category called "crimes against the person."

robberies declined 14%, and reported burglaries declined 35%.[6] If this apparent decrease in crime is a result of the changes in enforcement, it represents a large and unexpected benefit of the program. Indeed, it makes it seem that cracking down on street-level heroin dealing might be a cost-effective approach to crime control, as well as a potentially important instrument of drug abuse control policy.

2. The Lawrence Drug Task Force

When it became apparent that several months of Drug Task Force activity had eliminated Lynn's once thriving street heroin market, District Attorney Burke turned his attention to the open-air heroin markets in Lawrence, a city 40 miles northwest of Lynn in Essex County. By September 1984, District Attorney Burke had reassigned more than half of the state police narcotics officers from the Lynn Drug Task Force to form a Lawrence Drug Task Force. The Lawrence Drug Task Force was designed to follow the same enforcement tactics and operations as the Lynn Drug Task Force. However, the city of Lawrence and its heroin markets differed from Lynn in many respects.

3. The Lawrence Urinalysis Program

Urinalysis programs, which employ urine testing technology to determine whether offenders have used drugs recently, seem to have significant

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[6]These figures are updated and corrected. The original calculations appeared in Kleiman, Holland, and Hayes, p. 8, Table 2, and Figures 2 and 3. See also David Cavanagh, "Effects of Drug Task Forces in Lynn and Lawrence on Common Crimes Reported to the Police" (Providence, Rhode Island: Applied Social Research, 1987).

potential benefits as tools of crime control; however, their use and evaluation has been largely neglected thus far. In connection with the Lawrence heroin crackdown, District Attorney Burke planned another effort to reduce crimes committed by drug-using offenders: a systematic program of coerced abstinence from drug use verified by pre- and post-trial urine monitoring.

C. Policy and Research Issues

From the viewpoint of public policymakers, there are two major questions to address here:

(1) Should street-level heroin enforcement efforts, such as the operation in Lynn, be mounted in other jurisdictions?

(2) Should urine monitoring programs be utilized as part of street-level heroin crackdowns?

The research reported here was designed largely to help answer those policy questions. It examines the results achieved by the Lynn and Lawrence Drug Task Forces and the Lawrence Urinalysis Program. The following specific questions were addressed:

(1) The Lynn Drug Task Force

(a) Heroin Market

Quality of Life: Do observations of the site of the 1982-83 Lynn heroin market, interviews with Lynn residents and politicians, and a public opinion survey indicate that the quality of life in Lynn had improved?

Heroin Consumption: What does the available evidence indicate

about heroin consumption levels in Lynn?

(b) Crime Rates

What happened to Lynn crime rates after the first year of Task Force operations? Did the beneficial results reported in the preliminary analysis of the Lynn Drug Task Force represent true crime control benefits rather than statistical artifact or mere displacement of crime from Lynn to surrounding areas?

(2) The Lawrence Drug Task Force

(a) Heroin Market

Quality of Life: Do observations of the site of the 1983-84 Lawrence heroin market, interviews with Lawrence residents and politicians, and a public opinion survey indicate that the quality of life in Lawrence had improved?

Heroin Consumption: What happened to the Lawrence heroin market after the Lawrence Drug Task Force began its operation?

(b) Crime Rates

What happened to Lawrence crime rates after the Lawrence Drug Task Force intervention?

(3) The Lawrence Urinalysis Program

What effect did the Lawrence Urinalysis Program have on the number of crimes committed by drug-involved offenders?

II. THEORETICAL BASIS AND RESEARCH DESIGN

A. Theoretical Basis

It has been argued that street-level enforcement is doomed to failure, because heroin buyers and sellers will always find another place to deal.[1] From this perspective, the success of the initial Lynn experience requires explanation. Therefore, we attempt to provide a theoretical account of how street-level enforcement might affect heroin markets and crime rates.

1. Heroin Markets

Crackdowns may work to reduce or eliminate heroin markets in (at least) three ways: by changing use patterns of heroin users and potential users, by altering market dynamics, and by contributing to the higher-level drug enforcement effort.

a. Changing Use Patterns

Drug crackdowns affect the heroin use of those who are already drug-dependent as well as those who are beginning to experiment or are considering experimenting. However, the effects, and the mechanisms that

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[1]Anthony V. Bouza, "Evaluating Street Drug Enforcement," unpublished review of "Crackdowns: The Effects of Intensive Enforcement on Retail Heroin Dealing," Working Paper Series, no. 88-01-11 by Mark A.R. Kleiman (Cambridge, MA: Program in Criminal Justice Policy and Management, John F. Kennedy School of Government, Harvard University, February 9, 1988).

produce the effects, will be quite different for the two classes of users because experienced users are likely to have both more "connections" (sources) and more resourcefulness and determination about "scoring." Even for some experienced users, however, street-level crackdowns are likely to reduce consumption. The effect will occur through several mechanisms.

First, in the course of a crackdown many experienced heroin users will be arrested for sale or possession. Their arrests and the disposition of their cases will tend to reduce their consumption through the familiar mechanisms of specific deterrence, incapacitation, and rehabilitation.

Second, when confronted by increased pressure on the streets, experienced users who are not arrested may decide to reduce or abandon heroin use. They may be deterred by the prospect of arrest. They may be inconvenienced by the arrest of their regular "connections" and the difficulty (increased by enforcement) of finding new ones. Or, more likely, the increased daily inconvenience and anxiety of "copping" (buying) will accumulate to the extent that "drying out" will appear relatively attractive. The likelihood of addicts making this choice can be increased if treatment services are readily available to those heroin users who want them.

The impact of street-level heroin enforcement on new users is potentially larger (in terms of the number of users affected and the quantity each user consumes), and over the long run, more significant. It is larger because experimental users are much less committed to using heroin than established addicts, and much less resourceful in "copping." It is also harder for street sellers to distinguish novice users from undercover narcotics officers. Thus when enforcement pressure increases, sellers become more reluctant to deal with strangers, sell less to experimental users, and

in this way further increase the difficulty of purchasing heroin.[2]

If street-level enforcement raises the average time required to "score" from five minutes to two hours and forces dealing either indoors or to more dangerous parts of town, novice users will be more likely than experienced addicts to go without heroin. Fear of arrest for possession probably has the same impact.[3] Effects on the initiation of heroin use or the progress to regular use are particularly worth achieving, because the result is the prevention of an entire addict career rather than simply a cure for an established one.

Users whose consumption of heroin decreases or ceases as the result of a crackdown may well increase their consumption of other drugs, particularly other depressants including synthetic opiates and opioids, barbiturates, and alcohol. These may act as substitutes -- in both the psychological and economic senses of the term -- for heroin. No information is available regarding the extent of this possible substitution effect.

b. Altering Market Dynamics

Dealers compete (unwillingly) with other dealers, and transactions with other transactions, for enforcement attention. The fewer the participants and the fewer the deals, the more likely any one deal is to lead to an arrest (holding constant the number of enforcement agents).

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[2]Mark H. Moore, "Policies to Achieve Discrimination of the Effective Price of Heroin," American Economic Review 63 (May 1973).

[3]For a discussion of arrests for use offenses as deterrents, see John Kaplan, The Hardest Drug: Heroin and Public Policy (Chicago: University of Chicago Press, 1983), chapter 5.

Changes in the size of the market or the level of enforcement resources can generate "snowball" effects (i.e., positive feedback). If a market grows while the enforcement resources directed at it remain constant, all participants in the market become safer from arrest. This may then lead to further growth in the market, leading to still more safety, and so on. On the other hand, an enforcement increase large enough to shrink the market will then expose the remaining participants to even higher risks, because there are fewer of them to share the heat. This may then lead to further shrinkage, and so on.

Such effects are characteristic of drug markets at any level. But in retail markets there may be a special kind of snowballing. Whether one is a buyer looking for a seller or a seller looking for a buyer, the probability that cruising around will lead to a successful meeting depends on the number of buyers and sellers in the market in a given region. But the number of buyers and sellers depends in part on the probability of a successful meeting, that is, the search time to "score" from the buyer's perspective, the waiting time between customers from the seller's.

Thus a shrinking retail market brought about by increased enforcement means both more risk and less revenue for the dealer, and more hassle and less chance of scoring for the user. At some point, the market may virtually disappear.

The value of breaking up an established street market will be particularly great if it is in an unusually convenient or safe location from the viewpoint of buyers and sellers. If there are only a few "natural" dealing locations in a city, it may be possible to limit severely the extent

of the heroin trade by squeezing all of them at once.

c. Contribution to Higher-Level Drug Enforcement

Another potential benefit of street-level heroin crackdowns is their contribution to the broader, higher-level effort to minimize the supply of drugs through the immobilization of trafficking organizations. Street-level enforcement contributes to this effort whenever it discovers information that can be used in an ongoing federal investigation or finds a defendant willing to become an informant. Such enforcement may also uncover trafficking organizations and networks that were previously unknown to higher-level investigators. Because street-level enforcement efforts are not guided by intelligence, but rather attack what is right in front of them, they may serve as "early warning networks" for the growth of new trafficking organizations.[4] Although this will not occur frequently, when it does occur it will be an extremely important contribution to the overall effectiveness of supply reduction efforts.

2. Crime Rates

Street-level heroin crackdowns may affect property and violent crime rates through a variety of mechanisms. We present six plausible models to explain how a drug enforcement program such as this one might have a substantial crime impact. However, without a complete panel of all offenders in Lynn and Lawrence, it is impossible to determine which model might have

[4]We owe this point to Mark H. Moore.

affected whom.

a. Decreased Heroin Consumption

To unsophisticated eyes, the Lynn crime results are utterly unsurprising. After all, "everybody knows" that drug use causes crime. What could be more natural than the finding that enforcement designed to decrease drug use decreases property and violent crime as well?

On reflection, however, the second proposition does not appear to immediately follow from the first. That heroin users are over-represented among offenders[5], that heroin-using offenders tend to have higher offense rates than other offenders[6], and that heroin-using offenders' crimes are concentrated into periods also characterized by heavy heroin use[7] -- all of this does not directly imply that interventions in the heroin market will suppress common crime. Indeed, insofar as the heroin-crime link is forged by heroin users' need for money to buy drugs[8], and insofar as enforcement, by

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[5]Eric Wish, Elizabeth Brady, and Mary Cuadrado, "Drug Use and Crime in Arrestees in Manhattan," a paper presented to a meeting of The Committee on Problems of Drug Dependence, June 1985.

[6]Jan Chaiken and Marcia Chaiken, Varieties of Criminal Behavior (Santa Monica, CA: Rand Corporation, 1982).

[7]M. Douglas Anglin and George Stenkert, "Narcotics Use and Crime: A Multi-Sample Multi-Method Analysis," Criminology, Spring 1988. See also George Stenkert and M. Douglas Anglin, "Narcotics Use and Crime: A Causal Modeling Approach," Journal of Quantitative Criminology, 2:3-28, 1986. See also J.C. Ball, et al., "The Criminality of Heroin Addicts: When Addicted and When Off Opiates." pp. 39-65 in J.A. Inciardi (ed.) The Drug Crime Connection (Beverly Hills, CA: Sage, 1981).

[8]Bruce D. Johnson, "Street-Level Heroin Markets: The Coping Behavior of Addicts," in Paul Goldstein, Edward Preble, James Schmeidler, Douglas S. Lipton, Barry Spunt, and Thomas Miller, Taking Care of Business: The

imposing costs on heroin dealers, tends to increase the price of the drug, enforcement could plausibly lead to increases in property crime.

To illustrate this point, consider a hypothetical example. A user who injects 10 milligrams of pure heroin per day (i.e., about two street bags) and pays the national average retail price of $2.50 per pure milligram, spends $25 per day on heroin. If improved enforcement caused a price increase to $3 per pure milligram (perhaps in the form of a decrease in purity from 5% to 4%), and if that user maintained a 10-milligram-per-day consumption level, the result would be an increase in daily heroin spending from $25 to $30, which might be reflected in increased property-crime activity.

Of course, not all users would maintain previous consumption levels in the face of a price increase. Some would cut back on their heroin consumption, and some might quit altogether. Thus, depending on users' responses, a price increase for heroin might lead to an increase or a decrease in money spent on the drug. The one empirical study examining this question suggests that rising heroin prices tend to generate increases in property crime, but the question is far from settled.[9]

Furthermore, money-price only tells part of the story. Buying heroin is not the same as buying cigarettes. Finding a willing and reliable seller may be a substantial problem for a would-be heroin buyer, requiring not only cash but also connections, skill, and time. It is as if there were two distinct prices to be paid for heroin, one in money and the other in time, risk, and

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Economics of Crime by Heroin Abusers. Lexington, MA: Lexington Books, 1985.

[9]George F. Brown and Lester P. Silverman, "The Retail Price of Heroin: Estimation and Applications," Journal of the American Statistical Association (September 1974).

aggravation.[10]

Enforcement can increase both kinds of price. Either having to spend more money or having to endure more hassle in order to acquire heroin may cause some users to reduce their drug consumption. The relative effectiveness of longer search time versus higher money-price in discouraging heroin use is a matter of conjecture.

The money-price of heroin depends largely on the risks faced by high-level drug dealers. If enforcement increases those risks, the price will rise and some users will refuse to pay it. The non-money-price of heroin depends on how many street dealers there are, who and where they are, and how aggressively they look for new customers. If street-level enforcement can shrink their numbers, restrict their locations, and make them more cautious, it can influence drug consumption even if the money-price of heroin remains unchanged.

The primary effect of street-level drug enforcement is not an increase in heroin prices. Indeed, the cost of a bag of heroin may remain unchanged.[11] Rather, retail enforcement tends to increase the time, inconvenience, and risk involved in making retail heroin purchases. These changes have unambiguously beneficial effects on crime rates: if enforcement leads to decreased consumption, and money-price does not rise, the total number of dollars spent on heroin must decrease.

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[10]Mark H. Moore, "Policies to Achieve Discrimination in the Effective Price of Heroin," p. 926.

[11]Peter Reuter and Mark A.R. Kleiman, "Risks and Prices," in Michael Tonry and Norval Morris (eds.), Crime and Justice: An Annual Review of Research (Chicago: University of Chicago Press 1986), pp. 328-329.

b. Incapacitation of High-Rate Offenders

Heroin dealers and heroin users include many very active violent- and property-crime offenders. Their arrest and incarceration as a result of street-level drug enforcement will therefore have a direct effect on crime rates. For this purpose, the precise nature of the relation between drug use and crime is irrelevant; the simple correlation between heroin use and dealing on the one hand and property and violent offenses on the other means that drug enforcement arrestees are likely to be worth incapacitating from the viewpoint of crime control. The value of incapacitating them will be the same whether they are arrested on drug charges or on outstanding warrants due to the concentration of police in drug-buying areas.

Given the extremely high crime rates characteristic of some heroin users, the incarceration of relatively small numbers of them might be responsible for substantial changes in crime rates in a city such as Lynn. A detailed analysis of individual-level criminal histories might help illuminate the extent to which this effect was at work.

c. Disruption of Stolen-Goods Markets

Some drug dealers also act as fences, bartering heroin for stolen property. Police believe this to have been the case in Lynn.[12] In such situations, drug enforcement can help disrupt stolen goods markets as well as drug markets. It seems plausible that increasing the difficulty of selling stolen goods might make theft less attractive, although there is little

[12]Kleiman, Holland, and Hayes, p. 4.

empirical work about any such effect.

d. Dispersal of Concentrations of Predators and Victims

Both a decrease in heroin expenditures and the disruption of stolen goods markets could help explain decreases in income- producing crimes. But how might crackdowns act to reduce the frequency of homicides, rapes, and aggravated assaults? One plausible explanation is that street drug markets involve concentrations of both likely aggressors and attractive victims, attractive both because they have money and drugs worth stealing and because they are less likely than average to complain to the police. Breaking up drug markets disperses potential victims and offenders, making them less likely to come into contact with one another. In addition, business disputes among drug dealers and between drug dealers and their customers are more likely to result in violence than litigation. Reducing the frequency of drug transactions reduces the frequency of related disputes that may lead to violence.

e. Perceived Increase in Police Presence

If violent and property offenders tend to break the law less when they think that risks from police are high, and if they tend to spend much of their time in drug-dealing areas, then the concentration of police in those areas for street-level drug enforcement may have a useful "advertising" effect. An increase in police presence where violent and property criminals congregate may convince some of them to cut back on their criminal activity

by giving them the impression that the risks of arrest for acts of violence or theft have gone up. While it seems reasonable to expect that any such effect would be temporary, very little is known about how criminals evaluate risks.

f. Reduced Tolerance of Disorder

The "broken windows" hypothesis[13] asserts that tolerance by police and citizens of low-level lawbreaking in a given area signals to potential criminals that the area is open for the commission of more serious crimes. When there are clear signs that such tolerance has come to an end, it can be expected that a new perception of order will spread to affect other, more serious types of crime. Open street drug dealing may create a "broken windows" effect; if so, breaking up such markets might "repair the windows" and thus reduce the frequency of serious crimes in the area.

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[13]George Kelling and James Wilson, "Broken Windows: The Police and Neighborhood Safety," The Atlantic Monthly (March 1982), p. 31: "Social psychologists and police officers tend to agree that if a window in a building is broken and left unrepaired, all the rest of the windows will soon be broken." One unrepaired broken window signals that no one cares and will perpetuate neighborhood decay and minor infractions of the law.

B. Research Design

1. Task Force Effects on the Heroin Market

a. Quality of Life

Public Opinion Survey. In our preliminary research in 1984, in order to evaluate the impact of the Drug Task Force on Lynn, citizens were surveyed to discover their opinions about the gravity of the crime and drug problems in their communities and the performance of the police and court systems in addressing these problems. In 1986-87, we repeated this survey in Lynn, and also polled Lawrence residents. A comparable "control" survey was conducted in Framingham, a demographically similar city in eastern Massachusetts, but one without any drug task force activity.

Approximately 400 people in each community were contacted by telephone between September 1986 and April 1987. Their phone numbers were selected randomly from special municipal phone directories which list persons by phone number rather than by name and include normally "unlisted" numbers, thus preventing the exclusion of such numbers from the sample.

Because heroin dealing is highly variable from neighborhood to neighborhood and even from block to block, the survey results for Lynn were stratified by neighborhood after the initial calls had been made. The city was divided into 26 localities and additional survey subjects were selected in order to attain approximately equal representation in each locality. This ensured that the ratio of each neighborhood's population to the total city population was the same as the ratio of persons surveyed in a given

neighborhood to the total number of persons surveyed. Both the Lynn and Lawrence stratifications required that additional calls be made in several neighborhoods. After stratification, the Lynn sample totaled 442 respondents and Lawrence totalled 356. The Framingham sample, which was not stratified by neighborhood, consisted of 417 calls.

Interviews. One less systematic data collection method was employed as well. In the initial study, we interviewed Lynn merchants and neighborhood and community leaders for their evaluations of the Lynn Drug Task Force. For the current study, we again interviewed Lynn shopkeepers and community leaders and spoke with similar individuals in Lawrence for their views on the respective Drug Task Forces.

b. Heroin Consumption

Drug Treatment Admissions Data. One measure of the efficacy of an enforcement effort in reducing drug consumption is an increase in demand for treatment services coincident with the intervention. From the Massachusetts Department of Public Health, we collected admissions data, broken down by facility, for all publicly-funded drug treatment providers in Massachusetts. Simple before-after changes in heroin treatment admissions in Lynn and Lawrence serve as the first level of analysis. This is followed by a similar examination of treatment admissions from the cities and towns which surround Lynn and Lawrence. We considered the timing and magnitude of changes in the number of heroin treatment admissions in order to determine whether Task Force activity was responsible for decreases in drug consumption. (See Appendix A for details of the analysis of treatment data.)

Interviews. Interviews with drug treatment providers, heroin users, police, and neighborhood leaders provided anecdotal evidence about changes in drug markets and also helped to determine whether the changes were attributable to Task Force enforcement pressure.

In particular, we attempted to contact heroin users through drug treatment agencies located in Lynn and the surrounding area. We asked administrators and drug treatment counselors to encourage heroin users who were either Lynn or North Shore residents, or who might have purchased heroin in Lynn, to talk to us. We hoped that these interviews might provide anecdotal evidence about the Lynn heroin market.

2. Task Force Effects on Crime

Preliminary evaluation of crime rates in Lynn following the inception of the Lynn Drug Task Force suggested dramatic decreases in robbery, burglary, and crimes against the person. Additional analysis of these results is necessary to answer the following questions: Are the Lynn results real? That is, did crime rates actually drop, were crimes prevented rather than just displaced to other locations, and was the drop in crime rates attributable to Task Force activity?

The simplest way to explain the crime rate decreases in Lynn is to deny that any real effect occurred, to attribute the results to statistical artifact. Flawed measurements or real decreases attributable to something other than the enforcement effort might be responsible for the results. Any intervention starting during a period of unusually increased problems begins with a favorable basis for comparison; if conditions simply return to normal

on their own, the intervention will nonetheless appear to be effective. This phenomenon of "regression to the mean" frequently misleads evaluators to reach favorable conclusions about the efficacy of interventions.

Crime reductions could also have been the result of the movement of both heroin markets and related criminal activity to surrounding cities and towns. Displacement of crime to surrounding communities is one potential drawback of street-level crackdowns. Special attention was devoted to establishing whether or not displacement explains any crime rate decreases.

To measure the effect of the Lynn Drug Task Force on property and violent crime rates, we used monthly reported crime data for Lynn, its surrounding cities and towns, and the other urban Massachusetts communities of comparable size to Lynn. We examined data for four crime categories: crimes against the person, robbery, burglary, and larceny.

The statistical analysis consisted of four stages of increasing sophistication and rigor. The first stage is an examination of changes in monthly crime rates before and after the drug enforcement program which addresses the question of whether the crime rates changed significantly. The most important factors to consider in order to attribute crime rates changes to the Task Force are the timing and magnitude of any reductions in crime rates.

In order to take into account the fact that we are dealing with time series data, the second stage of the analysis considers time series graphs of reported crime for each crime category and each geographical area. In this way, we examine the question of whether statewide trends accounted for any significant crime rate changes indicated in stage 1.

The third stage of analysis utilizes a linear regression analysis of

reported crime for each crime category and area. It is the method traditionally used to evaluate interventions and could provide further confirmation of the results from the first two stages of analysis. However, this type of analysis has a number of flaws and has been superseded by the more sophisticated ARIMA (Auto-Regressive Integrated Moving-Average) method, which constitutes stage 4 of our analysis. This ARIMA analysis examines the possibility that the crime rate decreases are simply a regression to the mean. (See Appendix B for details of the statistical analysis of Task Force effects on crime rates.)

III. LYNN DRUG TASK FORCE: INPUTS, ACTIVITIES, AND OUTPUTS

In this section, we look at the resources ("inputs") of the Lynn Drug Task Force, the activities in which its members engaged, and their immediate results ("outputs") in the form of arrests, seizures, convictions, and confinement. In the next section, we will look at how those outputs led to socially important final results ("outcomes").[1]

A. Inputs

The Lynn Drug Task Force is manned by state police narcotics officers and officers from the Lynn Police Department. Det. Lt. John LeBrasseur (Sgt. at the inception of the Task Force) of the Lynn Police Department began observing the heroin market in June 1983. In September, he was joined by State Police Lt. James Jajuga, two Lynn Police Department officers, and at different times, six state police narcotics officers. As Table III-1 indicates, the Task Force consisted of 7.33 full-time-equivalent (FTE) police officers during its first 12 months of operation. Since then, the Task Force has been manned by about 5 FTE police officers.

A general index of the resources used to combat the Lynn heroin market is the heroin buyer to police officer ratio. According to Task Force personnel, there were about 250 people regularly buying heroin in Lynn at the inception of the Task Force. Thus, the Task Force was using about one officer for every 35 heroin buyers and had a budget of about $1500 per buyer.

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[1]Graham T. Allison, The Essence of Decision: Explaining the Cuban Missile Crisis (Boston: Little, Brown, 1971).

TABLE III-1

LYNN DRUG TASK FORCE RESOURCES

	7/83-6/84	7/84-6/85	7/85-6/86
MANPOWER (Full-Time Equivalent Officers - FTE)			
Lynn Police Dept.	3	3	3
State Police	4.33	2.15	2.5
TOTAL MANPOWER	7.33 FTE	5.15 FTE	5.5 FTE
TOTAL FUNDS	$387,958.20	$249,419.20	$246,444.89

As we will see in chapter VI, Lawrence had a lower ratio of enforcement effort to the size of the market, and noticeably less success in combatting it. Whether there is a critical ratio of enforcement activity to market activity above which crackdown efforts succeed and below which they fail, and how that critical ratio might vary with other conditions, is a vital, but unanswered, question.

B. Activities

1. Tactical Preparation and Planning

a. The Target Area

The High Rock neighborhood, surrounding the intersection of Essex and Joyce Streets, contained most of Lynn's heroin trade in 1983. The Vine Street area, approximately one mile from High Rock, was also a site of heroin trade and thus was a secondary target of Task Force activity.

In High Rock, heroin was marketed in an area covering three or four city blocks. The area has no alleys but several vacant lots. Most of the buildings in the neighborhood are multifamily, private apartments with only a few entrances to each building. The area is too small and too open to provide much natural cover for drug dealers hawking their wares in public. With the seven Drug Task Force officers covering the area, it was, in Lt. LeBrasseur's words, "like having a cop on every street corner."[2]

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[2]Interview with Christopher E. Putala at Lynn Drug Task Force Headquarters, 1986.

b. Observation Period

During June, July, and August of 1983, Lt. LeBrasseur spent eight hours a day, five or six days a week in the High Rock neighborhood, getting acquainted with the heroin users and dealers.

In LeBrasseur's words,

> I would just go out there and bullshit with those guys. Sit around and talk. They all knew I was a plainclothes cop. They all thought it was a joke. I would make an arrest here or there, but that's not what I was there to do. I was there to learn the faces and the names before we really cracked down.
>
> I would be there sitting on the corner bullshitting with a guy I knew was a dealer. A customer would come up, maybe an out-of-towner. The dealer would wave him off and say, "Come back later, when this guy leaves." Then, the dealer would look at me and say, "Shit, man, you're ruining my business." And we both laughed. But, I knew the customer's face now.
>
> In a sense, it was a joke. They saw me as some kind of one-man crusade against drugs, but they knew I couldn't cover enough ground to make a dent in the market.
>
> But, when the Task Force really started, I knew the situation in this market and I knew nearly all the players.[3]

2. Overview of Tactics

The Lynn Drug Task Force established a hot-line to receive calls from citizens with information on drug crime activity. In September 1983, Lynn's daily newspaper, the Lynn Item, began publishing a 3" X 3" drug hot-line advertisement six times a week; the ad now appears once a week.

During the first year of Task Force operations, the hot-line averaged 25 calls per week. Many of these calls were extremely valuable, providing names, addresses, and license plate numbers. After 18 months of Task Force

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[3]Ibid.

operations, Lynn's heroin markets had essentially disappeared, and the frequency of calls decreased. However, Task Force personnel feel it provides enough information to justify its continued existence.

Other Lynn Drug Task Force operations divide into two phases based on whether the bulk of the drug trade is outdoors or indoors. In Phase I, where drug trade occurs openly outside, plainclothes and uniformed officers can rapidly interfere with trade by simple surveillance and arrest operations. Since drug trade is so flagrant, arrests come quickly. Once the Lynn Drug Task Force brought adequate pressure on users and retail-dealers, some of the drug trade left Lynn and some moved to indoor trading areas. Indoor trading puts buyers and sellers at substantially less risk of observation and arrest than do outdoor markets.

As the first phase of the Lynn Drug Task Force's operations pushed the drug trade indoors, officers adopted a new operational style. Tactics changed to counter market innovations. Since police can proceed against indoor dealers only with a court-ordered search warrant and since levels of probable cause required for a search warrant far exceed levels of probable cause needed to stop a suspected user or dealer on the streets, each arrest during the second phase required more time and effort.

a. Tactical Operations: Phase I

Simple Surveillance and Arrest. This is the most effective method against open-air trade. From an unmarked vehicle (the Drug Task Force rarely did foot patrols of the area) Drug Task Force personnel observed transactions, and then searched and arrested suspects.

Task Force procedures called for field interrogation of anyone who made contact with a suspected dealer. If Task Force personnel saw what they believed to be a drug transaction, they had sufficient probable cause for a search of both the suspected buyer and seller. When illicit drugs were found, arrest followed.

Outstanding Warrant Arrests. Surveillance and interrogation lead to arrest either when contraband is found or when an individual with an outstanding warrant is stopped. Since offenders tend to congregate in high-crime areas such as Lynn's High Rock neighborhood, directing enforcement resources at heroin marketing centers may be a very efficient way of rounding up suspects with outstanding warrants. Regardless, the Lynn Drug Task Force apprehended many people for outstanding warrants.

Harassing the Market. Under Massachusetts law, as in most jurisdictions, it is illegal to carry a hypodermic needle and syringe. Possession of knives with blades longer that 2.5 inches is illegal as well. The Lynn Drug Task Force arrested many people for these and other minor offenses such as loitering, disorderly conduct, and public drug intoxication. Since many of these offenders had been released previously on bail, probation, or parole, even arrest on these minor charges could have significant consequences.

Support from Lynn Police Department. Uniformed police from the Lynn Police Department supported the Lynn Drug Task Force in two important ways. During Phase I of the crackdown, the Task Force made a large number of arrests. Lynn police officers usually transported arrestees to the police station, thereby allowing Task Force personnel to remain on patrol. Uniformed officers also helped by turning over their informants to Task Force

officers. One obvious reason for the close relationship between the Task Force and the uniformed officers was the inclusion of Lynn police narcotics officers on the Task Force.

As the Lynn market moved from Phase I (open outdoor trading) to Phase II (predominantly indoor trading), other methods became necessary to combat the retail-level heroin trade.

b. Tactical Operations: Phase II

Developing Informants. Attacking Lynn's indoor drug trade was impossible without informants. The Task Force relied on two basic methods for developing informants. First, they utilized the time-honored practice of "rolling over" suspects who cooperate in exchange for lenient treatment by the district attorney. In other cases, informants called the Task Force voluntarily.

Informant Buys. Useful against outdoor dealers, informant buys are a crucial method when aiming at indoor trade. Controlled buys are one of the best methods for establishing probable cause to obtain a search warrant. Informants are also used to size up an indoor dealing situation, telling officers how many people are inside, whether they are armed or not, and so forth. Procedures call for police to search the informant carefully before the buy, provide marked buy-money, and then search the informant after the buy to assure that the informant has not concealed some of the purchased drug for personal use.

In order to obtain a search warrant as well as to protect the informant, searches did not normally occur immediately after the buy. Drug Task Force

officers photocopied buy-money in hopes of reclaiming it when they searched a trading-house. However, since several hours usually pass between the buy and the search, the Drug Task Force rarely recovered its buy-money. The Lynn Drug Task Force spent $1,500 to $2,000 in buy-money each month since beginning phase II.

Undercover Police Buys. This tactic can be used against both indoor and outdoor dealers. In a small city such as Lynn, however, as Lt. LeBrasseur's story about the observation period illustrates, this tactic can only work when used sparingly. These operations are especially valuable in inhibiting expansion of the market since dealers become wary of new customers, fearing that they are undercover police.

C. Outputs

1. Arrests

During the first year of Task Force activity, 35% of the arrests were made in the primary target area, High Rock. This proportion declined during the second and third years of the program to 22% and 13%, respectively. Nonetheless, the great majority of the arrests were made within the Lynn city limits, with only a small sprinkling of arrests made in other cities or towns.

Tables III-2 to III-4 provide the breakdown by charge of arrests made in Lynn[4] by the Lynn Drug Task Force for each of its first three years of

[4]The Lynn Drug Task Force also made a small number of arrests in cities and towns outside of Lynn.

TABLE III-2

LYNN DRUG TASK FORCE ARRESTS CATEGORIZED BY LEAD CHARGE* (9/1/83 to 8/31/84)

TOTAL ARRESTS MADE BY LYNN DRUG TASK FORCE IN LYNN = 141

HEROIN CHARGES			NONDRUG CHARGES		
Heroin Possession	21		Receiving Stolen Property	6	
Syringe	7		Assault & Battery	0	
Present w/ Heroin	4		A&B on police officer	3	
Poss. Heroin w/ Intent	36		Knife over 2.5"	3	
Heroin Distribution	8			12	(9%)
	76	(54%)			
COCAINE CHARGES			OUTSTANDING WARRANT FOR ANY OTHER CHARGE	8	(6%)
Cocaine Possession	12				
Poss. Cocaine w/ Intent	15				
Cocaine Distribution	5				
	32	(23%)			
OTHER DRUG CHARGES					
Marijuana Possession	9				
Marijuana Distrib.	1				
Valium Possession	2				
Mescaline Possession	1				
	13	(9%)			

TOTAL DRUG CHARGES = 121 (86%)

*The lead charge is the charge with the highest potential sentence.

TABLE III-3

LYNN DRUG TASK FORCE ARRESTS CATEGORIZED BY LEAD CHARGE* (9/1/84 to 8/31/85)

TOTAL ARRESTS MADE BY LYNN DRUG TASK FORCE IN LYNN = 95

HEROIN CHARGES		NONDRUG CHARGES	
Heroin Possession	16	Receiving Stolen Property	1
Syringe	4	Poss. Deadly Weapon	1
Present w/ Heroin	0	Assault & Battery	1
Poss. Heroin w/ Intent	25	A&B on police officer	0
Heroin Distribution	1	Knife over 2.5"	1
	46 (48%)		4 (4%)

COCAINE CHARGES		OUTSTANDING WARRANT FOR ANY OTHER CHARGE	9 (9%)
Cocaine Possession	9		
Poss. Cocaine w/ Intent	11		
Cocaine Distribution	0		
	20 (21%)		

OTHER DRUG CHARGES	
Marijuana Possession	6
Marijuana Distrib.	9
Valium Possession	0
Mescaline Possession	1
	16(17%)

TOTAL DRUG CHARGES = 82 (86%)

*The lead charge is the charge with the highest potential sentence.

TABLE III-4

LYNN DRUG TASK FORCE ARRESTS CATEGORIZED BY LEAD CHARGE* (9/1/85 to 8/31/86)

TOTAL ARRESTS MADE BY LYNN DRUG TASK FORCE IN LYNN = 88

HEROIN CHARGES		NONDRUG CHARGES	
Heroin Possession	16	Receiving Stolen Property	0
Syringe	2	Assault & Battery	3
Present w/ Heroin	0	A&B on police officer	1
Poss. Heroin w/ Intent	7	Knife over 2.5"	1
Heroin Distribution	0		5 (6%)
	25 (28%)		
COCAINE CHARGES		OUTSTANDING WARRANT FOR ANY OTHER CHARGE	6 (7%)
Cocaine Possession	23		
Poss. Cocaine w/ Intent	12		
Cocaine Distribution	5		
	40 (45%)		
OTHER DRUG CHARGES			
Marijuana Possession	6		
Marijuana Distrib.	5		
Valium Possession	0		
Mescaline Possession	1		
	12 (14%)		
TOTAL DRUG CHARGES =	77 (88%)		

*The lead charge is the charge with the highest potential sentence.

operations. Arrests are categorized by the lead charge, that is, the charge with the most severe potential sentence, commonly listed first on the arrest record. The figures represent arrests, not the number of counts per arrest. Thus, an arrest for one count of possessing heroin with the intent to distribute it and two counts of possessing a hypodermic needle and syringe is noted as a single addition to the "Possession with Intent" category.

For all three years, there is a high concentration of heroin arrests: approximately 50% of all arrests for the first two years, and 30% the third year. There are also a substantial number of fugitive arrests, which probably contributed significantly to the incapacitation effect. Since those who become fugitives tend to be extremely high rate criminals, even a relatively small number of arrests may prevent a large number of future crimes. The reasons most police units do not assign high priority to fugitive arrests despite their high value is a puzzle of police management for which no persuasive solution has been offered.

2. Prosecutorial Outcomes and Confinement

a. Disposition of Lynn Drug Task Force Arrestees

A microcomputer-based case tracking system was designed and installed for Drug Task Force record-keeping. The system handles information on each defendant from investigation through disposition and provided the information summarized in Tables III-5 to III-8. There are two major shortcomings in these data. First, in many instances the disposition of the case was not noted. Second, dates on which offenders were released from jail or prison

TABLE III-5

DISPOSITION OF LYNN DRUG TASK FORCE ARRESTS: SUSPECTS ARRESTED BETWEEN 9/1/83 AND 8/31/84

GUILTY:	
Suspended Sentence	15
Probation	11
Incarceration	29
Not noted	11
TOTAL GUILTY	66
TOTAL FINES	$1,675
AGGREGATE YRS. OF INCARCERATION	52
DISMISSED	4
CONTINUED or NOLLE PROSEQUI*	11
NOT NOTED	60
TOTAL ARRESTS	141

TABLE III-6

DISPOSITION OF LYNN DRUG TASK FORCE ARRESTS: SUSPECTS ARRESTED BETWEEN 9/1/84 AND 8/30/85

GUILTY	
Suspended Sentence	8
Probation	14
Incarceration	23
Not noted	8
TOTAL GUILTY	53
TOTAL FINES	$4,587
AGGREGATE YRS. OF INCARCERATION	44
DISMISSED	3
CONTINUED or NOLLE PROSEQUI	7
NOT NOTED	32
TOTAL ARRESTS	95

*Nolle Prosequi is a dismissal by the prosecutor.

TABLE III-7

DISPOSITION OF DRUG TASK FORCE ARRESTS
OF HEROIN MARKET PARTICIPANTS
(9/1/83 AND 8/31/84)

Heroin Possession, Possession of Hypodermic Needle and Syringe, and Being Present with Heroin

GUILTY:	
Suspended Sentence	2
Probation	6
Incarceration	7
Not noted	1
TOTAL GUILTY	16
AGGREGATE YRS. OF INCARCERATION	7.8
DISMISSED	2
CONTINUED	4
NOT NOTED	10
TOTAL	32

Possession of Heroin with Intent to Distribute

GUILTY:	
Suspended Sentence	2
Probation	2
Incarceration	9
Not noted	3
TOTAL GUILTY	16
AGGREGATE YRS. OF INCARCERATION	27
DISMISSED	0
CONTINUED	0
NOT NOTED	20
TOTAL	36

Heroin Trafficking

GUILTY:	
Suspended Sentence	2
Probation	0
Incarceration	3
Not noted	0
TOTAL GUILTY	5
AGGREGATE YRS. OF INCARCERATION	.79
DISMISSED	0
CONTINUED	0
NOT NOTED	3
TOTAL	8

TABLE III-8

DISPOSITION OF LYNN DRUG TASK FORCE ARRESTS ON HEROIN CHARGES: SUSPECTS ARRESTED BETWEEN 9/1/84 AND 8/31/85

Heroin Possession, Possession of Hypodermic Needle & Syringe, and Being Present with Heroin

GUILTY:	
Suspended Sentence	4
Probation	2
Incarceration	6
Not noted	0
TOTAL GUILTY	12
AGGREGATE YRS. OF INCARCERATION	3
DISMISSED	0
CONTINUED	2
NOT NOTED	6
TOTAL	20

Possession of Heroin with Intent to Distribute

GUILTY:	
Suspended Sentence	2
Probation	3
Incarceration	7
Not noted	0
TOTAL GUILTY	12
TOTAL FINES	$2,800
AGGREGATE YRS. OF INCARCERATION	20
DISMISSED	0
CONTINUED	1
NOT NOTED	12
TOTAL	25

Heroin Trafficking

GUILTY:	
Suspended Sentence	0
Probation	0
Incarceration	0
Not noted	0
TOTAL GUILTY	0
DISMISSED	0
CONTINUED	0
NOT NOTED	1
TOTAL ARRESTS	1

were never noted, though nearly all of the offenders arrested in 1983 and 1984 had been released by January 1, 1987. Consequently, only the nominal jail or prison term is counted, not the actual number of days served.

Tables III-5 and III-6 indicate the disposition and term of incarceration for all individuals arrested by the Lynn Drug Task Force in 1983-85. Suspects arrested in 1983-84 were sentenced to a total of 52 years of incarceration, and suspects arrested in 1984-85 to 44 years of incarceration.

Tables III-7 and III-8 provide a breakdown of dispositions for arrests of heroin market participants only. Suspects arrested for heroin offenses in 1983-84 were sentenced to 36 years of incarceration, which is 69% of the aggregate prison sentence received by Task Force arrestees that year. In 1984-85, heroin market participants were sentenced to a total of 23 years in prison, 52% of the aggregate incarceration time for Task Force arrestees that year.

b. Criminal Histories

The extent to which confinement time prevents crime by incapacitation depends on the level of criminal activity of the confined population. From this viewpoint, data about the individual criminal histories of Task Force arrestees is of interest, though imperfections in the Massachusetts criminal history system made it impossible to estimate the size of this effect with any confidence.

The Massachusetts State Police Criminal Justice Information Service maintains a record of the criminal histories of all individuals arrested in

Massachusetts. These records extend back to the 1950s and cover any arrest made before January 1, 1987.

In order to develop a profile of the offenders arrested by the Lynn Drug Task Force, we requested criminal histories (rap sheets) for all persons arrested in Lynn by Task Force during its first 12 months of operation. We received rap sheets for 82 offenders out of 141 arrests. We do not know if there was any bias in the selection of criminal histories. There does not appear to be any systematic exclusion of offenders with very long rap sheets nor of offenders with brief criminal histories, nor is it possible that a rap sheet did not exist for any particular class of offender. Also, we requested rap sheets long after the arrests occurred in Lynn in 1983 or 1984; thus there was adequate time for them to be documented.

Unfortunately, these and other deficiencies in the record-keeping system of the Information Service made it impossible to tie individual criminal histories to individual case outcomes. However, the data we were able to retrieve allow us to report on the characteristics of Task Force arrestees as a group with respect to previous crimes committed.

Table III-9 lists the charges (up to the three most serious) for each previous arrest of those 82 offenders. They had, as a group, criminal careers which can only be described as distinguished. These 82 offenders were charged with 2 murders, 91 counts of assault and battery, and 35 armed robberies. Each arrestee had been charged with an average of 11 criminal offenses.[5] This suggests that their incapacitation alone might have been

[5]This figure is an underestimate for several reasons. Deficiencies in the Massachusetts criminal history record-keeping system make it likely that whole arrest incidents have been missed. In addition, the fact that we only considered the three most serious charges for each arrest further underestimates the actual total charges.

TABLE III-9

CHARGES FROM RAP SHEETS OF 82 LYNN DRUG TASK FORCE ARRESTEES*

DRUG CHARGES		NONDRUG CHARGES	
Heroin Possession (i.e., Poss., Poss. of hypodermic and syringe, and Present w/ heroin)	114	Murder	2
Heroin w/ Intent	41	Assault and Battery	91
Heroin Distribution	20	Firearms	20
Conspiracy to Violate the Controlled Substances Act	23	Disorderly	50
Cocaine Possession	38	Armed Robbery	35
Cocaine Distribution	38	Breaking and Entering	84
Marijuana Possession	40	Larceny	156
Other Drug Charges	34	Receiving Stolen Property	81
		Burglary Tools	18
		Shoplifting	31
	348 (38%)		568 (62%)

TOTAL = 916

*Multiple counts of a particular offense were tallied as single counts. No more than the three most serious (i.e., longest potential sentence) charges were tallied for each arrest.

enough to noticeably decrease crime rates.

3. Burden on the Heroin Market Imposed by the Drug Task Force

One important predictor of the success of an enforcement effort is the relationship between the costs it will impose on market participants and the total dollar size of the market, that is, the "market burden." The larger the drug market, the greater the total burden (i.e., years in prison and fines; losses to seizures of weapons, money, and drugs; inconvenience of arrest) must be imposed to achieve a given level of impact.

a. Heroin Market Size

Drug Task Force personnel, neighborhood leaders, and treatment officials provided estimates of the number of users buying heroin in Lynn. Drug Task Force officers also estimated the total volume of heroin. Where volume estimates conflicted with user estimates, we followed the user estimates since people are, presumably, easier to count than bags. The most complete study on heroin consumption patterns places the average annual heroin consumption per user at 780 bags, while annual consumption of the heaviest users averaged 1300 bags.[6] We used these figures to confirm estimates about the size of the Lynn heroin market.

In 1982-1983 (pre-Task Force), four major heroin dealers bought about 4,000 packages (equivalent to 20,000 bundles) per year of bagged heroin at

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[6]Bruce D. Johnson, et al., Taking Care of Business: The Economics of Crime by Heroin Abusers (Lexington, MA: Lexington Books, 1985).

$350 per package, for an aggregate wholesale cost of $1,400,000.[7] Packages are then sold either in bundles to "jugglers" (i.e., users and small-time dealers) or in bags to users. The total annual volume of 200,000 bags (sold at $35 per bag) supported the habits of about 250 users and generated total gross revenues of $7,000,000. Thus gross retail margins (i.e., gross revenues minus the cost of goods sold) were $5,600,000.

In 1984-85 (post-Task Force), 15 to 20 dealers, operating as three separate organizations, bought about 1,600 packages per year (8,000 bundles) at an aggregate wholesale cost of $560,000. The total annual volume of 80,000 bags supported the habits of about 100 users and generated total gross revenues of $2,800,000, and gross retail margins of $2,240,000.

b. Costs Imposed on the Heroin Market

Seizures. The first year of Task Force activity resulted in significant seizures of cash ($43,575), handguns (9), and drugs ($283,847 street value) (see Table III-10). These seizures declined during the second year, probably due to the virtual elimination of the heroin market. However, the third year of Task Force activity saw great increases in all seizures, especially drugs ($781,820 street value). The Lynn Drug Task Force did not keep seizure statistics by drug; we estimate that half of the value of drug seizures represented heroin seized. These increases are explained by the redirection of the Task Force away from heroin enforcement and toward a focus on the cocaine market. Drugs and other property acquired during a seizure should be

[7]Heroin is distributed in bags, bundles, and packages. 50 bags = 5 bundles = 1 package.

TABLE III-10

SEIZURES MADE BY LYNN DRUG TASK FORCE

	9/83-8/84	9/84-8/85	9/85-8/86
Handguns	9	4	12
Cash	$ 43,575	$ 17,839	$ 83,713
Drugs (retail)	$283,847	$258,718	$781,820
Drugs (replacement)	$ 56,769	$ 51,744	$156,364

valued at the dealer's replacement cost. For drugs, we estimate replacement cost at twenty percent of street value; handguns were valued at $200 each.

Incarceration. The value of a year in jail or prison must be determined from the perspective of offenders: How much would the illicit earnings of a group of dealers have to increase to compensate them for the additional risk imposed by one additional year of aggregate incarceration? Estimating the costs imposed on drug dealers by the risk of imprisonment involves a variety of problems. For one thing, little is known about the mechanisms by which drug dealers learn about the risks they face. The most direct approach is to ask how much entrepreneurs and employees at various levels would need to be compensated to undergo small statistical changes in imprisonment risk, as workers in hazardous occupations are compensated for their risks by higher-than-normal wages. Econometric studies indicate that the risk of an additional accidental death in blue-collar trades adds between one million and five million dollars to total wages in that trade. That is, if there were two otherwise identical jobs, each with 10,000 workers, but Job A had one fatality per year and Job B two fatalities, annual earnings per worker in Job B would, on average, be about $100 to $500 higher than earnings in Job A. Valuing a year in prison at $50,000 in increased wage bill is thus likely to be a reasonable estimate of the true impact of the increased risk on the market, unless the sort of people who choose careers as drug dealers either put very high values on their lives or rate a year in prison worse than a one-in-fifty chance of accidental death.[8]

In examining the costs of incarceration, we attempt to determine the

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[8]W. Kip Viscusi, Risk by Choice (Cambridge, MA: Harvard University Press, 1983). See also Mark A.R. Kleiman, Marijuana: Costs of Abuse, Costs of Control (Westport, CT: Greenwood Press, in press).

burden the Task Force placed on the activities of buying and selling heroin. One way of approaching this number is to look only at the results of arrests for possession and sale of heroin. However, for some of the persons arrested on other charges, those arrests and their results were in fact part of the cost of their participation in the heroin market, since buying or selling heroin was the reason for their being where they were when arrested, and their records or reputations as heroin buyers or sellers led Task Force officers to be particularly interested in them. Thus, if we look only at the results of heroin-related arrests, we generate a lower bound, for the total costs imposed by the Task Force on the market. By the same token, if we look at the results of all arrests by Task Force officers -- thereby including arrests of nonparticipants in the heroin market -- we arrive at an upper bound for the burden on the market.

Heroin-only Calculation. Table III-7 provides the basis for calculating a lower-bound (heroin-only) estimate of costs the Lynn Drug Task Force imposed on the Lynn heroin market. Incarceration for all types of heroin offenses for suspects arrested in 1983-84 totaled 35.59 years.[9] Using the willingness-to-pay figure of $50,000 per year thus yields a total cost of incarceration of $1,779,500. There were no fines imposed in 1983-84 on heroin offenders. If half of the drug seizures of $283,847 represented heroin, and the replacement cost is one-fifth of the street price, then drugs lost added another $28,000 in costs. In addition, half of the cash seizures added $21,750, for a total cost of $1,829,000.

[9]It should be noted that these data have serious shortcomings. Nominal prison years surely overestimate the actual number of years served. Also, there was no disposition noted in about 47% of the cases. However, these two errors are of opposite sign and will at least in part offset each other.

In 1984-85, heroin offenders were sentenced to 23 years of incarceration, yielding a cost of incarceration of $1,150,000. In addition, fines for heroin offenders were $2800. Lost heroin accounted for an additional $26,000, and half the cash seizures added $8,900. Total costs were thus $1,188,000.

All-inclusive Calculation. Table III-5 provides the basis for calculating an upper-bound (all-inclusive) estimate of the costs the Lynn Drug Task Force imposed on the Lynn heroin market. Incarceration for all offenders arrested by the Task Force in 1983-84 totaled 52 years; thus the total cost of incarceration was $2,600,000. Fines imposed on all offenders totaled $1,675. Total lost drugs cost $56,700 to replace, and cash seizures totaled $43,500, bringing the cost imposed by the Task Force to $2,702,000.

Table III-6 lists costs imposed by the Task Force in 1984-85. Incarceration for all offenders totaled 44 years, for a total cost of incarceration of $2,200,000. Fines imposed on all offenders were $4,587. Total lost drugs cost $52,000 to replace, and total cash seizures were $17,800. Thus in 1984-85 the Task Force imposed a cost of $2,274,000.

c. Market Burden

1983-84. The "market burden" is the ratio of the costs imposed on a market by an enforcement effort to the dollar size of the market. Thus to calculate the market burden for 1983-84, we divide the costs imposed on the market (i.e., seizures, incarceration, and fines) by the dollar size of the market. The lower bound of the burden is calculated by dividing heroin-only costs ($1.8 million) by total retail revenues ($7 million) for an effective

"tax" of twenty-six percent. To estimate the upper bound, we use all-inclusive costs of $2.7 million, yielding a "tax" of 39%.

1984-85. The comparable figures for 1984-85 (similar enforcement levels operating on a substantially shrunken market) are forty-two percents and eighty-one percent. Thus the Lynn Drug Task Force inposed a large and growing burden on the heroin market, a burden large enough to account for its shrinking and remaining small.

IV. RESULTS OF THE LYNN DRUG TASK FORCE

A. Task Force Effects on the Heroin Market

1. Quality of Life

As of the end of 1986, Lynn had no area of open street heroin trade. The entire heroin market has been virtually eliminated. Though cocaine trade still exists in Lynn, it does not occur openly on the streets.

Environmentally, the High Rock area itself has undergone a number of changes since 1983. Pedestrian traffic is light to normal with no obvious loitering. Three or four new condominium projects are either completed or under construction. Renovation is also occurring in the small business district on Union Street adjacent to the High Rock neighborhood.

The Vine Street area, which also functioned as a street bazaar in 1983, has undergone some renovation over the past few years as the street trade died out, including the construction of a small condominium project. While the Task Force has uncovered several small indoor-trading houses off of Vine, this discreet cocaine market -- compared to the open heroin and cocaine trade in 1983 -- causes minimal disruption to the neighborhood.

Evidence of heroin trade in Lynn has become scarce. A heroin-related arrest now occurs on average only once every three or four months. The Task Force focuses on central Lynn where a substantial cocaine trade occurs within a 3/4 mile radius of City Hall.

Within this downtown area there exists no single concentrated drug marketplace similar to High Rock in 1983. Instead, the cocaine

trading-houses are dispersed. The transactions occur indoors with the exception of a small trade that utilizes runners to make pre-arranged quick exchanges ("passes") on the street.

Task Force personnel believe that the cocaine trade occurs throughout the city, not solely in the downtown area. Many bars and nightclubs in Lynn serve as cocaine markets. The Lynn Housing Authority operates a large low-income housing project in west Lynn; the Task Force has made several arrests of dealers operating out of this project.

Cocaine use and trade also exists in the neighborhoods of north Lynn. Here, the Task Force makes infrequent arrests, but on the whole, this suburban market is too discreet to yield to street-level tactics. Most of the transactions occur in the home between friends, so surveillance does not easily detect such trade.

a. Public Opinion Survey

In 1983, Lynn residents were surveyed for their opinions about the gravity of the crime and drug problems in their communities and the performance of the police and court systems in addressing these problems. In our preliminary analysis, we reported a three to one ratio of persons responding that the police and courts had improved their performance to those responding that the quality of police and court performance had declined. Since our initial survey did not include a control group, we compared our results with those of other public opinion polls. This comparison indicated that Lynn respondents expressed very favorable opinions toward the police, particularly given the statistical tendency of respondents to criticize

rather than praise.

In 1986, we conducted the survey again, this time polling residents of Lynn and Lawrence, and using Framingham as a control group since it is demographically similar to Lynn and Lawrence, but had no drug task force activity. Comparisons between Lynn and Framingham show very little variation in responses. Thus the survey does not indicate that Lynn residents felt the performance of the police or the courts improved significantly. Differences in the wording of our survey questions may account for the fact that our original results appeared to indicate favorable public attitudes when compared to other surveys.

b. Interviews

In addition to the public opinion survey, a series of interviews was conducted with Lynn community leaders and shopkeepers during July and August of 1986. These interviews revealed a similar concern about crime as was evidenced in the public opinion survey: both leaders and "people on the street" claimed to be quite concerned about crime in the area. While many people praised the Task Force, the police chief, and the mayor, others complained that the city was not doing enough to fight crime. It should be noted that these responses were made during the maintenance phase of the Task Force program.

2. Heroin Consumption

a. Drug Treatment Admissions Data

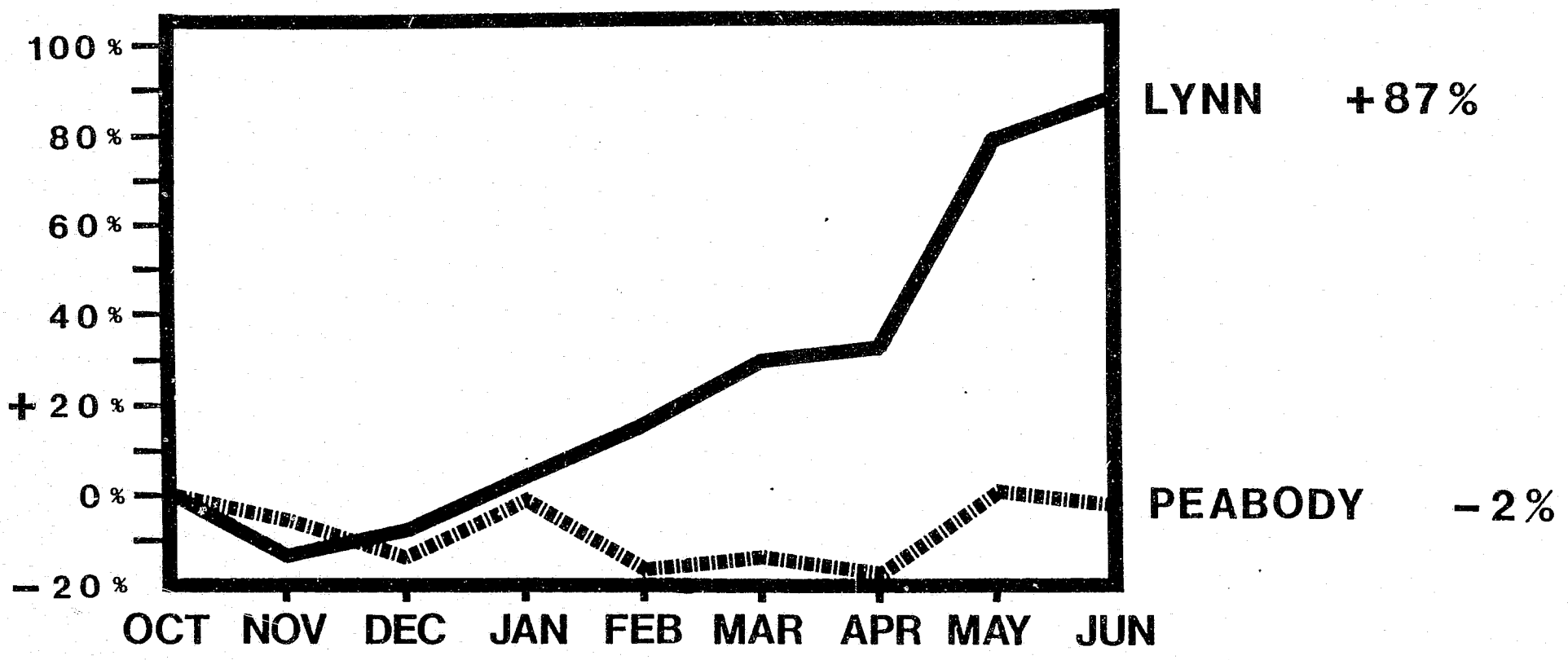
In the first 10 months of the Lynn Drug Task Force's operations, demand for heroin treatment at Lynn's largest heroin treatment program increased substantially. Heroin treatment hours supplied by the Lynn office of Project COPE increased 85% during this period, while the COPE office of nearby Peabody reported virtually no change in demand for treatment over the same period (see Figure IV-1).[10]

Of course, it is impossible to determine how much of the increase in treatment demand is due to the Task Force. In addition, due to problems with data collection, the total impact of drug treatment programs on Lynn and its surrounding communities is difficult to measure. Data provided to us gives only the number of people admitted to treatment programs who told treatment personnel in Massachusetts that heroin was their primary drug problem. This figure is our best approximation of the total demand for heroin treatment.

Furthermore, information about clients' residences was not available until July, 1984. Therefore, the best available measure of demand for drug treatment in particular communities in earlier years is the number of admissions at their largest heroin treatment centers. These data are the basis of estimates of the number of residents who sought heroin treatment in the years following the establishment of the Lynn Task Force. These estimates, which are very rough, are presented in Table IV-1. (See Appendix A for a discussion of data collection, estimating procedures, and the

[10]Kleiman, Holland, and Hayes, p. 8 and Figure 1.

ENFORCEMENT DROVE ADDICTS INTO DRUG TREATMENT



CHANGE IN DRUG TREATMENT HOURS FROM OCTOBER 1983 TO JUNE 1984

Figure IV-1

TABLE IV-1

ESTIMATES FOR
LYNN AND SURROUNDING AREA RESIDENTS
SEEKING HEROIN TREATMENT

	9/82 to 8/83	9/83 to 8/84	9/84 to 8/85
LYNN	137	181 [+32%]	92 [-49%]
SALEM	1	11 [+1000%]	12 [+11%]
GLOUCESTER	17	20 [+20%]	28 [+40%]
REVERE & CHELSEA	19	72* [+279%]	81 [+12%]

*Estimate based on reconstructed data. This figure may be due to an increase in heroin market size in Revere and Chelsea.

For an explanation of how these numbers were calculated, see Appendix 2.

shortcomings of each.)

No precise quantitative conclusions should be drawn from these figures. However, they do appear to indicate, as confirmed by data on Project COPE's treatment hours, that demand for heroin treatment increased in Lynn from 1983 to 1984 before returning to previous levels. This 1984-1985 return to pre-Task Force levels can be plausibly explained by a reduction in the total number of heroin users in Lynn after a year of Task Force operations, especially given the treatment demand in the first year.

More significantly, the estimates for demand for heroin treatment in Salem, Gloucester, Revere, and Chelsea increased substantially after the Task Force. These increases suggest that out-of-town citizens who bought their heroin in Lynn before the Task Force, began to seek treatment in their own communities as the Lynn market dried up.

The administrators of the drug treatment programs we considered told us that the changes in the number of individuals seeking treatment, upon which the estimates are based, could not be accounted for simply by changes in treatment capacity. Some, however, did partially attribute the increases to increased community outreach activities.

b. Interviews with Heroin Users

During September and November 1986, we conducted interviews with five heroin users from Project COPE, an in-patient drug treatment center in Lynn which was the only agency providing heroin users willing to talk with us. None of these users provided specific information about Lynn's heroin traffic. When asked about Lynn in 1982 and 1983, most told us that there had

been a lot of good quality heroin available in Lynn a few years ago. The four interviewees who started using heroin before 1975 all recalled that the early 1980s brought a significant increase in the quality and quantity of heroin available in eastern Massachusetts. However, when asked which cities they and other users patronized, all mentioned Lawrence and Lowell, while only one mentioned Lynn. Several interviewees indicated that Lynn no longer had an active heroin trade, though none could explain the disappearance of the market.

3. Displacement

The benefits of concentrating enforcement resources against a drug market can be nullified if new markets appear on other street corners or in adjacent cities. The Lynn Drug Task Force concentrated its initial activity on the drug markets in the High Rock and Vine Street neighborhoods. According to Drug Task Force personnel, officials in the Lynn Mayor's Office, neighborhood leaders, treatment personnel, and our own surveillance, no open-air heroin bazaars have existed in Lynn since the High Rock and Vine Street heroin markets were eliminated. Indeed, no significant heroin trade, indoors or out, has existed in Lynn since mid-1984.

By the spring of 1987 there was some evidence of a few small (i.e., patronized by about 100 customers) heroin markets in the larger communities north of Lynn. Interviews with narcotics officers from Gloucester, Beverly, Danvers, Peabody, and Salem confirmed that no more than two of these small markets were active at any one time. A few officers told us that within a six- to eight-month period, heroin markets in their city went from being

almost nonexistent to thriving and then almost ceased again. The officers found that within a month or two, these markets yielded to enforcement pressure by the local police department's three- or four-man narcotics unit. There is, however, no evidence that breaking up the Lynn market produced several smaller markets.

Even if breaking up a larger market did produce several smaller ones, the ease with which the small markets discussed above were eliminated suggests two benefits: 1) Small markets appear more susceptible to enforcement pressure; and 2) They also may not be as damaging to a city or neighborhood as larger markets.

Since 1985, two cities to the south of Lynn (Revere and Chelsea) seem to have experienced some growth in their heroin markets. However, officials in Chelsea report that almost all dealers and most customers come from Boston and the South Shore, not from the North Shore, or Lynn area. Neither Revere nor Chelsea is in Essex County. Thus, even if those markets appeared to have been the same as the Lynn market, Task Force personnel could not have followed them to that jurisdiction.

B. Crime Rates

In the twenty-eight months starting with September, 1983, when the Lynn Drug Task Force began to operate, reported robberies fell 25%, reported burglaries fell 35%, and crimes against the person (homicide, rape, and aggravated assault) fell 75%. That simple before-and-after comparison, however, does not tell us how much of the decrease was causally linked to the operations of the Task Force.

Several statistical tests were peformed on the monthly crime data in an attempt to separate the effects of Task Force operations from other effects. (See Appendix B for a complete analysis.)

The first question was whether simple chance could account for the changes. It could not; there is less than one chance in a hundred that such extreme differences could have been produced by chance alone.

Second, we considered whether crime decreases in Lynn were merely part of a state-wide pattern of crime decreases. But if we adjust for state-wide changes by taking the ratio of crimes in Lynn to crimes in other cities of comparable size, the before-and-after difference remains statistically significant.

Finally, we considered the special problems posed by time-series analysis, such as regresion toward the mean and random-walk effects. An ARIMA analysis confirmed that the change was real.

Reported crimes are a fraction, and a variable fraction, of crimes committed. Even actual crimes are likely to be "noisy," particuarly in a small city where the confinement or release of a few high-rate offenders can drive offense rates down or up. For these reasons, it is impossible to provide a precise estimate of crimes prevented by the Lynn Drug Task Force. If, however, we simply use the difference in monthly means between the pre-Task Force and post-Task Force periods (over and above any decreases in comparable cities) as an estimate of the benefits of the Task Force, we estimate that roughly 800 crimes against the person, 60 robberies, and 270 burglaries were prevented annually by the Lynn Task Force in its first 28 months of operation. This is a huge payback on a budget that never reached $400,000 per year.

C. Summary of Lynn Drug Task Force Results

Several conclusions emerge from the initial and follow-up studies of the Lynn Drug Task Force and its effects on drug markets, crime, and the quality of life in Lynn:

- o There has been very little heroin trade in Lynn since September, 1984, one year after the Lynn Drug Task Force began operations;
- o The Lynn Drug Task Force significantly reduced crime rates in Lynn, and four years later, crime rates had not returned to pre-Task Force levels;
- o The quality of life in neighborhoods which were once the heroin marketing centers of Lynn has markedly improved;
- o The Lynn Drug Task Force accomplished these goals with an initial police officer-heroin user ratio of 1 to 34, after the first nine months of activity the Task Force operated with about two-thirds the original staffing level, devoting about 10% of these resources to heroin enforcement.
- o One possible explanation for the decline in the rates of property crime in Lynn was that heroin users traveled to Lynn to both score heroin and steal to support their habit. However, we found the same proportion of Lynn residents among those arrested for property crimes both before and after the Task Force;
- o While an extremely high proportion of Lynn residents gave positive performance ratings to the local police one year after the Lynn Drug Task Force began operations, the proportion of those giving a positive rating declined when Lynn residents were surveyed three

years after the Task Force began;

- Lynn's only heroin treatment center reported a significant increase in the number of people being admitted for heroin problems during the first year of Task Force operations, evidence that the Lynn Drug Task Force persuaded some heroin users to quit; since that 12-month period, admissions for heroin problems have declined below pre-Task Force levels, perhaps indicative that the population of active heroin users living in Lynn has also decreased;
- A small though significant cocaine market continues to exist in Lynn, with nearly all of the cocaine trade occurring in private apartments or bars;
- Communities to the north of Lynn have experienced more heroin trade since the Lynn market was controlled -- these heroin markets are typically much smaller than the original Lynn market and they relocate within a few months, usually under pressure from the local police.

V. LAWRENCE, MASSACHUSETTS

A. Background

Lawrence is located about fifty miles northwest of Lynn, in the Merrimack Valley. The demographics of the two cities are similar, except in two aimportant respects. Lawrence has a smaller population than Lynn (63,000 opposed to 80,000); and its Hispanic population is much larger, both in absolute and relative magnitude.

Lynn and Lawrence are both former centers of a dying industry -- Lawrence manufactured textiles while Lynn manufactured shoes. The growth of electronics and computer companies along Route 495 and in southern New Hampshire may promise Lawrence a brighter economic future than Lynn faces.

Both cities had high crime rates during the twelve months before Drug Task Force operations began, in 1982 and 1983 respectively. Lynn's rate was considerably higher than Lawrence's: 100 crimes per 1000 population for Lynn (the highest of any of the 16 Massachusetts cities with populations between 50,000 and 100,000) and 71.3 per 1000 for Lawrence (the third highest among the same 16 cities). Table V-1 shows the pre-Task Force reported crime rates for both cities. Before the Task Force, Lynn experienced significantly higher burglary and larceny rates, crimes commonly associated with heroin users.

As noted above, a major demographic difference between Lynn and Lawrence involves Hispanic residents. Lynn's Hispanic community is less than 4% of the population, and primarily Dominican, while the Hispanic population in Lawrence makes up 16% of the total, according to U.S. 1980 census figures.

TABLE V-1

CRIMES PER 1000 POPULATION

	Murder	Rape	Assault	Robbery	Burglary	Larceny	MVT
Lynn (1982)	.06	.44	12.5	3.2	38.4	31.3	14.0
Lawrence (1983)	.06	.36	5.67	2.2	20.4	22.9	19.7

These census figures underestimate the number of Hispanics living in Lawrence for many reasons: Most of the Hispanic groups do not speak English or were not properly informed about the census, and some immigrants are not legal U.S. residents. The Greater Lawrence Chamber of Commerce estimated that the Hispanic population was more than 25% of the total population in 1980. Enrollment statistics in the Lawrence High School indicate that by the mid-1980s, the Hispanic population had grown even larger -- 43% of those enrolled in 1984 were Hispanic. Local officials estimated that by 1985, the Hispanic population comprised between 40% and 50% of the Lawrence population.

Census figures indicate that more than half of the Hispanic population in Lawrence is Puerto Rican. This figure underestimates the Dominican population. It is difficult, even for members of the two groups, to distinguish Dominican nationals from Puerto Rican natives. The similarity of culture, values, speech patterns, and even physical traits has facilitated the illegal entry of Dominicans to the United States, particularly via Puerto Rico. Posing as a Puerto Rican is an easy way to avoid visa problems.

Most of Lawrence's Hispanic inhabitants are recent immigrants. Census statistics indicate that almost half (43%) of Hispanics aged 19 or older speak English poorly or not at all; the same is true of almost one-fifth (17.7%) of Hispanics between 5 and 17. In some of Lawrence's neighborhoods, these figures rise as high as 61% and 23%, respectively. These percentages suggest recent arrival in the Uniteed States, a suggestion confirmed by the fact that one of every six Hispanics over five years of age lived abroad five years before the census.

Lawrence's Hispanic residents tend to live in certain areas of the city, particularly in the Park Street and Oxford Street neighborhoods. Many

Hispanics live in housing provided by the Lawrence Housing Authority. The 296-unit Merrimack Courts housing project, at the southern end of the Oxford Street neighborhood, is predominantly Hispanic and poor -- 94% of Merrimack Courts residents received some form of public assistance in 1984. Drug use and sales are common. Abandoned or empty apartments are taken over illegally by drug dealers. No estimate of drug use by Merrimack Courts residents is available, but observations in early 1985 indicated an incredibly high use of heroin, alcohol, and marijuana. In early 1984, approximately half of Lawrence's heroin trade was said to take place in Merrimack Courts.

A more typical example of living conditions for Lawrence's Hispanic community is the Park Street neighborhood. While poverty is rampant and substandard apartments are common, living conditions markedly better than in Merrimac Courts. Nonetheless, the desperate circumstances in which much of the Hispanic community lives contribute to an environment which tolerates drugs in many areas of Lawrence. This presents a vastly different situation from that which prevailed in Lynn just before Task Force operations began.

The relative importance of drug use among the Hispanic poor, and the visibility of the drug trade, raised the question of how much the Hispanic community would cooperate with any special program to combat drug dealing. Tips received through the Lynn Drug Task Force's hot line and the general cooperation by Lynn residents were keys to the success of the Lynn Drug Task Force. Would similar assistance be forthcoming from Lawrence residents? In this regard, one must distinguish two major groups within the Hispanic community: those who use drugs as a way of life or who are so deeply involved in the drug subculture that they cannot see any benefit from an effort to control these substances, and the majority of Hispanics who live

close to drugs, but whose activities, connections, and ambitions focus outside the drug subculture.

Among drug users and those deeply involved in the drug subculture, there is little possibility of voluntary cooperation with a drug enforcement effort under any circumstances. Cooperation from the remainder of the Hispanic community is hindered by the basic mistrust and ill feelings between Hispanics and non-Hispanics in Lawrence. The older, Anglo residents of Lawrence have made few attempts to integrate the Hispanics into community life, and ethnic tensions are considerable.

The ethnic composition of Lawrence's fire and police departments is an example of the institutionalization of ethnic barriers. In 1978 there were six minority firefighters out of 217 total firefighters and only one minority police officer out of a police force of 151. By 1984, in response to local pressure, the number of minority police officers was increased to two. In a city whose Hispanics have been called "Spics" in police logbooks, it is not surprising that "lack of interest among police officers" was a reason for dropping two community-relations courses. Only two officers signed up for a seminar on "Policing in a Multi-Racial Community" in 1982.

Ethnic tensions in Lawrence culminated in several nights of rioting in August 1984. Most of the rioting occurred in the Oxford Street neighborhood, particularly at the Merrimack Courts housing project. Sides were drawn on plainly ethnic grounds: non-Hispanics against Hispanics. That those riots erupted out of a trivial incident -- the breaking of a windshield -- is further testimony to the ethnically charged atmosphere in Lawrence.

B. Prospects for a Successful Crackdown

1. The Lawrence Community

The Lawrence Drug Task Force faced many more obstacles than the Lynn Drug Task Force. In Lynn, most drug dealers were Hispanic and they offered their wares on street corners of predominantly English-speaking neighborhoods. Ethnic divisions probably contributed to the willingness of some citizens to call the Lynn Drug Task Force's hot line to report drug-dealing activity. In Lawrence, Hispanic heroin dealers offered their wares in run-down, Hispanic neighborhoods and housing projects. The ethnic tensions in Lawrence therefore tended to discourage cooperation with its Drug Task Force. Drug dealers also were camouflaged by the physical characteristics of the housing projects, such as internal hallways, apartments in which to conduct drug transactions, and other areas not easily surveyed even by foot patrols.

In addition, there were many more local heroin users in Lawrence than in Lynn. Thus, even if the overall magnitudes of the Lawrence and Lynn heroin markets were similar, the latter would present a much more difficult challenge to drug enforcement, insofar as local buyers are harder to discourage than those who must come from far away.

2. Size of the Lawrence Area Heroin Markets

The District Attorney and Lawrence Drug Task Force expected their work to be further complicated by the presence of another heroin trafficking

center 10 miles away in Lowell, Massachusetts. It quickly became apparent that these two markets share dealers, customers, and similar operating characteristics. These similarities seem to have arisen before 1984 and continued into 1987.

Enforcement officials in the two cities regularly seize bags of heroin with identical markings, evidence that the same trafficking organizations support dealers in both cities. All heroin comes from New York City, particularly the Lower East Side and the Bronx. Traffickers and major dealers often store the heroin they sell in one city in "safe houses" located in another.

These features led officials from the New England headquarters of the Drug Enforcement Administration (DEA), state police narcotics officers from Essex County and Middlesex County (Lowell is in Middlesex County), and local police narcotics officers to agree unanimously that the Lawrence and Lowell heroin markets, together with satellite markets in Methuen and Haverhill, are properly considered a single market.

Interviews with DEA agents, state and local police narcotics officers, treatment personnel, public housing authority administrators, and heroin users led us to an estimate of about 2,000 heroin users patronizing heroin markets in the Lawrence-Lowell area. This includes both local residents and customers traveling from other Massachusetts areas and towns, as well as from New Hampshire. These 2,000 users probably consume about 1.56 million bags (or equivalently, 32,000 packages) of heroin annually.[11] Purchased in New York City in packages of 50 bags for $350, that heroin would have an aggregate wholesale cost of $11.2 million. These packages are then sold as

[11] 1 package = 5 bundles = 50 bags.

bundles and bags in Lowell and Lawrence. A bundle of heroin which sells for $95 in New York costs $220 in Lowell/Lawrence, while a bag priced at $10 in New York costs $35 in Lowell/Lawrence. Since very few bundles are purchased in Lawrence/Lowell for resale elsewhere, total gross revenues can be calculated by multiplying sales volume (1.56 million bags) by the retail price of $35 per bag, for a total of $54.6 million. Thus gross retail margins were $43.4 million.

Lawrence Drug Task Force personnel estimated that heroin market in Lawrence proper was three times the size of the market in Lynn. The number of customers was estimated at between 700 and 800, or approximately 38% of the Lawrence/Lowell market. Total consumption in the Lawrence market was therefore approximately 580 thousand bags annually, with total retail receipts $20.4 million and gross retail margins $16.2 million.

The increase in demand for heroin treatment in both Lawrence proper and the surrounding area suggest that the market may have shrunk during Task Force operations. Such a decrease in market size in unlikely to be substantial; enforcement personnel could not provide any data that might indicate its magnitude.

Perhaps one-half of the retail level sales in Lawrence proper occurred in the Merrimack Courts housing project. The rest of the retail transactions were completed on street corners, in doorways and alleys, and in apartments in the Oxford Street neighborhood (a three- or four-block area abutting the Merrimack Courts), along Essex Street (the eastern side of Merrimack Courts), and in the Park Street neighborhood (a five-block area about 3/4 mile from Merrimack Courts).

It should be noted that although the Lawrence and Lowell markets should

be considered together, they are in separate jurisdictions. Animosity between Lt. Jajuga and the Lowell police force, dating from an incident in 1985, continues to hinder cooperation in 1987.

3. Lawrence-Lowell Cocaine Market

In addition to the heroin trade, Lawrence and Lowell appear to be major distribution centers for cocaine from south Florida and New York City. The Lawrence and Lowell cocaine markets should also be considered together. The cocaine market is, however, completely independent of the heroin market; major traffickers and dealers trade in either heroin or cocaine, but not both.

We collected estimates of the size of the Lawrence-Lowell cocaine traffic for 1986-87. The cocaine traffic has probably not remained constant since 1984. However, the great volume of cocaine traded in 1986-87 is surely an indication that the Lawrence-Lowell area has had a significant cocaine market since the inception of the Lawrence Drug Task Force.

The most conservative estimate indicates an annual sales volume of approximately 1,300 kilograms of nearly pure (90% pure or higher) cocaine, sold in kilogram units at $25,000 per kilogram. Total gross revenues at the kilogram level, which is the highest level, are about $32 million. Perhaps one-half of this cocaine reaches the retail markets in Lowell and Lawrence; the rest is purchased in bulk quantities for resale throughout New Hampshire, eastern Massachusetts, and Maine. Diluted to roughly 40-50% purity, 1300 kilograms of 90% pure cocaine constitute 2,600,000 retail grams, which sell for $100 each. If half that amount is sold at retail in Lowell and Lawrence,

total retail cocaine revenues come to $130 million.

While most of Lawrence's heroin trade occurs on street corners and in alleys, cocaine is bought and sold in barrooms, nightclubs, and private apartments. Thus, cracking down on Lawrence's open-air heroin users is unlikely to directly affect a significant segment of the cocaine trade.

VI. LAWRENCE DRUG TASK FORCE: INPUTS AND OUTPUTS

A. Inputs

1. Resources

State Police Lt. James Jajuga spent a few months during the summer of 1984, as Sgt. LeBrasseur did 12 months before in Lynn, familiarizing himself with the Lawrence heroin market. By late September 1984, the Lawrence Drug Task Force began full-scale crackdown operations. Joining Lt. Jajuga were six state police officers, several of whom had worked on the Lynn Drug Task Force, and two Lawrence Police Department officers, for nine full time equivalent officers (see Table VI-1).

The ratio of heroin buyers to Task Force officers was about twice that faced by the Lynn Drug Task Force. There were about 35 heroin users for each police officer when the Lynn Drug Task Force began. In Lawrence, there were more than 80 users for each Task Force officer, with a budget of $560 per heroin user, as compared with the 1983 Lynn budget of $1,500 per heroin user. The Lawrence Task Force also devoted significant resources against the heroin markets in Methuen and Haverhill. If arrests follow from resource allocations, as they probably do for street-level drug crackdowns, the arrest figures presented below (see Tables VI-2 and VI-3) indicate that about 20% of Task Force resources were devoted to heroin markets outside Lawrence. If this 20% is omitted from calculations, per-user expenditures fall to approximately $450. As in Lynn, the per-unit expenditure estimates include capital costs.

TABLE VI-1

LAWRENCE DRUG TASK FORCE BUDGET

	7/84-6/85	7/85-6/86
MANPOWER (Full-Time Equivalent Officers - FTE)		
Lawrence Police Dept.	2	2
State Police	7	7
TOTAL MANPOWER	9	9
TOTAL FUNDS	$421,877.48	$410,927.05

TABLE VI-2

LAWRENCE DRUG TASK FORCE ARRESTS CATEGORIZED BY LEAD CHARGE* (9/1/84 to 8/31/85)

TOTAL ARRESTS MADE BY LAWRENCE DRUG TASK FORCE [IN LAWRENCE]=206

HEROIN CHARGES		
Heroin Possession	14	
Syringe	1	
Present w/ Heroin	7	
Poss. Heroin w/ Intent	36	
Heroin Distribution	8	
	66	(32%)

COCAINE CHARGES		
Cocaine Possession	30	
Poss. Cocaine w/ Intent	26	
Cocaine Distribution	7	
	63	(31%)

OTHER DRUG CHARGES		
Marijuana Possession	13	
Marijuana Distrib.	10	
Class C Possession	2	
Class C Distrib.	4	
Conspiracy to Violate the Controlled Substances Act	5	
	34	(16%)

TOTAL DRUG CHARGES 163 (79%)

NONDRUG CHARGES		
Receiving Stolen Property	6	
Disorderly Conduct	2	
Breaking and Entering	1	
Assault & Battery	3	
A&B on police officer	2	
Knife over 2.5"	0	
	14	(7%)

OUTSTANDING WARRANT FOR ANY OTHER CHARGE 29(14%)

*The lead charge is the charge with the highest potential sentence.

TABLE VI-3

LAWRENCE DRUG TASK FORCE ARRESTS CATEGORIZED BY LEAD CHARGE* (9/1/85 to 8/31/86)

TOTAL ARRESTS MADE BY LAWRENCE DRUG TASK FORCE [IN LAWRENCE]=257

HEROIN CHARGES		NONDRUG CHARGES	
Heroin Possession	18	Receiving Stolen Property	4
Syringe	9	Disorderly Conduct	3
Present w/ Heroin	17	Breaking and Entering	5
Poss. Heroin w/ Intent	55	Assault & Battery	2
Heroin Distribution	2	A&B on police officer	0
	101 (39%)	Knife over 2.5"	0
			14(5%)

COCAINE CHARGES		OUTSTANDING WARRANT	
Cocaine Possession	30	FOR ANY OTHER CHARGE	40(16%)
Poss. Cocaine w/ Intent	26		
Cocaine Distribution	22		
	69(27%)		

OTHER DRUG CHARGES		
Marijuana Possession	11	
Marijuana Distrib.	15	
Valium Possession	0	
Mescaline Possession	0	
Conspiracy to Violate the Controlled Substances Act	7	
	33	(13%)

TOTAL DRUG CHARGES 203 (79%)

*The lead charge is the charge with the highest potential sentence.

2. Operations

The Lawrence Drug Task Force followed substantially the same enforcement strategies employed by the Lynn Drug Task Force. However, the Lawrence Drug Task Force confronted two obstacles not present in Lynn: multi-unit housing projects and a large cocaine market. Policing Lawrence's housing projects required special surveillance techniques not necessary in Lynn. The Lawrence-Lowell cocaine trade required the use of tactics aimed at wholesale-level drug enforcement -- longer investigations, working up the chain to arrest major traffickers, and so on.

B. Outputs

1. Arrests by Charge and Location

Arrests by the Lawrence Drug Task Force were less concentrated on heroin than arrests by the Lynn Drug Task Force. They were also more likely to occur outside of the primary target city. While arrests outside Lynn by the Lynn operation were too infrequent to be worth counting, twenty-two percent (101/463) of Lawrence Drug Task Force arrests took place in other jurisdictions. Only thiry-six percent (167/463) of those same arrests were made on heroin-related charges, as compared with fifty-three percent of Lynn arrests. Thirty-nine percent (132/463) of Lawrence Drug Task Force arrests involved cocaine as the top charge, somewhat higher than the comparable Lynn figure of twenty-two percent. (See tables VI-2 and VI-3.)

2. Prosecutorial Outcomes

A microcomputer-based case tracking system was designed and installed for Drug Task Force recordkeeping, handling information on each defendant from investigation through disposition. This electronic database provides the information summarized in Tables VI-4 through VI-7. There are two major shortcomings in these data. First, in many cases the disposition of the case was not noted. Second, dates on which offenders were released from jail or prison were never noted, though nearly all of the offenders arrested in 1984 and 1985 had been released by January 1, 1987. Consequently, only the nominal jail or prison term is counted, not the actual number of days served.

3. Criminal Histories of Task Force Arrestees

We received criminal histories (rap sheets) on 27 of the Lawrence Drug Task Force arrestees, almost 15% of the arrested population. These data (see Table VI-8) indicate that Lawrence arrestees averaged about 7 lifetime arrests. This is significantly lower than the Lynn figure of 11 lifetime arrests per offender. However, the difference may be at least partially explained by the fact that there were many more recent immigrants arrested in Lawrence, who had fewer years to accumulate criminal histories.

4. Burden on the Heroin Market Imposed by the Drug Task Force

In attempting to burden the Lawrence heroin market with an enforcement "tax," the Lawrence Drug Task Force faced a stiffer challenge than its

TABLE VI-4

DISPOSITION OF LAWRENCE DRUG TASK FORCE ARRESTS: SUSPECTS ARRESTED BETWEEN 9/1/84 AND 8/31/85

SUSPECTS ARRESTED IN LAWRENCE

GUILTY:	
Suspended Sentence	21
Probation	29
Incarceration	28
Not noted	2
TOTAL GUILTY	99
TOTAL FINES	$25,212
AGGREGATE YRS. OF INCARCERATION	62
DISMISSED	9
CONTINUED or NOLLE PROSEQUI	24
NOT NOTED	74
TOTAL ARRESTS	206

SUSPECTS ARRESTED IN CITIES OUTSIDE OF LAWRENCE

GUILTY:	
Suspended Sentence	3
Probation	1
Incarceration	8
Not noted	0
TOTAL GUILTY	12
TOTAL FINES	$25
AGGREGATE YRS. OF INCARCERATION	30
DISMISSED	3
CONTINUED or NOLLE PROSEQUI	2
NOT NOTED	32
TOTAL ARRESTS	49

TABLE VI-5

DISPOSITION OF LAWRENCE DRUG TASK FORCE ARRESTS: SUSPECTS ARRESTED BETWEEN 9/1/85 AND 8/30/86

SUSPECTS ARRESTED IN LAWRENCE

GUILTY:	
Suspended Sentence	22
Probation	18
Incarceration	39
Not noted	2
TOTAL GUILTY	100
TOTAL FINES	$16,632
AGGREGATE YRS. OF INCARCERATION	83
DISMISSED	12
CONTINUED or NOLLE PROSEQUI	15
NOT NOTED	130
TOTAL ARRESTS IN LAWRENCE	257

SUSPECTS ARRESTED OUTSIDE OF LAWRENCE

GUILTY:	
Suspended Sentence	1
Probation	1
Incarceration	14
Not noted	0
TOTAL GUILTY	16
TOTAL FINES	$2,000
AGGREGATE YRS. OF INCARCERATION	49
DISMISSED	0
CONTINUED or NOLLE PROSEQUI	4
NOT NOTED	32
TOTAL ARRESTS OUTSIDE LAWRENCE	52

TABLE VI-6

DISPOSITION OF LAWRENCE DRUG TASK FORCE ARRESTS ON HEROIN CHARGES: SUSPECTS ARRESTED BETWEEN 9/1/84 AND 8/31/85

Heroin Possession, Possession of Hypodermic Needle & Syringe, and Being Present with Heroin

GUILTY:	
Suspended Sentence	1
Probation	1
Incarceration	3
Not noted	0
TOTAL GUILTY	9
TOTAL FINES	$2,975
AGGREGATE YRS. OF INCARCERATION	3
DISMISSED	2
CONTINUED	6
NOT NOTED	5
TOTAL ARRESTS	22

Possession of Heroin with Intent to Distribute

GUILTY:	
Suspended Sentence	3
Probation	6
Incarceration	8
Not noted	0
TOTAL GUILTY	17
TOTAL FINES	$1,907
AGGREGATE YRS. OF INCARCERATION	22
DISMISSED	2
CONTINUED	2
NOT NOTED	13
TOTAL ARRESTS	34

Heroin Trafficking

GUILTY:	
Suspended Sentence	0
Probation	0
Incarceration	5
Not noted	0
TOTAL GUILTY	5
AGGREGATE YRS. OF INCARCERATION	12
DISMISSED	0
CONTINUED	0
NOT NOTED	3
TOTAL ARRESTS	8

TABLE VI-7

DISPOSITION OF LAWRENCE DRUG TASK FORCE ARRESTS ON HEROIN CHARGES: SUSPECTS ARRESTED BETWEEN 9/1/85 AND 8/31/86

Heroin Possession, Possession of Hypodermic Needle & Syringe, and Being Present with Heroin

GUILTY:	
Suspended Sentence	7
Probation	6
Incarceration	11
Not noted	0
TOTAL GUILTY	12
TOTAL FINES	$2,900
AGGREGATE YRS. OF INCARCERATION	5
DISMISSED	3
CONTINUED	1
NOT NOTED	13
TOTAL ARRESTS	44

Possession of Heroin with Intent to Distribute

GUILTY:	
Suspended Sentence	5
Probation	2
Incarceration	11
Not noted	0
TOTAL GUILTY	20
TOTAL FINES	$2,200
AGGREGATE YRS. OF INCARCERATION	27
DISMISSED	6
CONTINUED	4
NOT NOTED	25
TOTAL ARRESTS	55

Heroin Trafficking

GUILTY:	
Suspended Sentence	0
Probation	0
Incarceration	0
Not noted	0
TOTAL GUILTY	0
DISMISSED	0
CONTINUED	0
NOT NOTED	2
TOTAL ARRESTS	2

TABLE VI-8

CHARGES FROM RAP SHEETS OF 27 LAWRENCE DRUG TASK FORCE ARRESTEES*

DRUG CHARGES		NONDRUG CHARGES	
Heroin Possession (i.e., Poss., Poss. of Hypodermic and Syringe, and Present w/ heroin)	17	Murder	0
Heroin w/ Intent	13	Assault and Battery	26
Heroin Distribution	6	Firearms	10
Conspiracy to Violate the Controlled Substances Act	9	Disorderly	8
Cocaine Possession	11	Armed Robbery	2
Cocaine Distribution	7	Breaking and Entering	13
Marijuana Possession	14	Larceny	24
Other Drug Charges	3	Receiving Stolen Property	11
		Burglary Tools	1
		Shoplifting	3
	80 (45%)		98 (55%)

TOTAL = 178

*Multiple counts of a particular ofense were tallied as single counts. No more than the three most serious (i.e., longest potential sentence) charges were tallied for each arrest.

predecessor in Lynn. Estimates of the size of the pre-Task Force heroin market in Lawrence are complicated by its interconnections with the Lowell market, but enforcement personnel estimate a total market of about 580,000 bags per year with a total retail value of about $21 million, compared to 200,000 bags ($7 million) for Lynn.

The Lawrence effort achieved both greater aggregate confinement time and more drug seizures than its predecessors, but only in absolute terms; the ratio of confinement and seizures to the market confronted was greater in Lynn than in Lawrence (see tables VI-3 through VI-7).

In 1984-1985, arrests on heroin charges by the Lawrence Drug Task Force led to an aggregate of thirty-seven years of imprisonment. If we "cost out" a year of confinement at $50 thousand, this represents a cost of $1.85 million. (Cash seizure figures were not available.) Adding to that heroin seizures (see Table VI-9) with a street value of $650 thousand (and thus an estimated replacement cost of $130 thousand) yields a total heroin-only cost imposition estimate of $2.6 million, or twelve percent of the total retail market; the comparable first-year figure for Lynn was twenty-six percent. Thus the Lawrence Drug Task Force placed on the Lawrence heroin market a burden about half as great as that imposed by the Lynn Drug Task Force on the Lynn heroin market. Since the burden placed by the Lynn Task Force fell entirely upon the discrete Lynn market, while that imposed by the Lawrence Task Force was spread out over the broader Lawrence/Lowell market, the figure for the latter is in fact an overestimate, and the ratio of market burden in Lynn to that in Lawrence even greater.

In the second year, aggregate heroin-related confinement fell somewhat, to thirty-two years, for a cost equivalent of $1.6 million. However, heroin

TABLE VI-9

SEIZURES MADE BY LAWRENCE DRUG TASK FORCE

	9/84-8/85	9/85-8/86	9/86-8/87
Handguns	20	18	18
Cash	*	*	$195,473
Drugs (retail)			
Heroin	$650,000	$1,650,386	$2,303,076
Cocaine	$125,000	$2,120,890	$3,106,075
Other	$ 10,000	$ 80,440	$ 85,635
Drugs (replacement)			
Heroin	$130,000	$ 330,077	$ 460,615
Cocaine	$ 25,000	$ 424,178	$ 621,215
Other	$ 2,000	$ 16,088	$ 17,127

*The Lawrence Drug Task Force was unable to provide cash seizures for 1984-85 and 1985-86.

seizures jumped to a street value of $1.65 million (or a replacement value of $530 thousand). Total costs imposed by the Task Force thus came to $2.2 million, or just over ten percent of the market's retail value.

The presence of a large cocaine market in Lawrence, and the attention the Lawrence Drug Task Force accorded it, makes it somewhat unreasonable to use total Task Force results to estimate the burden on the heroin market alone. Doing so yields an estimated total cost imposition for the first year of $4.75 million, or almost twenty-three percent of the revenues of the retail heroin market, compared to an "all-in" figure of thirty-nine percent for Lynn. In the second year of operations, the Lawrence Drug Task Force seized more cocaine than heroin, and more than one-third of its aggregate incarceration time came from arrests outside its target city.

VII. RESULTS OF THE LAWRENCE DRUG TASK FORCE

A. Heroin Market

1. Demand for Heroin Treatment

The increased demand for heroin treatment in Lynn after the institution of the Lynn task force led us to examine similar data for Lawrence and its surrounding communities. Unfortunately, treatment data available for Lawrence suffered from problems familiar from the Lynn data. Only clients saying that heroin was their primary drug problem were counted; and information by clients' residences was unavailable until July, 1984.

To analyze demand for heroin treatment in Lawrence, we chose the same estimation procedures used for Lynn. (Heroin treatment in Lynn is discussed in chapter IV; the models and data used to produce drug treatment demand estimates are discussed in Appendix A.) The estimates are too rough to allow precise quantitative conclusion. One can conclude, however, that demand for heroin treatment in Lawrence, in the surrounding communities of Methuen and Haverhill, and in Lowell was significantly greater in the two years following the institution of the Lawrence task force than in the two years preceding (see Table VII-1).

Of course, there is no way to determine how much of this increase is attributable to the task force. However, treatment officials do note that the period of increase was not accompanied by increases in treatment capacity. While methodological concerns and possible changes in client behavior (see Appendix A on methodology) make it difficult to quantify any

TABLE VII-1

ESTIMATES FOR
LAWRENCE & SURROUNDING AREA RESIDENTS
SEEKING HEROIN TREATMENT

	9/82 to 8/84	9/84 to 8/86
LAWRENCE	128*	213 [+66%]
METHUEN & HAVERHILL	57*	95 [+66%]
LOWELL	216*	253 [+17%]

*Estimate based on reconstructed data.

See Appendix Two for a detailed explanation of these data.

increase, it seems likely that demand for heroin treatment in and around Lawrence increased between twenty and fifty percent in the two years following the institution of the task force.

2. Interviews with Heroin Users

Heroin users familiar with Lawrence and the surrounding area were recruited for interviews by drug treatment counselors and administrators of the Habit Management Institute, an outpatient methadone maintenance center located in Lowell. Eleven heroin users were paid $5.00 each for a thirty to sixty minute interview with project researchers. We identified ourselves as "Harvard University researchers interested in the heroin markets in and around Lawrence and Lowell." Interviews were conducted in July, 1987. Each of the 11 subjects had used heroin for at least 5 years. Eight subjects were female. Ten were Anglo, and the other was Hispanic.

Many interviewees told us that the quantity and purity of heroin available in the Lawrence-Lowell area increased dramatically in the early 1980s. A few told us that rumors of high quality heroin caused them to end several years of abstinence. These users told us that the heroin markets in northeastern Massachusetts were almost exclusively controlled by Hispanics. Many added that neither they nor their heroin-using friends would buy from a dealer who was not Hispanic.

All of our subjects bought heroin in Lawrence and Lowell, as well as in Haverhill; many bought in Methuen as well. Several reported that other users' comments about different dealers' wares were the primary determinant of where they purchased heroin.

Interviewees confirmed the view that the Lawrence and Lowell heroin markets functioned as a single market throughout the early 1980s. The same heroin "brand names" even appear simultaneously in the two cities.

Some interviewees asserted that heroin markets in Lawrence were never favored by nonresident white heroin users because of Lawrence's reputation as an unsafe, violent city. They spoke of the anti-White sentiments pervasive in Lawrence's public housing projects. One told us that without a Hispanic escort, an Anglo stood a better change of being ripped off in the Lawrence projects than successfully completing a heroin purchase.

When questioned about enforcement pressure in the Lawrence-Lowell area, many subjects noted a significant increase "around 1984" in both Lawrence and Haverhill. "Lawrence is too hot," one told us. According to another, all that was left of the Haverhill market was "a few kids selling pot." Some interviewees cited the Lawrence Drug Task Force: "Jajuga won't let any dealing in Lawrence," according to one.

Most interviewees concluded that Lawrence was no longer a major heroin retailer. Lowell was clearly the major heroin market for area residents, including many who lived in Lawrence. Still, none of the subjects claimed that the heroin trade had left Lawrence entirely.[1]

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[1]While the interviewer never mentioned that he was evaluating the Lawrence Drug Task Force during the interview, some interviewees were told that the Task Force was the subject of a study at the conclusion of the interview. It is possible, then, that some interviewees informed others, and that they fabricated tales about the Task Force's success to please the interviewer.

3. Displacement

Lawrence's heroin markets, though shrunken, persist in the same areas they dominated before the Lawrence Drug Task Force began: the public housing projects. Some trading-houses have opened in various locations around the city; the majority of Lawrence's heroin trade, however, has moved outside of city limits.

Since 1985, Lowell has become the primary retail heroin market in northeastern Massachusetts. Not only has the Lowell market grown as that of Lawrence has shrunk, but the Haverhill and Methuen markets also appear to have been displaced to Lowell.

Lawrence Drug Task Force personnel believe that while the retail market may have moved from Lawrence to Lowell, many Lawrence residences have become safe-houses, storing heroin for eventual sale in Lowell. Thus, Lawrence appears to have imported a particular sector of the heroin market.

4. Comments by Drug Task Force Personnel

We asked Officers Jajuga and LeBrasseur why the Lynn Drug Task Force eliminated Lynn's heroin traffic in addition to significantly reducing crime, while the same tactics applied in Lawrence only partially shrunk the heroin trade and did not change crime rates.

Both cited many of the same factors. They argued that the Lowell heroin market provided a convenient alternative to the Lawrence market, even for Lawrence residents. The two officers added that in addition to having three times as many market participants, Lawrence's Hispanic heroin dealers could

blend into a large Hispanic population, while Lynn's Hispanic population was tiny by comparison, and concentrated in a single small neighborhood. They cited the physical advantages Lawrence's public housing projects offer drug dealers, offering much more camouflage than the four-block area of private multifamily homes which sheltered Lynn's heroin market.

Lt. Jajuga also claimed that the larger number of local users in Lawrence made displacing the market more difficult than it had been in Lynn.

B. Crime Rates

The crime data for Lawrence were analyzed using the same methodology used for Lynn. The analysis showed, however, that there was no significant change in levels of predatory crime in Lawrence after the inception of the Lawrence Task Force. Fluctuations in rates of specific crimes in Lawrence are accounted for either by statewide trends or by fluctuations in the opposite direction in surrounding communities.

The strong impact on crime of the Lynn Task Force and the absence of changes in crime rates for the Lawrence program raise the vital question of what circumstances contribute or detract from a crackdown's influence on violent and property crime. The search for the answer to this question should lie at the center of future research on crackdowns.

C. Quality of Life

The open street trade in heroin and cocaine which flourished in Lawrence before the Task Force has disappeared. Although it has largely been driven

off the streets, some traffic in heroin and cocaine continues in Lawrence. Most of the remaining drug trade in indoors in trading-houses, many of which are located in Lawrence public housing projects. Small street markets sometimes operate in and around a few of Lawrence's public housing projects, though they are completely confined to those areas.

The area in and around Lawrence's Merrimack Courts public housing project was infamous for its open-air heroin market during the early 1980s. Although these projects are still plagued by some heroin and cocaine traffic, conditions have improved visibly. Life within this and other housing projects has become less disrupted by heroin users and dealers. Drug sales, once blatant, are now completed behind closed doors of apartments.

Many heroin users still live in Lawrence. They purchase heroin in Lawrence and the surrounding cities. Lowell, a fifteen minute drive from Lawrence, seems to be the major source for many of Lawrence's heroin users. Very few non-residents now travel to Lawrence to buy heroin, though its markets once attracted numerous heroin buyers from throughout northeastern Massachusetts.

Tensions between Lawrence's rapidly growing Hispanic and Anglo populations have not changed noticeably over the past few years. Although the riots of the summer of 1984 have not been repeated, the circumstances which caused them have not been alleviated.

Relations between the Lawrence Drug Task Force and Lawrence's Hispanic community seem more positive than those between the Lawrence Police Department and Hispanic residents. However, some Hispanic residents of Lawrence's public housing projects told us that Lawrence Drug Task Force and Lawrence Police Department personnel were sometimes unresponsive to calls

from the projects. They also criticized police personnel for heavy-handed tactics. We do not know whether the spray-painted message at the entrance of a Lawrence public housing project, "Task Force sucks," was scrawled by disgruntled drug market participants or by otherwise law-abiding residents.

The Lawrence Drug Task Force has bolstered Lawrence citizens' confidence in local law enforcement. The Lawrence Police Department has been plagued by numerous internal scandals throughout the 1980s. However, man-on-the-street interviews and interviews with local businessmen and community leaders revealed that many in Lawrence believe that the Lawrence drug trade had declined and that the Lawrence Drug Task Force deserved the credit.

D. Public Opinion

During the same period that the public opinion telephone surveys described in section IV-D above were administered in Lynn and Framingham, 356 respondents were contacted in Lawrence. As in Lynn, the surveys yielded no significant results, with public perception of the law enforcement and justice systems similar to that in the control city of Framingham.

E. Summary of Lawrence Drug Task Force Results

We have studied the effects of the Lawrence Drug Task Force on drug markets, crime, and the quality of life in Lawrence and the surrounding cities and towns. Among our findings are:

- Heroin markets have almost disappeared from the streets of Lawrence since the Lawrence Drug Task Force began operations. Some street-

trading still exists in a few of Lawrence's public housing projects and heroin is sold in some trading-houses. However, life in the projects is not nearly as disrupted by heroin use as it once was, and the junkie-dealer is less likely to be a role model for neighborhood children. Some users, as well as many police, attributed the reduction of the heroin trade to the Lawrence Drug Task Force.

- Few nonresidents attempt to purchase heroin in Lawrence, although this is not necessarily due only to Task Force efforts. Many local heroin users continue to reside in the city.
- The small heroin markets Haverhill and Methuen, which existed alongside the Lawrence market, had disappeared by summer, 1986, and still had not returned by late 1987.
- Lowell's heroin markets appear to have grown as the Lawrence market shrunk. Lowell draws customers from cities and towns throughout northeastern Massachusetts, including Lawrence, Haverhill, and Methuen.
- Total heroin consumption in Lawrence and surrouding communities decreased after the Task Force began operations.
- Lawrence remains, with Lowell, a major cocaine distribution center for northeastern Massachusetts, New Hampshire, and Maine.
- The Lawrence Drug Task Force did not result in any detectable changes in Lawrence's crime rates.

VIII. THE LAWRENCE URINALYSIS PROGRAM

In 1985, the Lawrence District Attorney's Office submitted a proposal calling for a modest urinalysis program which the National Institute of Justice agreed to fund. The program's proponents believed that it might serve as an effective additional weapon to the crackdown. Judges and probation and parole officers expressed support for the program.[1]

From the research point of view, beginning two interventions simultaneously is problematic, since evaluating the individual effects of each becomes more difficult. On the other hand, it is reasonable to assume that similar politics will prevail elsewhere, and it could be argued that one ought to study the effects of what might realistically be implemented. As it turned out, coerced abstinence through the urinalysis program did not significantly affect crime control and therefore did not obscure the effects of the crackdown.

A. Original Proposal

The fact that strong correlations exist between high property-crime rates and heavy heroin use[2] points to the following three-part approach as a

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[1]According to interviews conducted for Kevin M. Burke, "Retail-Level Heroin Enforcement and Property Crime," a proposal submitted to the National Institute of Justice by the District Attorney for the Eastern District, Commonwealth of Massachusetts, January 16, 1985.

[2]There is a correlation between property-crime rates and heroin use in two ways: (1) heroin users have higher property-crime rates than non heroin-using property criminals (Chaiken, Jan and Chaiken, Marcia, Varieties of Criminal Behavior. Santa Monica, CA: Rand Corporation, 1982); and (2) individual heroin-users have higher property crime rates during periods of heavy heroin use (Anglin, M. Douglas and Stenkert, George, "Narcotics Use and

potential instrument of both drug- and property-crime control. First, for property criminals who have been identified as heroin users, the prosecutor requests that the judge make abstinence from heroin and other opiates a special condition of release on either parole or probation. Second, as another aspect of this special condition of release, such individuals are required to submit to periodic urinalysis to verify their abstinence. Third, those parolees and probationers whose urine tests positive for morphine or quinine are incarcerated or reincarcerated.

According to the original plan, individuals would be selected for the urinalysis program as follows. All property- crime arrestees in the Lawrence Jail would be required to provide urine samples. These samples would be tested for morphine and quinine traces indicating the presence of heroin. Any arrestees who tested positive for morphine or quinine would be included in the program. In addition, any property-crime arrestees who had needle "tracks" would be included.

Drug-using arrestees would then be randomly assigned to "treatment" and "control" groups. For "treatment" group arrestees who were later convicted or pled guilty, the prosecutor would request that the judge require them to submit to urinalysis as a condition of probation or parole. The screening test results of "control" group arrestees who were convicted or pled guilty would not be provided to prosecutors or police; thus, they would be treated identically to other convicted property criminals. A total of 80

Crime: A Multi-Sample Multi-Method Analysis," Criminology, Spring 1988 (forthcoming)). See also Stenkert, George and Anglin, M. Douglas, "Narcotics Use and Crime: A Causal Modeling Approach," Journal of Quantitative Criminology, 2:3-28, 1986. See also Ball, J. C., Rosen, L., Flueck, J. A., and Nurco, D. N., "The Criminality of Heroin Addicts: When Addicted and When Off Opiates." pp. 39-65 in Inciardi, J.A. (ed.) The Drug Crime Connection (Beverly Hills, CA: Sage, 1981).

individuals, 40 in each group, would be sought.

B. Research Questions

We hoped that a program such as this would enable us to study the process of initiating and maintaining a urine monitoring program as well as to evaluate its outcomes in terms of crime-control benefits. More specifically, we hoped to address the following research questions.

1. Process

- Screening. From what fraction of arrestees do jail officials succeed in obtaining urine samples? What fraction test positive? How many others are identified as heroin users from physical examination? How do the criminal records of those identified as users compare to the criminal records of others?
- Case processing. How does the "flagging" of an accused as a heroin user influence his course through the justice system? How do the sentences of "treatment" subjects compare with those of "controls"? Do cases take longer to resolve? How do defense counsel react to the recommendation for a urinalysis special condition? In what fraction of all cases is the special condition imposed?
- Compliance. At what rate do offenders fail to show up for urinalysis? At what rate are they detected as having used heroin?
- Sanctions. What happens when a urine test is missed or failed? Are offenders in fact incarcerated? If not, at what point does the program

break down?

2. Outcomes

- By comparing property-crime rearrest rates per unconfined day between "treatment" and "control" groups, is there evidence that the urinalysis program in fact discouraged subjects from committing property crimes?

C. Expansion of the Urinalysis Program

During the fall of 1985, plans were developed to implement the urine monitoring program. At that time, the program was expanded to monitor the entire population of heroin-using property- and drug-crime arrestees in Lawrence, rather than the original 80-person sample.

It was hoped that this expansion would enable the program to act as a substantial supplement to the street-level heroin enforcement effort mounted by police. In comparison to the situation in Lynn, the Lawrence Drug Task Force was faced with a heroin market which was larger, better integrated into the community, and generally more resistant to enforcement pressure. The District Attorney's Office and the Task Force suspected that most heroin users returned to the market soon after arrest, a suspicion later confirmed by our findings. Thus, the removal of arrestees from the Lawrence heroin market through coercing their abstinence from heroin use seemed to have significant potential for reducing the market.

1. Design of the Expanded Urinalysis Program

We designed a program to identify and monitor all heroin-using property- and drug-crime offenders arraigned before the Lawrence District Court. The procedures called for in the design of the expanded urinalysis program were very complicated and took several months to develop. The program involved three major steps:

1. Testing the urine of all property- and drug-crime arrestees as soon as possible after arraignment for traces of morphine and quinine;
2. As a special condition of release on bail, probation, or parole, requiring all arrestees identified in step 1 to abstain from heroin (later cocaine, as well) use and to submit to weekly urinalysis; and
3. Imposing sanctions (e.g, referral to a drug treatment program and incarceration) against offenders who were repeatedly shown to have used heroin or cocaine while released.

The sections which follow present the technical specifications and protocols of the extended urinalysis program.

2. Testing Equipment and Personnel

We chose the SYVA Corporations' EMIT (Enzyme Multiplied Immunoassay Technique) Qst system to detect illicit substances in the subjects' urine. EMIT technology is perhaps the most accurate and cost-effective available. It is also the most widely used technology among criminal justice agencies.

Essex County Sheriff Charles Reardon and the Director of the Correctional Alternatives Center, Terrence Marks, agreed to house the testing

equipment at the Center. A work-release halfway house for offenders just released from incarceration, the Center is located in Lawrence, two miles from the Lawrence District Court.

Counselors at the Center had been collecting and testing urine specimens from inmates for more than one year prior to our program. These personnel were made available to collect and test urine specimens for our urinalysis program.

An office on the top floor of the Center houses the EMIT testing equipment, a refrigerator for storing specimens, reagents, and various supplies. This office is secured at all times, and all other rooms on the top floor are used exclusively as storage space. Specimens are collected in a lavatory in the Center, and offenders are viewed voiding into containers. A female counselor takes urine specimens from female offenders.

3. Identifying Drug-Involved Arrestees

All drug- and property-crime arrestees arraigned in the Lawrence District Court provide a urine specimen as soon as possible after arraignment.

A drug-crime arrestee is defined as an individual arrested on any of the following charges: Possession of a Controlled Substance (Class A - Heroin and Class B - Cocaine); Possession with Intent to Distribute (Classes A and B); Being Present with Heroin; Possession of a Hypodermic Needle and/or Syringe; Trafficking of a Controlled Substance; or Conspiracy to Violate the Controlled Substances Act.

A property-crime arrestee is an individual arrested on any of the

following charges: Larceny; Larceny by Check; Breaking and Entering; Robbery; Receiving Stolen Property; Shoplifting; Forgery; or Possession of Burglary Tools.

In addition to testing positive for the presence of morphine or quinine, offenders can be identified as heroin users by other means. An arrestee with needle "tracks" or whose criminal history indicates past drug involvement can be considered a heroin user. If, however, several urine tests do not reveal evidence of heroin use, these offenders could be released from the urinalysis condition.

4. Placing Arrestees in the Weekly Urine Monitoring Program

Separate systems were designed so that arrestees were tested soon after arrest regardless of how their cases were processed.

If an arrestee posts bail before entering the Lawrence Jail, the judge orders the arrestee to provide a urine specimen at the Correctional Alternative Center within the following 24 hours [see Exhibit VIII-A; exhibits appear at the end of this chapter].

Multicopy order forms are used to identify arrestees and enforce participation in the program. When a judge orders a defendant to report for a urine test, one copy of the order form is given to the defendant. The court saves another copy for testing personnel, who pick up the forms daily. At the center, matching order forms with testing logs [see Exhibit VIII-B.] identifies offenders who should have reported and those who actually provided a specimen.

If an arrestee is committed to the Lawrence Jail after arraignment,

personnel at the Jail collect a urine specimen within the arrestee's first 24 hours in the facility.

The Lawrence Jail keeps a daily log [see Exhibit VIII-C] of all admittances and all arrestees asked to provide a specimen. The urinalysis log identifies arrestees by name and code number. Urine specimens are sealed with a label on which this code number is penned.

Offenders may be placed in the weekly urine monitoring program in two ways:

1. Offenders released before entering the Lawrence Jail must travel to the Correctional Alternative Center to provide an initial urine specimen no later than the following day, and are ordered at the Center to report again in a week or so. [Exhibit VIII-D is a copy of the form used by the Center]. During the intervening week, the specimen is tested. If heroin use is detected, the offender must provide a specimen upon reporting for the second test. Such offenders must then report weekly for the duration of their release on bail, probation, or parole. If heroin use is not detected in the initial urine specimen, the offender is not given another appointment after reporting for the second test.

2. Offenders who provide a positive urine specimen or who refuse to provide a urine specimen at the Lawrence Jail are ordered to report to the Center for urine testing within a few days of their release on bail, probation, or parole, and thus begin the succession of weekly appointments.

Failure to report to the Correctional Alternatives Center when release is conditional on compliance with the urinalysis program is a violation of bail, probation, or parole. These offenders are reported to court officials and the prosecutor. If the offender was released under the authority of a

probation or parole officer, the officer is notified. [Exhibit VIII-E is a copy of this form.] An offender who remains free after such a violation, or who is re-incarcerated for some period and then released, will be placed in the weekly urine monitoring program even if the first urine test does not reveal heroin use. If the first several urine specimens do not reveal heroin use, however, the offender may be released from the weekly testing program.

5. Monitoring Offenders Participation in the Urinalysis Program

Offenders who have been placed in the program are required to confirm their abstinence from heroin by weekly urine tests. Copies of weekly appointment forms are retained at the Correctional Alternatives Center. These forms are filed according to the test date. Matching forms to offenders who report identifies those in violation of the program and those who satisfied the urinalysis condition.

Personnel at the Center inform the District Attorney's Office in Lawrence, court officials, and probation and parole officers when heroin use is detected or when an offender fails to report. A complete historical record of each defender's participation in the urinalysis program is maintained at the Center [see Exhibit VIII-F].

6. Sanctions When Heroin Use is Detected

After signs of heroin use are detected in an offender's urine, testing personnel tell the offender to enter a treatment program. To help heroin-involved offenders find a drug treatment program, personnel at the

Center provide phone numbers of local treatment centers. They may even make calls to treatment agencies on behalf of the offender. Information about the positive test result is transmitted to prosecutors, probation, or parole officers [See Exhibit VIII-E]. The second time heroin use is detected, the offender's release status is threatened unless he or she enrolls in a treatment program. However, no action is taken until the third time. Bail, probation, or parole revocation proceedings should be initiated after the third positive test result.

These protocols can be ignored if the offender had a few months of "clean" urine specimens before each heroin positive test result. No probation or parole officers we talked to thought it proper to return the offenders to jail if their only offense was falling off the wagon three times in six or more months' time.

7. Refinements in the Urinalysis Program

a. Monitoring Cocaine Use

Officials who assisted us in developing and implementing Lawrence's urine monitoring program persuaded us to monitor not only heroin use, but cocaine use as well. Initially, BOTEC was hesitant to expand the program to include cocaine. We believed the prevalence of cocaine use was two to three times that of heroin use, and this extra workload seemed too great for our untried program. In June 1986, however, the District Attorney's Office decided to monitor offenders' cocaine use.

The system for monitoring cocaine use parallels the heroin monitoring

program. Identical collection, labeling, transfer, storage, and testing procedures are followed, and cocaine-using offenders are identified, as are heroin users, by a urine test. Identified cocaine users are also placed in a weekly testing program. Furthermore, identical sanction schedules exist for both heroin and cocaine users: offenders are given the option of entering a drug treatment program before the District Attorney moves to revoke the offender's release status.

b. Prescription Opiates and Urinalysis

EMIT tests do not discriminate between synthetic opiates available by prescription, such as codeine, and heroin. To prevent identifying legitimate codeine use as heroin use, we ask all offenders who could be placed in the weekly monitoring program to identify the medications they are currently prescribed [see Exhibit VIII-G]. Offenders with a legitimate prescription for a drug which could produce a positive test result do not have to submit urine specimens for the duration of their prescription. Offenders who use synthetic opiates without a prescription are subject to the same conditions and sanctions as heroin users.

D. Results

We looked to the urinalysis program to answer two questions. First, what is the prevalence of drug use among arrestees in Lawrence? Second, can, and to what effect, urinalysis be used by the Lawrence District Court to control drug use among defendants released on bail, probation, or parole?

1. Prevalence of Drug Use Among Arrestees

Table VIII-1, below, shows the urine test results of defendants admitted to the Lawrence jail between July and November 1986.

These data show a high prevalence of recent heroin and cocaine use among these offenders.

- o One of every five offenders tested ingested heroin no more than three days before their arrest;
- o One of every two offenders tested ingested cocaine no more than three days before their arrest;
- o Two-thirds of the drug offenders and one-third of the property offenders ingested cocaine no more than three days before their arrest;
- o 55% of all offenders tested ingested either heroin, cocaine, or both no more than three days before their arrest;
- o Nearly three-quarters of the drug offenders tested ingested heroin, cocaine, or both no more than three days before their arrest.

Certain characteristics of the collection procedures indicate, however, that these high figures underestimate the prevalence of recent heroin and cocaine use among these offenders. Of a total of 248 offenders, approximately 15% refused to produce a urine specimen. During the first few months of the program, jail personnel sometimes failed to request a specimen until the offender had been incarcerated for as long as 24 hours. This time lag was probably sufficient for heroin and cocaine ingested more than 48 hours before arrest to be fully metabolized and therefore undetectable. It

Table VIII-1

Results of Urinalysis Tests Completed by 1 November 1986

Heroin

	Drug & Property Offenders	Drug Offenders[1]	Property Offenders[2]
Positive[3]	41 (20%)[4]	20 (24%)	21 (17%)
Negative	169	64	105
Total Tested	210	84	126
Refused Test	38	12	26
Sample	248	96	152

Cocaine

	Drug & Property Offenders	Drug Offenders	Property Offenders
Positive	103 (49%)	54 (64%)	47 (37%)
Negative	107	28	79
Total Tested	210	84	126
Refused Test	38	12	26
Sample	248	96	152

	Drug & Property Offenders	Drug Offenders	Property Offenders
Positive for Heroin and/or Cocaine	115 (55%)	59 (70%)	56 (44%)
Positive for Heroin and/or Cocaine or Refused Test	153 (62% of the sample)	71 (74%)	82 (54%)

[1] Drug offenders include all defendants arrested on charges of: Possession (Class A & B); Possession with Intent (Class A & B); Possession of Hypodermic Needle and Syringe; Trafficking; Conspiracy to Violate Controlled Substances Act; and Being Present with Heroin.

[2] Property offenders include all defendants arrested on charges of: Larceny; Larceny by Check; Shoplifting; Forgery; Breaking & Entering; Robbery; and Receiving Stolen Property.

[3] EMIT technology detects opiate and cocaine metabolites in urine specimens for up to 72 hours after the subject has ingested heroin or cocaine.

[4] Except where otherwise specified, percentages refer to the "proportion of those tested."

is likely, then, that the number of offenders who tested positive is lower than the number of offenders who used heroin or cocaine within three days of their arrest.

The majority of offenders who refused to produce a urine specimen probably expected that heroin or cocaine would be detected in their urine. (While some who refused may not have been users, their numbers are somewhat offset by the offenders whose drug use went undetected due to untimely specimen collection.) Thus, the prevalence of recent heroin and cocaine use among this group of 248 offenders is likely to be best represented by the sum of those who tested positive and those who refused to be tested. (These figures are presented in the "Positive for Heroin and/or Cocaine or Refused Test" category of Table VII-1. They show, among other things, that more than 60% of these offenders used heroin, cocaine, or both shortly before arrest.)

While we can reasonably assume that most of the defendants who refused to produce a specimen would test positive for either heroin or cocaine, without an actual test calculating the individual prevalence of heroin and cocaine use is more difficult. We know, however, that roughly one-third of the offenders who tested positive for one or both of the drugs were positive for heroin and 90% were positive for cocaine. We expect the same proportions among the offenders who refused to provide a specimen. Thus, we estimate that 14 of the 38 who refused would have tested positive for heroin and 34 would have tested positive for cocaine (10 would have tested positive for both). These figures bring our estimated prevalence of recent heroin use to 22% -- 55 out of 248, while the estimated prevalence of recent cocaine use becomes 55% -- 137 out of 248.

The prevalence of heroin and cocaine use among our sample may exaggerate

the prevalence among all drug and property offenders. Offenders committed at arraignment constitute most of our sample. They are likely to have more serious criminal records than the bulk of arrestees, who are released on their own recognizance. Thus, our data collection process may select for the offenders most likely to be drug users.

The degree to which our sample exaggerates general heroin and cocaine prevalence is debatable. At least two studies have examined the prevalence of drug use among arrestees in other jurisdictions with EMIT urinalysis technology. One found that recent heroin and cocaine use was 5% to 10% less prevalent among offenders who were released at arraignment than among committed offenders.

Approximately 1,300 drug and property offenders appeared before the Lawrence District Court in 1985. (Several appeared for more than one arrest.) About 500 were committed to jail before their trial. If we postulate that the prevalence of heroin and cocaine use among the remaining 800 drug and property offenders population is 90% that of the population incarcerated after arraignment, we can make the following estimates:

- 750 (58% of 1,300) drug and property offenders appearing before the Lawrence District Court in 1985 ingested heroin or cocaine within three days of their arrest;
- 270 (21% of 1,300) drug and property offenders ingested heroin within three days of their arrest; and
- 675 (52% of 1,300) drug and property offenders ingested cocaine within three days of their arrest.

2. Monitoring Released Offenders

We could not fully implement a program to monitor released offenders' drug use. Judges in the Lawrence District Court rarely ordered, and never enforced, participation in the urinalysis program. Assistant District Attorneys were reluctant to request the urinalysis condition because the judges seemed so opposed to it; nor did the Lawrence District Court Probation Office utilize the urinalysis program to any significant extent. In the following pages we present data on the limited degree of urine monitoring activity undertaken by the Lawrence District Court and the Probation Office.

At the request of the District Attorney, the Lawrence District Court ordered 34 offenders to comply with the urinalysis program between August, 1986 and April, 1987. We checked the status of each offender as of May 1987:

- Eleven offenders never provided a specimen. Four of these were in default. Two of the 11 were incarcerated. The remaining five were still released, none of whom were considered by the Court to be in violation of their release conditions.
- Ten offenders provided only one specimen and did not report again. Only three offenders provided a valid reason for not reporting; they had either enrolled in a treatment program or had been released from the urinalysis program. Five of the remaining seven were in jail. One offender defaulted. The only other offender who reported once and then disregarded the urinalysis requirement was released on bail and is awaiting trial.
- Seven offenders successfully completed the urinalysis program. Each of these offenders provided at least three specimens during

the first month following release. No specimens revealed heroin or cocaine use.

- Of the six remaining offenders, two were in treatment programs and the others either defaulted, were incarcerated, or remained released.

These figures include both those offenders ordered to report for urinalysis nearly 10 months before our May accounting and those ordered less than four weeks before. There were too few offenders to permit meaningful analysis with subpopulations based on time spent in the urinalysis program. We conducted the analysis, however, by splitting our sample into two groups. One group consisted of offenders subject to the urinalysis condition for five to 10 months, while the other group included those offenders who were subject to the condition for four or fewer months.

Among the 18 offenders ordered to submit to at least five months of the urinalysis condition prior to our May survey, eight were in jail, four had defaulted, and only one offender was awaiting trial. Fourteen offenders were subject to the urinalysis condition for fewer than five months. Two of these offenders defaulted, none were in jail, and six had an upcoming trial. These data indicate that, given more time, even more offenders will default or be incarcerated.

It should be noted that neither defaults nor re-incarceration resulted from ignoring the stipulations of the urinalysis program. The Lawrence District Court never enforced the urinalysis condition. Neither failing to report for a urine test nor the detection of heroin or cocaine was ever used as the grounds to revoke the release status of an offender. Offenders who were incarcerated after the urinalysis condition was imposed either committed

a crime while released or, less frequently, violated some other condition of their release. Offenders were considered in default when they did not report to their probation officer or when they did not appear for a court event, such as a pretrial conference. The Lawrence District Court never considered any offender in default if the only condition they violated was the urinalysis stipulation.

Seven of the 21 offenders who either never reported for a urine test or only reported once were incarcerated when we checked their status in May. However, we cannot attribute the failure of these offenders to report for urinalysis to incarceration, as all seven offenders were released for several weeks before they began serving the jail time they were still serving in May.

3. Changes in the Urinalysis Program

a. Testing Offenders at the Lawrence Jail

By identifying drug-using offenders by testing drug and property offenders as they entered the Lawrence Jail, we hoped to provide special incentive for prosecutors to request and for judges to order the weekly testing condition for any of these offenders once they were released on bail or probation.

However, as indicated in the preceding section, judges and prosecutors rarely, if ever, used this information. In fact, not one of the more than 130 offenders identified as drug users by the specimen they gave at the Lawrence Jail were ordered to submit to the urinalysis condition upon release.

In May 1987, when financial resources from the N.I.J. grant began to run out, the District Attorney's Office discontinued urine collection efforts at the Lawrence Jail.

b. Other Courts in Essex County

While the Lawrence program was being implemented, probation officers based in other courts expressed interest in testing some of their probationers. During Autumn of 1986, Essex County's Superior Court Probation Office (one office covers both Superior Courts in Essex County) appeared ready to place some Superior Court probationers in a weekly testing program, but this readiness never translated into any activity.

Meanwhile, activity in the Haverhill, a small city of 45,000 residents which borders Lawrence to the Northeast, appears more promising. Specimens are occasionally sent for testing by Probation Officers in the Haverhill District Court, and a Superior Court Judge has ordered a few offenders to participate in the urinalysis program.

E. Conclusion

The urinalysis program designed for the District Court answered only a few of the questions we hoped to explore. The samples collected at the Lawrence Jail documented the prevalence of recent heroin and cocaine use among drug and property crime arrestees. However, the urinalysis program was never adequately tested as a mechanism for controlling drug use by offenders released on bail, probation, or parole. Thus, although the program provides

insight into the difficulties District Attornies are likely to face when implementing a urine monitoring program, it offers little information about the potential benefits of successful implementation.

KEVIN M. BURKE
District Attorney

THE COMMONWEALTH OF MASSACHUSETTS

VIII-A

CORRECTIONAL ALTERNATIVES CENTER
165 Marston Street
Lawrence, Massachusetts 01840

Telephone
(617) 687-7136

DATE: __-__-__

NAME:_____ DOCKET #:_____

In addition to any other conditions stated by the Court, your release is conditioned on your reporting to the **Correctional Alternatives Center** for a urine test. You are required to report as soon as possible during the hours of operation of the testing equipment. Those hours are Monday to Friday, 8:00 am to 2:00 pm. The urine specimen must be produced in the presence of a Deputy Sheriff or designee. Further, you are required to follow any instructions you receive at the Correctional Alternatives Center regarding subsequent tests.

No specimen will be accepted without this document.

Failure to produce a specimen constitutes a violation of the conditions of release.

En adicion a qualquier otra condiciones afirmada por la corte, su libertad esta determinada con la condicion de que usted se reporte al **Correctional Alternatives Center** para un examen de orina. Es requerido que usted se reporte lo mas antes posible durante les horas de funcionamiento del equipo de examen. Esas horas son de Lunes a Viernes, 8:00 am a 2:00 pm. La muestra de orina debe de ser producida en la presencia de un Diputado del Sheriff o empleado de esta oficina. Ademas, se requiere sequir cualquier intrucciones que reciba en el Correctional Alternatives Center respecto a examenes subsiguientes.

No muestra sera aceptada sin este documento.

Si usted falta de producir una muestra, constituira a una violacion de las condiciones de libertad.

Signed/Firmado:_____

Ordered by/Ordenado por:_____
Lawrence District Court

A cooperative Drug Law Enforcement Project by District Attorney Kevin M. Burke, Sheriff Charles Reardon and the National Institute of Justice.

THE COMMONWEALTH OF MASSACHUSETTS

CORRECTIONAL ALTERNATIVE CENTER
165 MARSTON STREET
LAWRENCE,MA.
687-7136

In order for you to comply with the conditions stated by the Court, you MUST provide a urine sample at the Correctional Alternative Center, 165 Marston Street, Lawrence,Mass. The schedule you must adhere to is as follows:

1) Male Defendants must provide a sample on Monday or Thursday 7am-6pm whichever day is closer to the date this order is given.
2) Female Defendants must provide a sample on Monday or Thursday 3pm-6pm whichever day is closer to the date this order is given.

If for any reason you are unable to comply with this schedule contact Thomas J. Byron to make an appointment at 687-7136.

NOT PROVIDING A URINE SAMPLE WITHIN THE SPECIFIED LENGTH OF TIME WILL BE CONSIDERED A VIOLATION OF THE ORDER OF THIS COURT.

DIRECTIONS TO THE CORRECTIONAL ALTERNATIVE CENTER

From Lawrence District Court: Follow Common Street until you reach Union St.(end of Common St) Take a left onto Union Street. Turn right at the first set of lights. This is General Street. At the top of General Street take a right onto Prospect Street and follow Prospect Street to Marston Street until you see English Tucker Chevrolet Honda Dealership. Take a right before English Tucker Chevrolet and follow this street (under the bridge) until you see a large brick building on the left. Take a left onto this property and park in the front of the building. This is the Correctional Alternative Center. Enter the front door and inform a staff member that you are there to see Thomas Byron or Judy O'Connell. (Bring the court order and proper identification with you)

If there are any problems, contact Thomas Byron or Judy O'Connell at 687-7136.

*****FOR MEN ONLY***** *****FOR MEN ONLY*****

THE COMMONWEALTH OF MASSACHUSETTS
CORRECTIONAL ALTERNATIVES CENTER
165 MARSTON STREET
LAWRENCE, MASSACHUSETTS 01841
687-7136

In order for you to comply with the conditions stated by the Court, you MUST provide a urine sample at the Correctional Alternatives Center, 165 Marston St., Lawrence,Mass. within 24 hours of receiving this order.

If you are ordered on any Friday to provide a urine you must provide a sample by 3PM the same day or contact Thomas Byron at 687-7136 for further instructions.

Not providing a urine sample within the specified length of time will be considered a violation of the order of this Court.

DIRECTIONS TO THE CORRECTIONAL ALTERNATIVES CENTER
FROM LAWRENCE DISTRICT COURT

Follow Common St. until you reach Union Street (end of Common St.) Take a left onto Union Street. Turn right at the first set of lights. This is General St. where the Lawrence General Hospital is located. At the top of General Street, take a right onto Prospect St. and follow Prospect St. to Marston ST. until you see English Tucker Chevrolet Honda Dealership. Take a right before English Chevrolet and follow this street (under the bridge). Right after the bridge, take a left onto the property. The large building is the Correctional Alternatives Center. Enter the front door and inform a staff member of the court order.(Bring paper with you along with proper ID)

If there are any problems, contact Thomas Byron at 687-7136.

*****FOR WOMEN ONLY***** *****FOR WOMEN ONLY*****

THE COMMONWEALTH OF MASSACHUSETTS
CORRECTIONAL ALTERNATIVES CENTER
165 MARSTON STREET
LAWRENCE, MASSACHUSETTS 01841
687-7136

In order for you to comply with the conditions stated by the Court, you MUST provide a urine sample at the Correctional Alternatives Center, 165 Marston St., Lawrence, Mass. within 24 hours of receiving this order.

If you are ordered on any Friday to provide a urine, you must provide a sample by 5 PM the same day or contact Judy O'Connell at 687-7136 for further instructions.

You must report to the Correctional Alternatives Center between the hours of 3 P.M. and 6 P.M. to give a sample.

Not providing a urine sample within the specified length of time will be considered a violation of the order of this Court.

DIRECTIONS TO THE CORRECTIONAL ALTERNATIVES CENTER FROM LAWRENCE DISTRICT COURT

Follow Common Street to Union Street (end of Common St.) Take a left onto Union St. Turn right at the first set of lights. This is General St. where the Lawrence General Hospital is located. At the top of General St.,take a right onto Prospect St. and follow Prospect St. onto Marston St. until you see English Tucker Chevrolet Honda Dealership. Take a right before English Chevrolet and follow this street (under the bridge). Right after the bridge take a left onto the property. The large building is the Correctional Alternatives Center. Enter the front door and inform a staff member of the court order. (Bring paper with you along with proper ID)

If there are any problems, contact Judy O'Connell at 687-7136.

ATTENDANCE LIST

VIII-B

DATE OF ARRIVAL	NAME	REFERRED BY	DOCKET/SAMPLE #	COMMENTS

VIII-C

LAWRENCE JAIL

COMMITTMENTS

COLLECTION DATE	NAME	COURT	OFFENCE	SAMPLE #	REFERRING AG

KEVIN M. BURKE
District Attorney

THE COMMONWEALTH OF MASSACHUSETTS

VIII-D

CORRECTIONAL ALTERNATIVES CENTER
165 Marston Street
Lawrence, Massachusetts 01840

Telephone
(617) 687-7136

DATE: __-__-__

NAME:_____ DOCKET #:_____

You have been released under the supervision of this Agency. You are required to report to the **Correctional Alternatives Center** between _____ and _____ on __-__-__ and submit a urine specimen in the presence of a Deputy Sheriff of designee.

No specimen will be accepted without this document.

Failure to produce a specimen constitutes a **violation** of the conditions of release.

Usted ha sido puesto en libertad bajo la supervision de esta Agencia. Usted tiene que reportarse al **Correctional Alternatives Center** entre las _____ y las _____ y el __-__-__ y producir una muestra de orina en presencia de un diputado del sheriff o empleado de esta oficina.

La muestra de orina no sera aceptada sin esta documento.

Si usted falta de comparecer a esta cita, esto constituira una **violacion** de las condiciones de su libertad.

Signed/Firmado:_____

Ordered by/Ordenado por:_____
Correctional Alternatives Center

A cooperative Drug Law Enforcement Project by District Attorney Kevin M. Burke, Sheriff Charles Reardon and the National Institute of Justice.

THE COMMONWEALTH OF MASSACHUSETTS
CORRECTIONAL ALTERNATIVES CENTER
165 Marston Street
Lawrence, Massachusetts 01841
Teléfono: (617) 687-7136

Nombre_____Fecha:_____-_____-____

Acta # :_____

Como una condicion ordenada por la corte, su libertad esta determinada con tal que usted se reporte al Centro Alternativo Correccional en_____-_____-_____ entre las horas de 8:00 a.m. a 2:00 p.m.

Si usted no se reporta como se le específico, será considerado como una violac de las condiciones ordenada por la corte.

Por orden de:_____

Un proyecto cooperativo de la ejecución de la ley de droga por el Fiscal del Distrito Kevin M. Burke, el Sheriff Charles Reardon y el Instituto Nacional d Justicia.

THE COMMONWEALTH OF MASSACHUSETTS
CORRECTIONAL ALTERNATIVES CENTER
165 MARSTON STREET
LAWRENCE, MASSACHUSETTS 01841

Telephone; (617)
687-7136

NAME:_____ DATE:____-____-____

DOCKET #_____

AS A CONDITION STATED BY THE COURT YOUR RELEASE IS CONDITIONED ON YOUR REPORTING TO THE CORRECTIONAL ALTERNATIVES CENTER ON ____-____-____ BETWEEN THE HOURS OF 8 A.M.-2 P.M.

NOT REPORTING AS STIPULATED WILL BE CONSIDERED A VIOLATION OF THE CONDITIONS STATED BY THE COURT.

ORDERED BY:_____

A Cooperative Drug Law Enforcement Project by District Attorney Kevin M. Burke, Sheriff Charles Reardon and the National Institute of Justice.

THE COMMONWEALTH OF MASSACHUSETTS

CORRECTIONAL ALTERNATIVES CENTER
165 MARSTON STREET
LAWRENCE, MASSACHUSETTS 01841

DATE:____-____-____

NAME:_____

DOCKET #:_____SAMPLE #_____

TO:_____

On ____-____-____, the above identified individual provided a urine sample for testing.

The results of this sample are:

____POSITIVE ____NEGATIVE for Cocaine Metabolites and

____POSITIVE ____NEGATIVE for Opiates

Tested by:_____

Reported by:_____

A Cooperative Drug Law Enforcement Project by District Attorney Kevin M. Burke and the National Institute of Justice.

THE COMMONWEALTH OF MASSACHUSETTS

CORRECTIONAL ALTERNATIVES CENTER
165 Marston Street
Lawrence, Massachusetts 01840

DATE: __-__-__

NAME: _____

DOCKET #: _____

TO: _____

On __-__-__, opiates and/or opiate metabolites were/were not detected in the urine of the person identified above.

TESTED BY: _____

REPORTED BY: _____

A Cooperative Drug Law Enforcement Project by District Attorney Kevin M. Burke and the National Institute of Justice.

Result : [illegible]

THE COMMONWEALTH OF MASSACHUSETTS
CORRECTIONAL ALTERNATIVES CENTER
165 MARSTON STREET
LAWRENCE, MASSACHUSETTS 01841

DATE: ____-____-____

NAME:_____

DOCKET #_____

TO:_____

ON____-____-____ _____WAS ORDERED TO

PARTICIPATE IN A URINALYSIS PROGRAM AT THE CORRECTIONAL ALTERNATIVES CENTER.

HE/SHE WAS TO PROVIDE A SAMPLE ON ____-____-____.

THIS IS TO INFORM YOU THAT THE ABOVE NAMED INDIVIDUAL HAS NOT REPORTED AS ORDERED.

_____Initial Test

_____2nd Test

_____3rd Test

_____

A Cooperative Drug Law Enforcement Project by District Attorney Kevin M. Burke and the National Institute of Justice.

CLIENT NAME

	REFERRING AGENCY	DATE OF REFFERRAL	DATE CLIENT ARRIVED	SAMPLE # / DOCKET #	RESULTS		RE-TEST DATE	COMMENTS
					COCAINE	OPIATES		
.								
.								
.								
.								
.								
.								
.								
.								
.								
.								
0.								
1.								
2.								
3.								

MEDICATION CERTIFICATION

The medical record of Inmate _____ Number_____

has been checked on (Date) _____ and the record indicates the Inmate has ☐ or has not ☐ been on medication in the last 7 days.

If the inmate is on medication, please specify what kind:

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

_____ _____ _____

Signed Date Time

COMMONWEALTH OF MASSACHUSETTS

DISTRICT ATTORNEY'S OFFICE-EASTERN DISTRICT

N.I.J URINALYSIS STUDY

NAME _____
(LAST) (FIRST) (MIDDLE)

ADDRESS: _____
(STREET) (CITY) (STATE)

TEL. # _____ SS# _____

D.O.B. & PLACE: _____

CONDITION AT TIME OF ARRIVAL: _____

MEDICATION TAKEN: _____

REFERRING AGENCY: _____ CONTACT PERSON _____

ORDERED BY: _____

AS STIPULATION OF:

_____ PRE TRIAL RELEASE

_____ BAIL

_____ PROBATION

_____ PAROLE

_____ OTHER (SPECIFY) _____

DATE: _____ _____

IX. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The experience of the Lynn and Lawrence drug task forces suggests that the heroin crackdown is an extremely potent law enforcement strategy. Both crackdowns produced substantial returns on the investment of relatively modest amounts of law enforcement resources.

The crackdowns' most clearcut success was the closing of the open-air heroin markets which had marred the cities. Heroin bazaars proved unable to withstand constant police presence and activity. This effect, even had it not been accompanied by concomitant reductions in heroin consumption, is of significance. The increased safety and quality of life that the neighbors of the Lynn and Lawrence markets experienced of major importance.

Moreover, the Lynn and Lawrence crackdowns both appear to have significantly reduced heroin consumption. The direct measurement of treatment hours made in Lynn shows that the Lynn Task Force may well have substantially raised the number of persons seeking to decrease their heroin use. Admissions to heroin treatment programs were up in Lynn, Lawrence, and all their surrounding communities following the crackdowns in the two cities.

These two benefits -- the substantial reduction of flagrant and public violation of heroin laws by closing open air markets, and the decrease in total heroin consumption -- make both crackdowns successful programs. The modest investment of resources required was well repaid in both Lynn and Lawrence.

In addition, the Lynn crackdown yielded an unexpected third success: a dramatic reduction in the city's rates of violent and property crime. Statistical analysis shows that these reductions were almost certainly

neither statistical artifact nor coincidence. Street-level enforcement against Lynn's heroin market substantially reduced the city's criminality.

This result suggests that the crackdown has the potential to be an extremely powerful law enforcement strategy. It appears that crime can be more dramatically reduced by heroin enforcement than by enforcement activities directed specifically against violent and property crime. Moreover, since crackdown expenditures are justified by their drug related benefits, the effects on criminality are, in effect, free.

Unfortunately, the Lawrence drug task force, while recording drug abuse benefits similar to the Lynn program, was not accompanied by the parallel reduction in crime. There are a variety of possible explanations of the Lawrence results. The absolute size of its heroin market may have been too large, or, more likely, the enforcement pressure the Lawrence drug task force was able to exert on the Lawrence market (the market burden) too small. The diversion of task force resources to cocaine enforcement may also have had deleterious effects. These explanations, however, are speculative; there is simply not enough known at this time about the relationship of crackdowns to crime to be able to pinpoint the relevant differences between Lynn and Lawrence.

Overall, both the Lynn and Lawrence drug task force programs ought to be judged successful. The heroin crackdown is a potent and cost-effective drug law enforcement program. The resources required for street level enforcement are modest, and the direct drug-related benefits -- the suppression of outdoor markets and the reduction in drug abuse -- great. Any locality with an open-air heroin market should be encouraged by the experience of Lynn and Lawrence to seek the resources to crack down on heroin in their own

jurisdictions.

The additional potential of the crackdown to reduce violent and property crime, observed in Lynn, makes the investment in crackdowns even more attractive. Police departments with jurisdictions similar to Lynn's should seriously consider not only requesting funding for crackdowns of their own but diverting a significant proportion (5-10%) of their own resources to street level heroin enforcement. The impact of reduced criminality not only on police workload but also on citizens' perceptions of the quality of life ought to make this commitment seem eminently worthwhile.

The experience of the Lynn task force demonstrates that even enforcement against a small market can yield very substantial reductions in crime. Such reductions may be far greater than those which are gained in the course of ordinary criminal law enforcement. If the link between crackdowns and crime rates can be confirmed in experience in addition to having been explained theoretically, the crackdown should take its place not only as a productive method of heroin enforcement but as one of the most effective local law enforcement strategies available to the nation.

Basic to the understanding of crackdowns is gathering data from jurisdictions implementing them. A significant number of localities are currently involved in or are planning crackdowns. These localities should be the subject of future research programs.

The state of our knowledge about crackdowns is at this time too unsophisticated make hypothesis testing and the design of unusual programs a worthwhile use of resources. Generalizations about crackdowns can come only after a number have been investigated, analyzed, and understood. Research in

the field should concentrate first, then, on accumulating approximately two dozen case studies of programs across the nation.

The emphasis in these case studies should be the parameters basic to evaluation: the size of the enforcement effort; the size of the market before and after the crackdown; the level of heroin consumption, before and after; and the crime rates preceding and following the program. These data and estimates allow the calculation of the market burden and its comparison to changes effected in criminality.

Communities into which a targetted open-air market is likely to move should also be investigated. In addition to the simple observation of nearby cities and towns, drug offenders arrested in the targetted market should be monitored for subsequent arrests in other jurisdictions. This will allow a more accurate determination of whether crackdowns dry up or simply relocate the heroin trade. In jurisdictions like New York City, where there are extensive networks of ex-addicts working in outreach programs, these networks should be used to receive information from users about the state of the market.

Various ancillary issues could also be profitably investigated in the course of developing the case studies. Among them are the use and importance of the drug hotline; specific tactics of the crackdown staff; and, especially, the role of diverting resources to cocaine enforcement in advancing or retarding a crackdown's progress. However, the primary emphasis of future research should be to examine the tendency of targetted markets to relocate, and the market size, heroin consumption levels, and crime rates before and after a crackdown. These data for a variety of jurisdictions are vital to our ability to better understand and implement what the experiences

in Lynn and Lawrence have suggested may be an invaluable law enforcement strategy.

APPENDIX A

ANALYSIS OF HEROIN TREATMENT DATA

The initial investigation of the Lynn Drug Task Force found that the largest treatment facility in Lynn reported an 85% increase in treatment hours provided while treatment providers in the surrounding area reported no increase.

Since the increase was so sudden and dramatic, and since changes in treatment resources could not explain the increase, we concluded that the Lynn Drug Task Force reduced drug abuse in Lynn. This led to the systematic collection of data on admissions to heroin treatment programs throughout Massachusetts.

1. Methodology

The Massachusetts Department of Public Health (DPH) reimburses drug treatment providers based on the number of admissions the provider reports. This, according to DPH administrators, leads to a high reporting rate. Admission figures are the most accurate measure of the drug treatment provided in Massachusetts. However, these figures do not measure the length of a client's stay, nor do they indicate how many successfully completed treatment.

Information on admissions comes to the DPH in single page forms, one per client. These forms are entered into an electronic database by DPH personnel. These forms include the client's home address, the treatment program, and the client's primary and secondary drug problem.

We initially requested that the DPH retrieve from its database the number of Lynn, Lawrence, and surrounding cities' residents admitted to treatment for opiate addiction anywhere in Massachusetts for each month from January, 1980 to December, 1986.

Unfortunately, forms collected before July 1984 were entered into a computer system no one at the DPH knew how to operate in 1987. Further, the datatapes storing this information had been misplaced when the DPH changed offices in 1986. Additionally, forms used before July 1984 did not include clients home addresses.

Thus, data for treatment admissions by locality were available only for Lynn, Lawrence, Haverhill, Methuen, and Lowell residents covering the period from July 1984 to June 1987. Admissions by treatment center (but not by residence) for earlier years could be ascertained.

Residents from each city -- Lynn, Lawrence, Methuen, Haverhill, Lowell, Gloucester, Revere, Chelsea, Salem -- patronized at least 20 different agencies. The distribution across agency encouraged another approach for our investigaton. One-quarter to one-third of each city's residents were admitted to one treatment agency, the remainder were spread thinly (5% or fewer per agency) among the other treatment agencies.

We therefore selected as the best available measure of the numbers of residents seeking treatment for an opiate addiction the number admitted to these most-patronized treatment agencies. We then estimated total residents in heroin treatment for years before 1984 as follows. Pre-July 1984 admissions data from these treatment agencies were reconstructed from the original admissions forms. Two ratios -- that of a given city's residents in treatment to the total number of residents in its most popular treatment

center, and that of a given city's residents in treatment to the total number of patients in its most popular center -- were then calculated for the 1984-1987 period.

By assuming these ratios to be constant, we were able to estimate the total number of city residents in treatment for years preceding 1984. The following equation is used to determine the total number of city residents in treatment for a given year:

$a/b \times c \times d/a = \text{total}$

where a = total city residents admitted to agency 7/84-6/87

b = total city residents admitted to all agencies 7/84-6/87

c = total clients admitted to agency for period in question

d = total clients admitted to agency 7/84-6/87

We believe that the above methodology provides the best estimate available of total demand for heroin treatment in Massachusetts, given the extensive limitations of the available data. However, the estimates are, of necessity, ballpark figures. Besides the limitations of the data, a variety of factors mitigate against their precision and against their being taken as direct evidence of a decrease in drug consumption:

- o Admissions data do not, by definition, capture the number of clients who successfully complete drug treatment programs. Backsliding and repeat patients may make the consumption reduction measured by treatment admissions appear larger than it is.
- o Before July 1984 treatment agencies were not paid according to the number of admission sheets they turned in to the DPH. After July 1984, treatment agencies were reimbursed based on the reported admissions. Therefore, the proportion of admissions reported to the DPH may have

increased after July 1984. This weakens the model's assumption that ratios are constant over the entire period.

- Users motivated by the recent institution of a task force might have had different treatment preferences than patients admitted to treatment after July 1984. This also makes the assumption of constant ratios problematic.
- Models which assume ratios are relatively unsophisticated and do not allow for precision.
- The DPH contracts with treatment agencies restrict the number of hours (for outpatient) or the actual number of clients (for inpatient clients). Contracts sometimes change. Thus, a change in admissions figures might be explained by a change in treatment capacity.
- Similarly, a change in treatment capacity might change admission rates. This problem is unlikely to affect the data significantly, however, since most program administrators indicated that there were no major changes in capacity during the period in question.

2. Data

The following sections give the treatment center admissions data and the ratios used to generate the estimates in Table IV-1 and Table VII-1 by city.

LYNN

Total number of treatment agencies: 26
Primary agencies: Project COPE, North Shore Council on Alcoholism
Total city residents admitted to COPE or NS, 7/84-6/87: 40
Total city residents admitted to all agencies 7/84-6/87: 188
Total clients admitted to COPE or NS, 7/84 - 6/87: 51

(40/51) x (COPE and NS admissions) x (188/40) = Total Lynn admissions.

COPE/NS admissions Pre-LDTF (9/1/82 - 8/31/83): 37
COPE/NS admissions Post-LDTF (9/1/83 - 8/31/84): 49 [+32%]
(9/1/84 - 8/31/85): 25 [-49%]

These changes are not attributable to changes in treatment capacity. Nor could COPE administrators point to any specific outreach efforts as prompting these changes.

SALEM

Total number of treatment agencies: 19
Primary agency: Project Rap (Beverly, MA)
Total city residents admitted to Project Rap, 7/84-6/87: 14
Total city residents admitted to all agencies 7/84-6/87: 65
Total clients admitted to Project Rap, 7/84-6/87: 44

(14/44) x (Project Rap admissions) x (65/14) = Total Salem admissions.

Project Rap admissions Pre-LDTF (9/1/82 - 8/31/83): 1
Project Rap admissions Post-LDTF (9/1/83 - 8/31/84): 8 [+800%]
(9/1/84 - 8/31/85): 9 [+13%]

Project Rap's contract with the DPH did not change between 1982 and 1985.

GLOUCESTER

Total number of treatment agencies: 20
Primary agency: NUVA, Inc.
Total city residents admitted to NUVA, 7/84-6/87: 70
Total city residents admitted to all agencies 7/84-6/87: 124
Total clients admitted to NUVA, 7/84 - 6/87: 74

(70/74) x NUVA admissions x (124/70) = Total Gloucester admissions.

NUVA admissions Pre-LDTF (9/1/82 - 8/31/83): 10
NUVA admissions Post-LDTF (9/1/83 - 8/31/84): 12 [+20%]
(9/1/84 - 8/31/85): 17 [+42%]

NUVA's contract with the DPH did not change between 1982 and 1985. However, NUVA administrators believe that their increased community outreach efforts may account for increases in clients seeking treatment for drug addictions.

REVERE AND CHELSEA

Lynn Drug Task Force members told us that heroin markets grew in Revere and Chelsea as the Lynn market shrunk. The Chelsea market grew much larger than the Revere market.

Primary agency: Care About Now
Total city residents admitted to Care, 7/84-6/87: 52
Total city residents admitted to all agencies 7/84-6/87: 287
Total clients admitted to Care, 7/84 - 6/87: 135

(52/135) x (Care admissions) x (287/52) = Total Revere and Chelsea admissions.

Care admissions Pre-LDTF (9/1/82 - 8/31/83): 9
Care admissions Post-LDTF (9/1/83 - 8/31/84): 34* [+74%]
(9/1/84 - 8/31/85): 38 [+11%]

* -- 3 months missing, corrected by using post-LDTF monthly mean.

Care About Now's contract with the DPH has not changed since 1980. Care About Now administrators believe that reporting rates have slightly improved since DPH began basing reimbursements on admissions forms in July 1984.

LAWRENCE

Total number of treatment agencies: 28
Primary agency: Lawrence Psychological Center
Total city residents admitted to Center 7/84-6/87: 96
Total city residents admitted to all agencies 7/84-6/87: 322
Total clients admitted to Center 7/84 - 6/87: 148.

(96/148) x Center admissions x (322/96) = Total Lawrence admissions.

Center admissions Pre-LDTF (9/1/82 - 8/31/84): 59*
Center admission Post-LDTF (9/1/84 - 8/31/86): 98 [+66%]

* -- 2 months missing, corrected by using pre-LDTF monthly mean.

This increase is not attributable to changes in the treatment capacity of the Lawrence Psychological Center.

METHUEN AND HAVERHILL

Total number of treatment agencies: 28
Primary agency: Lawrence Psychological Center
Total city residents admitted to Center 7/84-6/87: 22
Total city residents admitted to all agencies 7/84-6/87: 144
Total clients admitted to Center 7/84-6/87: 148.

(22/148) x Center admissions x (144/22) = Total Methuen and Haverhill admissions.

Center admissions Pre-LDTF (9/1/82 - 8/31/84): 59*
Center admission Post-LDTF (9/1/84 - 8/31/86): 98 [+66%]

* -- 2 months missing, corrected by using pre-LDTF monthly mean

LOWELL

Total number of treatment agencies: 28
Primary agency: Share, Inc.
Total city residents admitted to Share, 7/84-6/87: 86
Total city residents admitted to all agencies 7/84-6/87: 337
Total clients admitted to Share, 7/84 - 6/87: 211

(86/211) x Share admissions x (337/86) = Total Lowell admissions.

Share, Inc. admissions Pre-LDTF (9/1/82 - 8/31/84): 135*
Center admission Post-LDTF (9/1/84 - 8/31/86): 158 [+17%]

* -- 2 months missing, corrected by using pre-LDTF monthly mean.

APPENDIX B

ANALYSIS OF STREET CRIME IN LYNN

1. The Data

To address the question of whether crime rate decreases in Lynn occurred as a result of statistical artifact, we utilized data derived from monthly tabulations of police crime reports. These reports are the official log of every crime reported to police, regardless of their final disposition.

We collected monthly tabulations of police crime reports for the period January, 1980 through December, 1986 in these 30 Massachusetts cities:

Andover	Lowell	Quincy
Boston	Lynn	Reading
Brockton	Lynnfield	Revere
Brookline	Malden	Salem
Cambridge	Medford	Saugus
Chicopee	Methuen	Somerville
Falmouth	New Bedford	Springfield
Framingham	Newton	Swampscott
Haverhill	Peabody	Weymouth
Lawrence	Pittsfield	Worcester.

We broke down the tabulations by crime for the following seven crime categories (as defined in the Uniform Crime Reports): murder, rape, robbery, aggravated assault, burglary, larceny, and auto theft.

Before performing the analysis, we merged the crime categories of murder, rape, and aggravated assault into one combined category called

"Crimes Against the Person." The small number of monthly reports in these individual categories could have caused misleading results.[3]

The analysis examined two major questions:

(1) Did street-level drug enforcement lower the levels of crime in Lynn independently of secular declines in crime in Massachusetts?

(2) If crime levels did decrease in Lynn, were these due to the displacement of crime into surrounding areas, or alternatively, did the drug enforcement operation decrease crime in these areas also?

In order to answer these questions, we further aggregated the data into the following geographic areas:

1. Lynn

2. The area surrounding Lynn: Lynnfield, Peabody, Reading, Revere, Salem, Saugus, and Swampscott

3. All remaining Massachusetts cities that do not have missing data and are comparable in population to Lynn and Lawrence.

Analyzing crime report tabulations for these aggregated areas allowed us to test for displacement effects. It also permitted us to observe any secular declines in crime reports in other Massachusetts cities, and to determine whether there were secular declines that might have accounted for any observed declines in Lynn and Lawrence, which we might otherwise attribute to the street-level drug enforcement program.

Thus our statistical analysis is based on 1,680 observations: 84 months of crime reports for each of five geographic areas, and for each of four crime categories. This number is somewhat reduced due to missing

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[3]The name for this merged category is somewhat of a misnomer since the category excludes robberies.

observations.

2. Overview of the Statistical Analysis

We conducted the statistical analysis of this data in four stages of increasing sophistication. At each stage we examined the data for each crime category in each geographic region to determine whether it supported the hypothesis that the drug intervention program in Lynn lowered reported crime, and if so, whether there were concomitant displacement effects.

In each case where the data did not support the hypothesis, we dropped that crime category in that city from further analysis. (In such cases, we attempted to explain why the drug intervention program apparently failed to have an effect.) Our criterion for claiming that the program affected reported crime was that all stages of the statistical analysis must support this hypothesis. We used the following four stages of statistical analysis:

1. A comparison of mean monthly reports of crime for each crime category in each city before and after street-level enforcement began. - We tested whether before and after variances were significantly different. We then calculated an appropriate t-statistic based on the result of this test, and performed a one-tailed t-test of difference between before and after means. The null hypothesis of no change or a positive change (i.e., an increase) in reported crime was rejected at $p=.01$, a very conservative test.

2. An examination of the time-series graphs of reported crime for each crime category and each geographic area. - The first stage of the analysis did not take into account the fact that these are time-series data. Graphing the series allowed us to determine whether any secular trends were

responsible for significant differences in reported crime that appeared in the first stage of analysis. This also enabled us to observe how closely changes in the level of reported crime corresponded to the implementation of street-level drug enforcement.

3. A linear regression analysis of reported crime for each crime category and area that proved significant in the first two stages of analysis. - The dependent variable was level of crime. The independent variables were a continuous variable for time, a continuous variable for population, a dummy variable to control for seasonality, and a dummy variable for before and after intervention. We utilized this analysis because it resembles the type traditionally employed to study interventions. It provided further confirmation of any effects noted in stages one and two. Despite its widespread use, this method has serious flaws and has been superseded by ARIMA methods which will be described below.

4. An interrupted-time-series analysis of reported crime for each crime category and area that proved significant in stages one, two, and three using ARIMA.

3. Comparison of Monthly Crime Reports Before and After Street-Level Crackdown

Tables B-1 through B-3 provide a comparison of the mean monthly reports of crime, before and after the intervention, in Lynn, the cities surrounding Lynn, and the aggregate of all comparable cities in Massachusetts. Comparisons are provided for four crime categories: crimes against the person, robbery, burglary, and larceny.

The first three of these categories show precipitous and highly significant drops in crime reports in the city of Lynn. The average monthly reports of crimes against the person dropped 75% after street-level enforcement began. Average monthly reports of robberies dropped 25%. Average monthly reports of burglary dropped 35%. Larcenies decreased 4% after the intervention began, but this was not statistically significant. An examination of the crimes reported in the cities surrounding Lynn indicates that the drop in crime rates in Lynn was not related to a displacement effect. Mean monthly reports of crimes against the person in surrounding cities increased slightly but insignificantly after street-level enforcement began. Mean monthly reports of robberies and burglaries in surrounding cities actually declined significantly, but not as precipitously as in Lynn. Mean monthly reports of larcenies also declined, but not significantly.

The data presented in Table B-3 indicate it is very unlikely that the drop in Lynn's crime rates, which we attribute to the efforts of the Lynn Drug Task Force, was in fact a reflection of a similar secular decline in crime across Massachusetts cities. Table B-3 shows the mean monthly aggregated crime reports for cities in Massachusetts of comparable size to Lynn. In these cities monthly reports of murders rose after the intervention began in Lynn. Although mean monthly reports of robberies, burglaries, and larcenies fell, they fell less than in Lynn.

Thus the data clearly suggest a substantial decrease in crime in Lynn as a result of street-level drug enforcement. This decrease was the result neither of displacement of crime to Lynn's surrounding cities, nor a secular trend. Graphical examination of these same data in the next section strongly

TABLE B-1

COMPARISON OF MONTHLY CRIMES BEFORE AND AFTER INTERVENTION IN LYNN FOR LYNN

	Before Intervention			After Intervention			Diff. Signif.
Crime	Mean	SD	Mnths	Mean	SD	Mnths	At p=.01
Against Person	88.6	21.1	44	22.2	21.7	28	YES
Robbery	21.8	6.1	44	16.4	6.5	28	YES
Burglary	255.6	45.7	44	164.6	39.0	28	YES
Larceny	215.7	54.2	44	207.1	26.8	28	NO

TABLE B-2

COMPARISON OF MONTHLY CRIMES BEFORE AND AFTER INTERVENTION IN LYNN FOR LYNN AREA

	Before Intervention			After Intervention			Diff. Signif.
Crime	Mean	SD	Mnths	Mean	SD	Mnths	At p=.01
Against Person	31.5	13.0	44	34.0	11.9	28	NO
Robbery	16.0	4.3	44	12.4	4.0	28	YES
Burglary	236.9	34.6	44	207.4	35.9	28	YES
Larceny	338.9	74.9	44	308.1	43.1	26	NO

TABLE B-3

COMPARISON OF MONTHLY CRIMES BEFORE AND AFTER INTERVENTION IN LYNN FOR COMPARABLE MASSACHUSETTS CITIES

	Before Intervention			After Intervention			Diff. Signif.
Crime	Mean	SD	Mnths	Mean	SD	Mnths	At p=.01
Against Person	399.0	69.7	44	425.4	85.2	28	NO
Robbery	129.3	23.1	44	126.6	22.6	28	NO
Burglary	1545.0	255.2	44	1129.7	101.3	28	YES
Larceny	2263.0	284.8	44	1936.0	178.4	28	YES

confirms these findings

4. Monthly Crime Reports Graphed as Time Series

Figures B-1 through B-12 are time plots of the number of monthly crime reports from January, 1980 through December, 1986. In each of these figures, the horizontal axis represents time while the vertical axis represents number of reported crimes. To ease interpretation the vertical axis is centered at the mean number of monthly crime reports for that figure. Missing values are denoted by blanks.

Figures B-1 through B-4 are time plots of reported crimes against the person, reported robberies, reported burglaries, and reported larcenies for Lynn. Figures B-5 through B-8 are time plots for the same reported crimes for the aggregated cities surrounding Lynn. Figures B-9 through B-12 are the same plots for the aggregate of all Massachusetts cities of approximately the same size as Lynn.

Figures B-1 through B-4 clearly show the dramatic effect of street level drug enforcement upon crime rates in Lynn. Immediately upon introduction of street-level enforcement, the monthly reported number of crimes against the person dropped drastically and remained at this new low level. With a three-month lag, the same phenomenon occurred for reported robberies. Like crimes against the person, burglaries showed the same abrupt pattern of decline with no lag.

Figure B-4 shows an interesting pattern for larcenies in Lynn. Although there was no drastic decline in reported larcenies, the seasonal variation in larcenies declined rather abruptly after the introduction of street-level

CRIMES AGAINST THE PERSON

CRIMES AGAINST THE PERSON
IN LYNN: 1980 - 1985

Figure B-]

ROBBERIES IN LYNN: 1980 - 1985

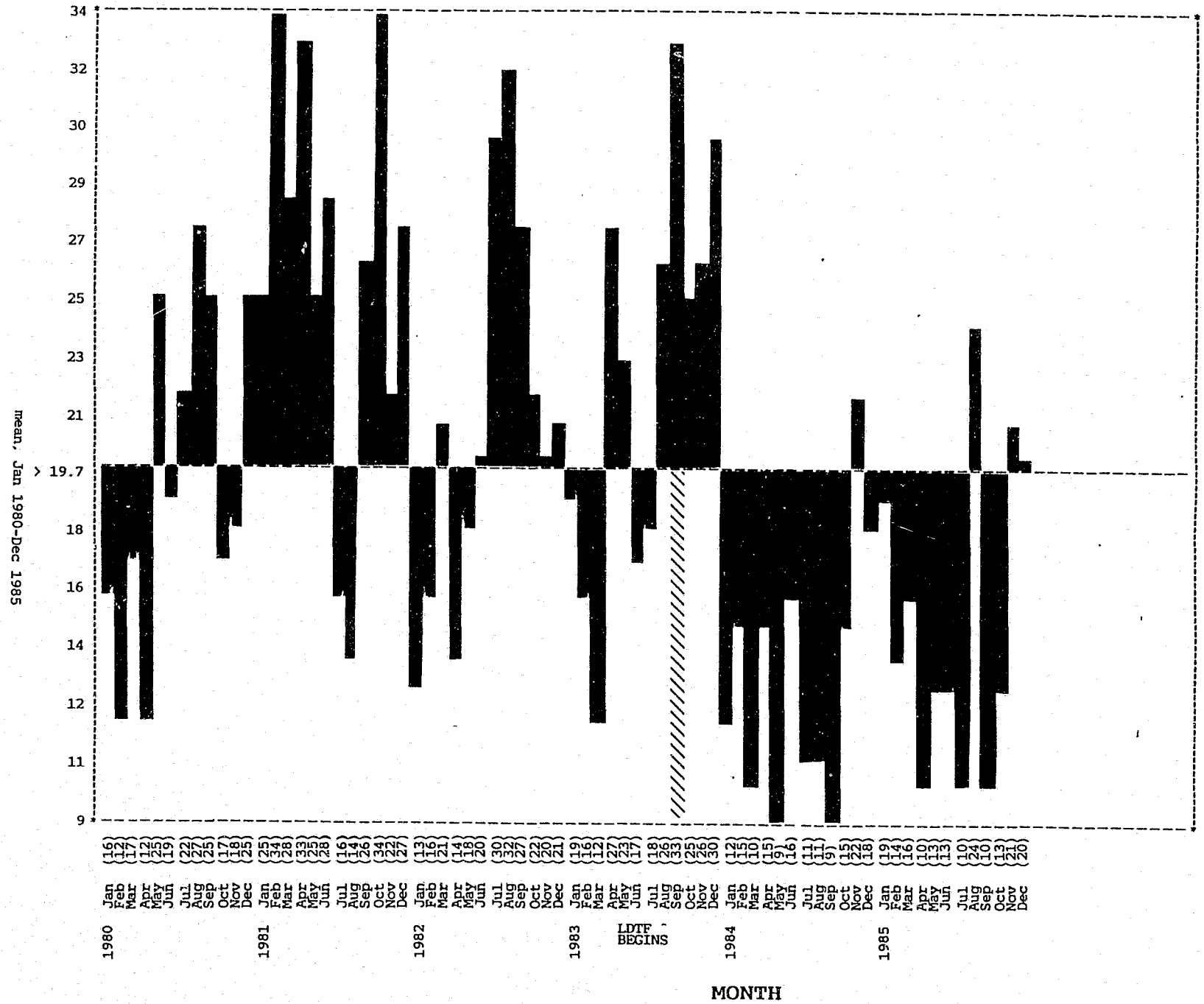
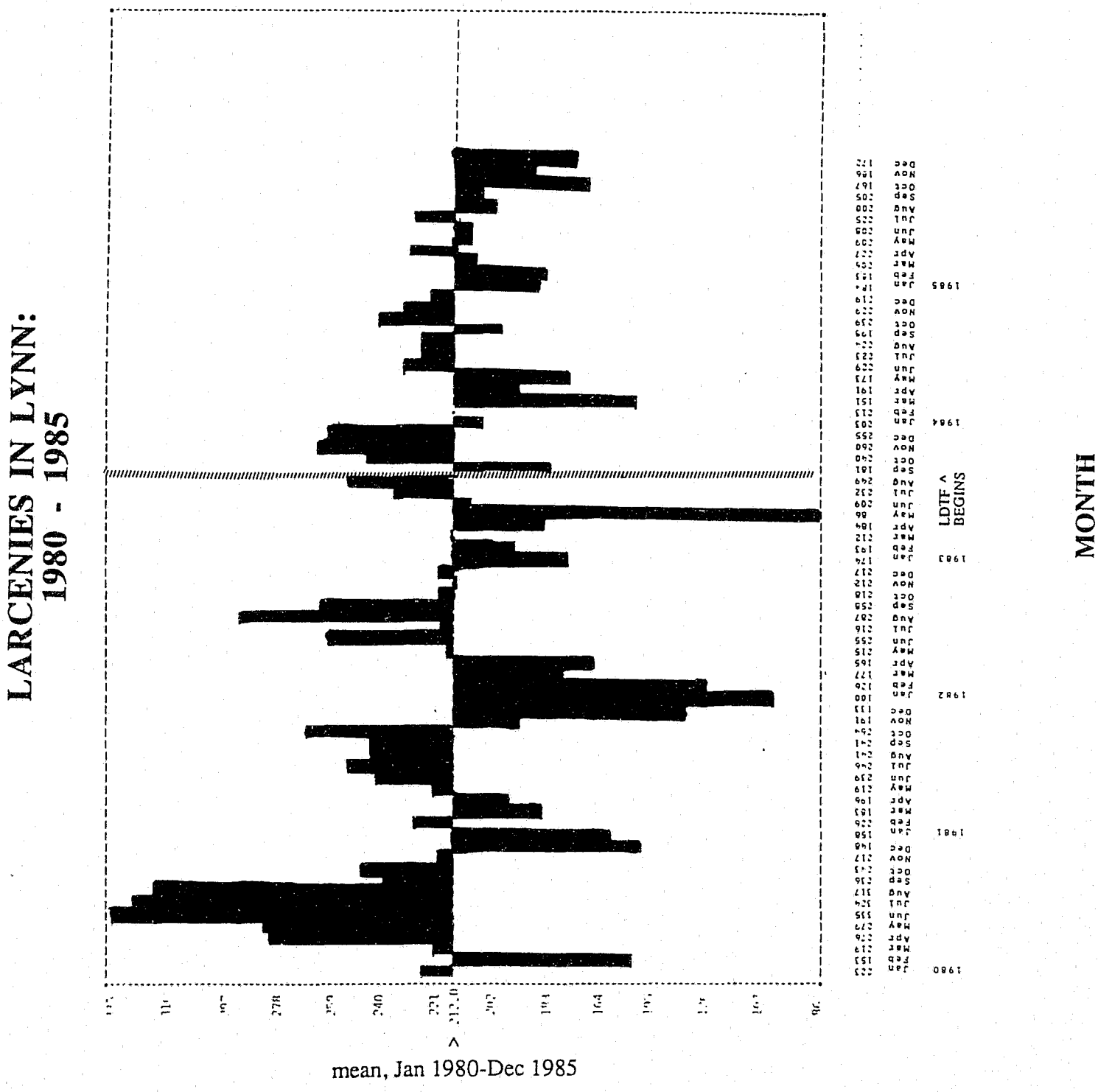


Figure B-2

BURGLARIES IN LYNN: 1980 - 1985

Figure B-3

Figure B-4


LARCENIES IN LYNN:
1980 - 1985
LDTF ^ BEGINS
MONTH
LARCENIES
^
mean, Jan 1980-Dec 1985

enforcement. This pattern is much too pronounced to seem entirely fortuitous.

Figures B-5 through B-8 demonstrate that the drop in reported crime in Lynn after street-level enforcement began was not related to displacement to surrounding communities. Figure B-5 shows that prior to street-level enforcement in Lynn, crimes against the person in surrounding cities had been undergoing a steady rise. Shortly after street-level drug enforcement began in Lynn, this trend subsided and then reversed. Figure B-6 suggests that sometime after street-level enforcement began in Lynn there was a decline in reported robberies for surrounding cities. Figure B-7 suggests a similar result for burglaries, although this may be the result of a pre-existing secular trend. Figure B-8 suggests only a secular decline in the variance of monthly reported larcenies in the areas surrounding Lynn.

Figures B-9 through B-12 clearly indicate that the declines in reported crimes observed in Lynn were not just reflections of similar trends across the Commonwealth. While these time plots show a secular decrease in reported crimes across the Commonwealth from 1980 through 1986, unlike Lynn, this decline started in the early 1980s and persisted through 1986. There appeared to be no sudden changes around the time of street-level drug enforcement in Lynn. Nor is the decline across the state as spectacular as that observed in Lynn.

In summary, the analysis of time plots confirms the conclusion that street-level drug enforcement in Lynn reduced the level of crime in that city significantly. This occurred without concomitant displacement effects in neighboring cities, and declines in reported crimes in Lynn do not reflect state-wide trends.

Figure B-5

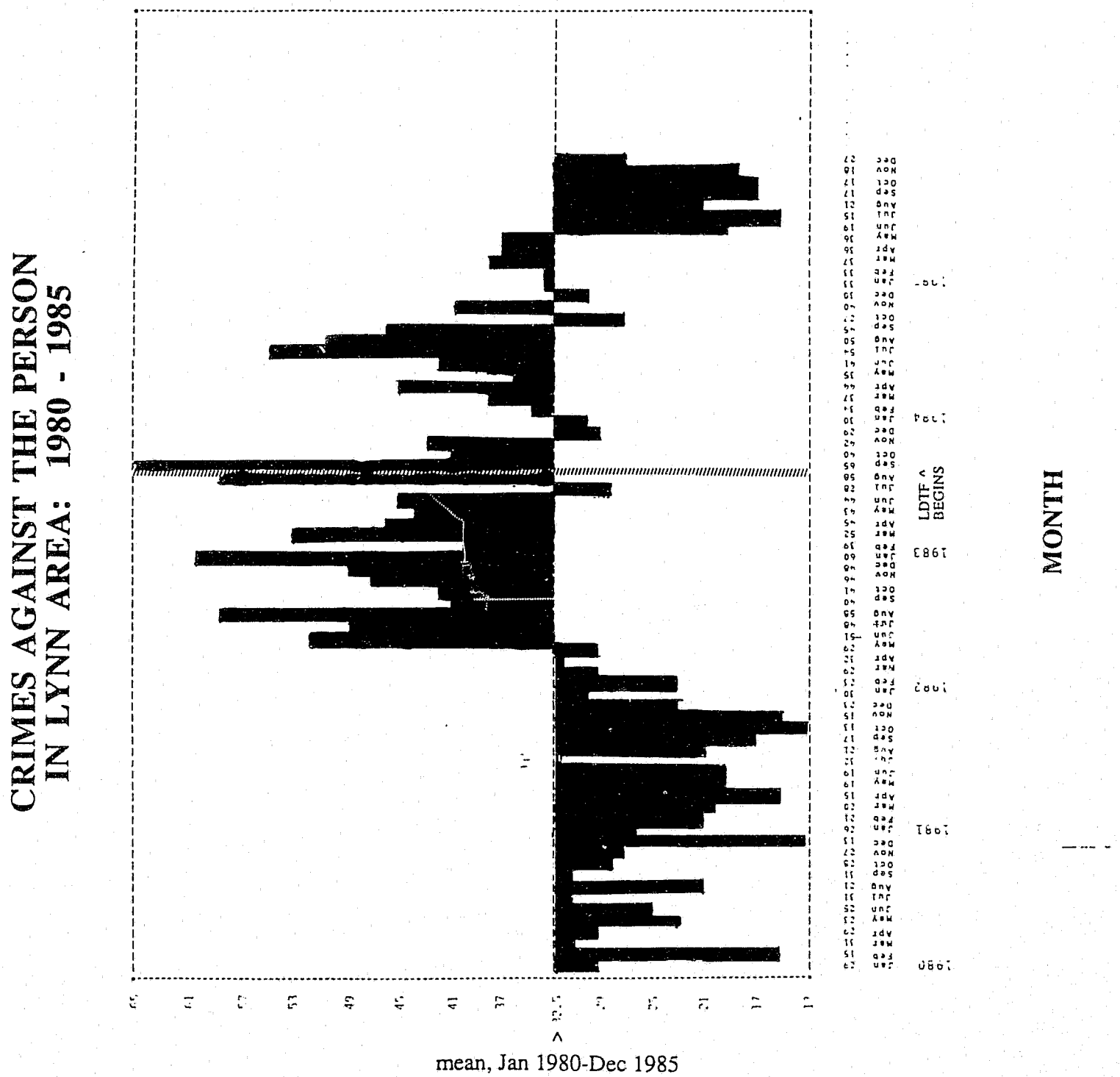

CRIMES AGAINST THE PERSON
IN LYNN AREA: 1980 - 1985
LDTF ^ BEGINS
1980
1981
1982
1983
1984
MONTH
mean, Jan 1980-Dec 1985
CRIMES AGAINST THE PERSON

Figure B-6

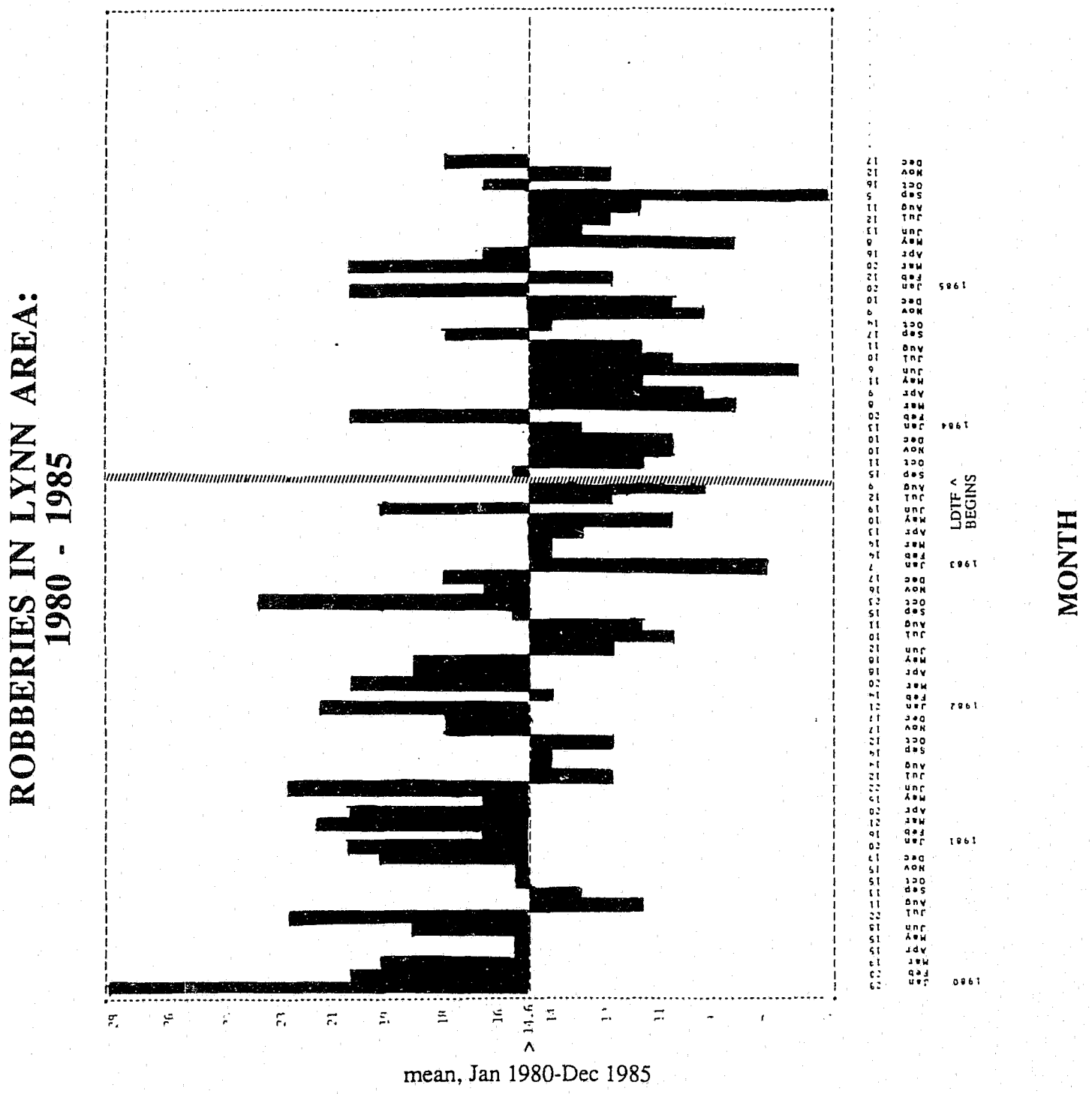

ROBBERIES IN LYNN AREA:
1980 - 1985
MONTH
LDTF > BEGINS
1980
1981
1982
1983
1984
1985
mean, Jan 1980-Dec 1985
ROBBERIES

Figure B-7

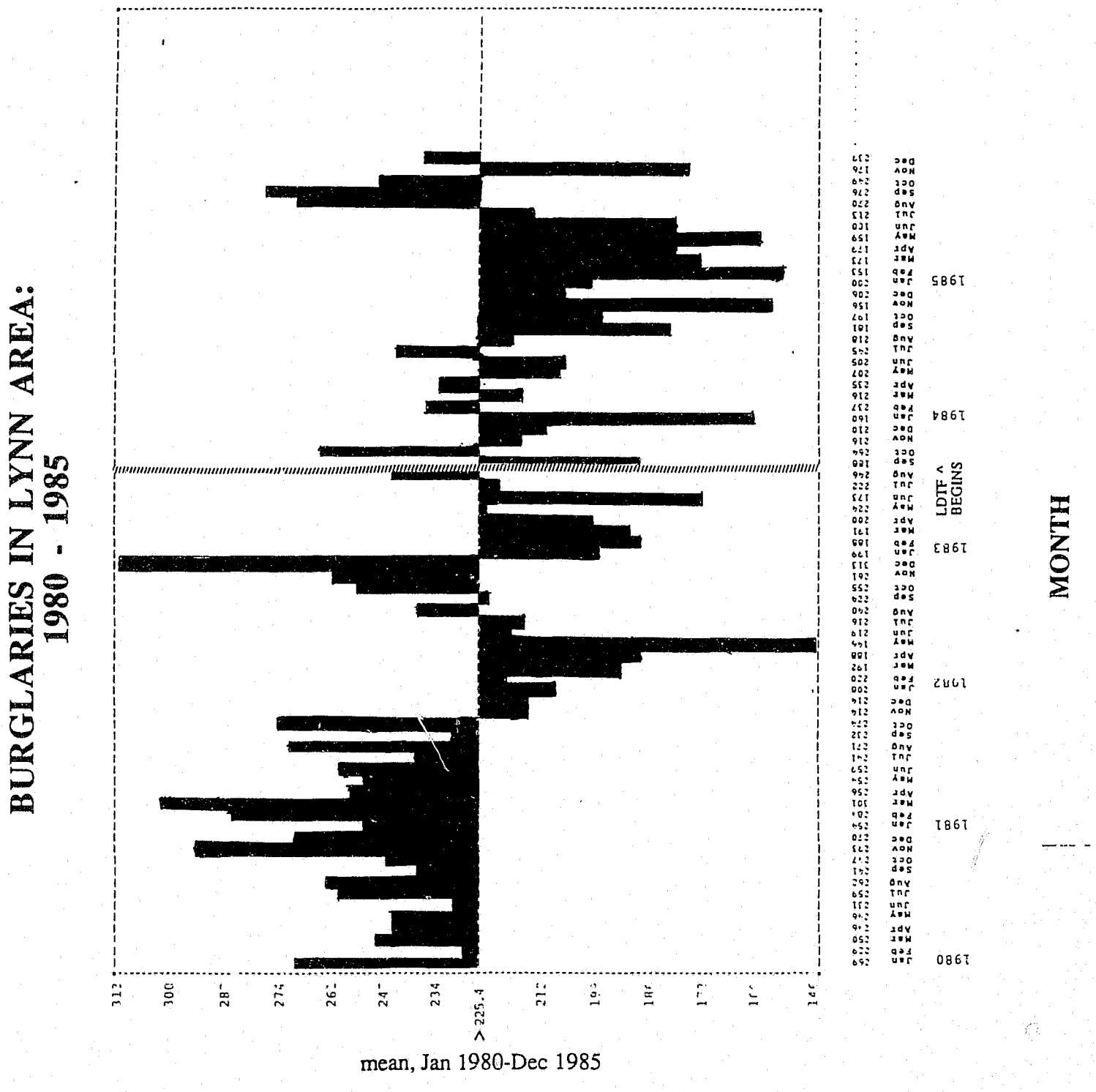

BURGLARIES IN LYNN AREA:
1980 - 1985
BURGLARIES
MONTH
LDTF BEGINS
1980
1981
1982
1983
1984
1985
> 225.4
mean, Jan 1980-Dec 1985

Figure B-8

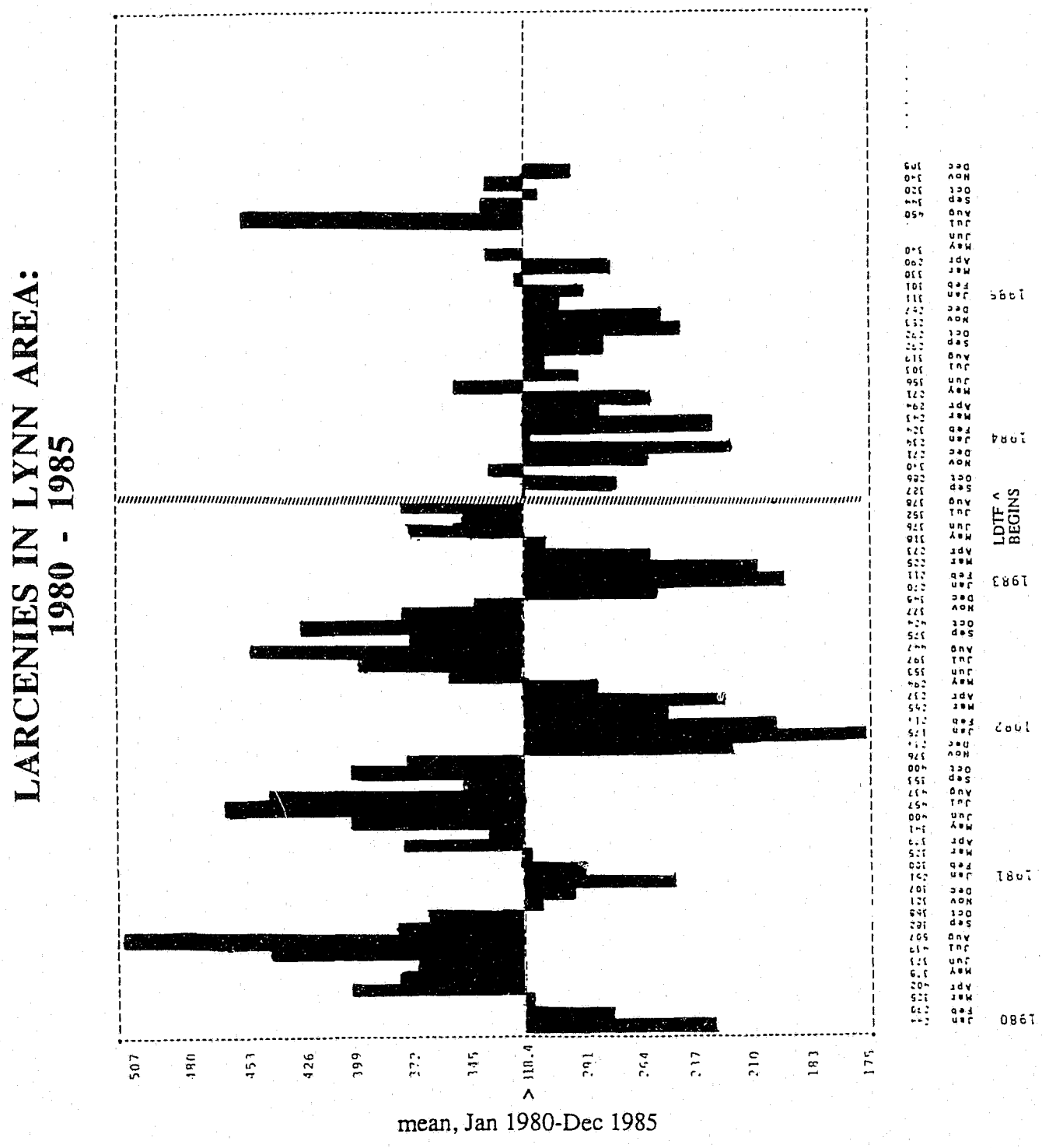

LARCENIES IN LYNN AREA:
1980 - 1985
LDTF ^ BEGINS
1980
1981
1982
1983
1984
1985
507
480
453
426
399
372
345
318.4
291
264
237
210
183
175
^
mean, Jan 1980-Dec 1985
LARCENIES
MONTH

Figure B-9

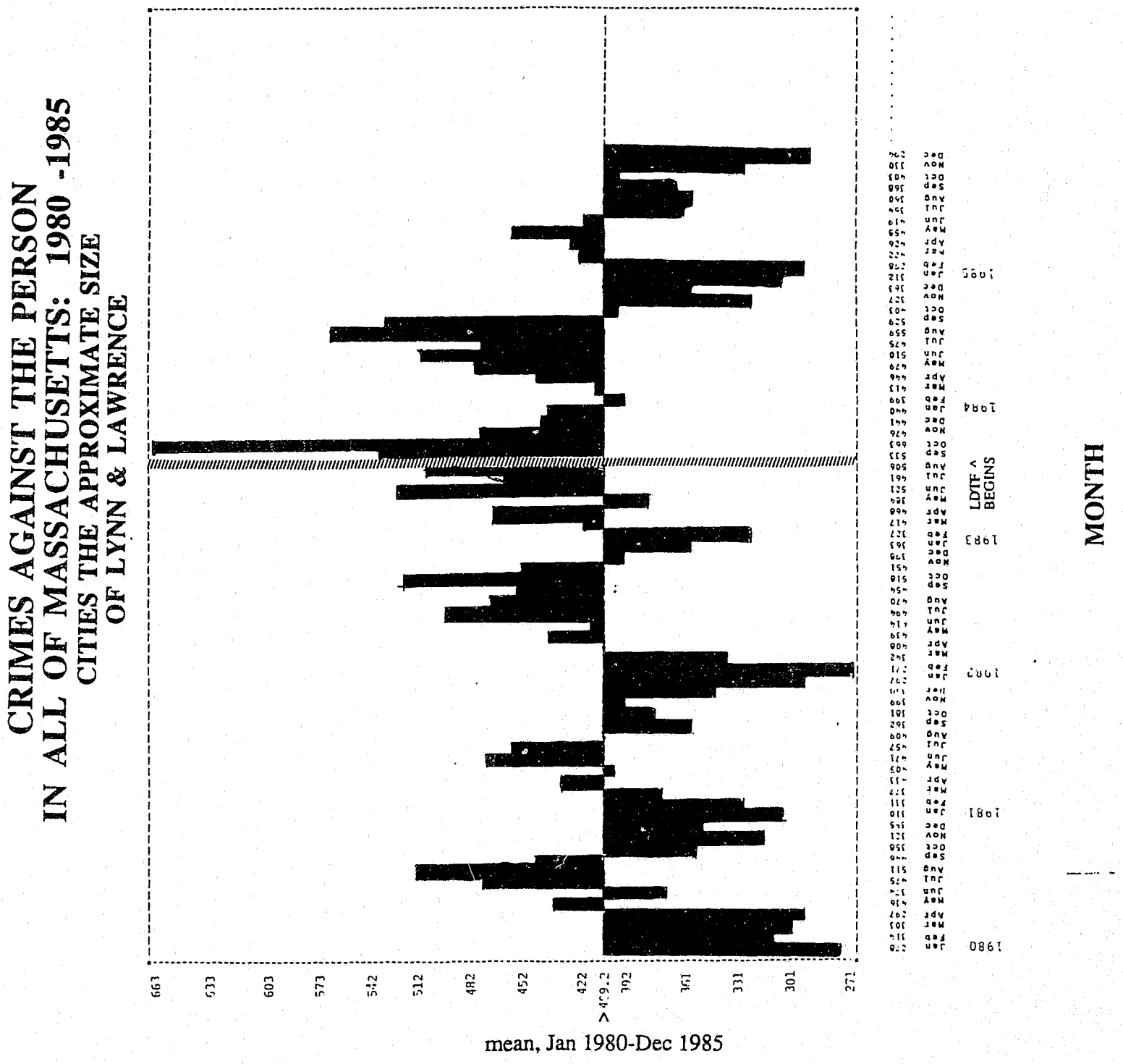

CRIMES AGAINST THE PERSON
IN ALL OF MASSACHUSETTS: 1980 -1985
CITIES THE APPROXIMATE SIZE
OF LYNN & LAWRENCE
663
633
603
573
542
512
482
452
422
392
361
331
301
271
mean, Jan 1980-Dec 1985
LDTF BEGINS
1980
1981
1982
1983
1984
1985
MONTH
CRIMES AGAINST THE PERSON

Figure B-]0

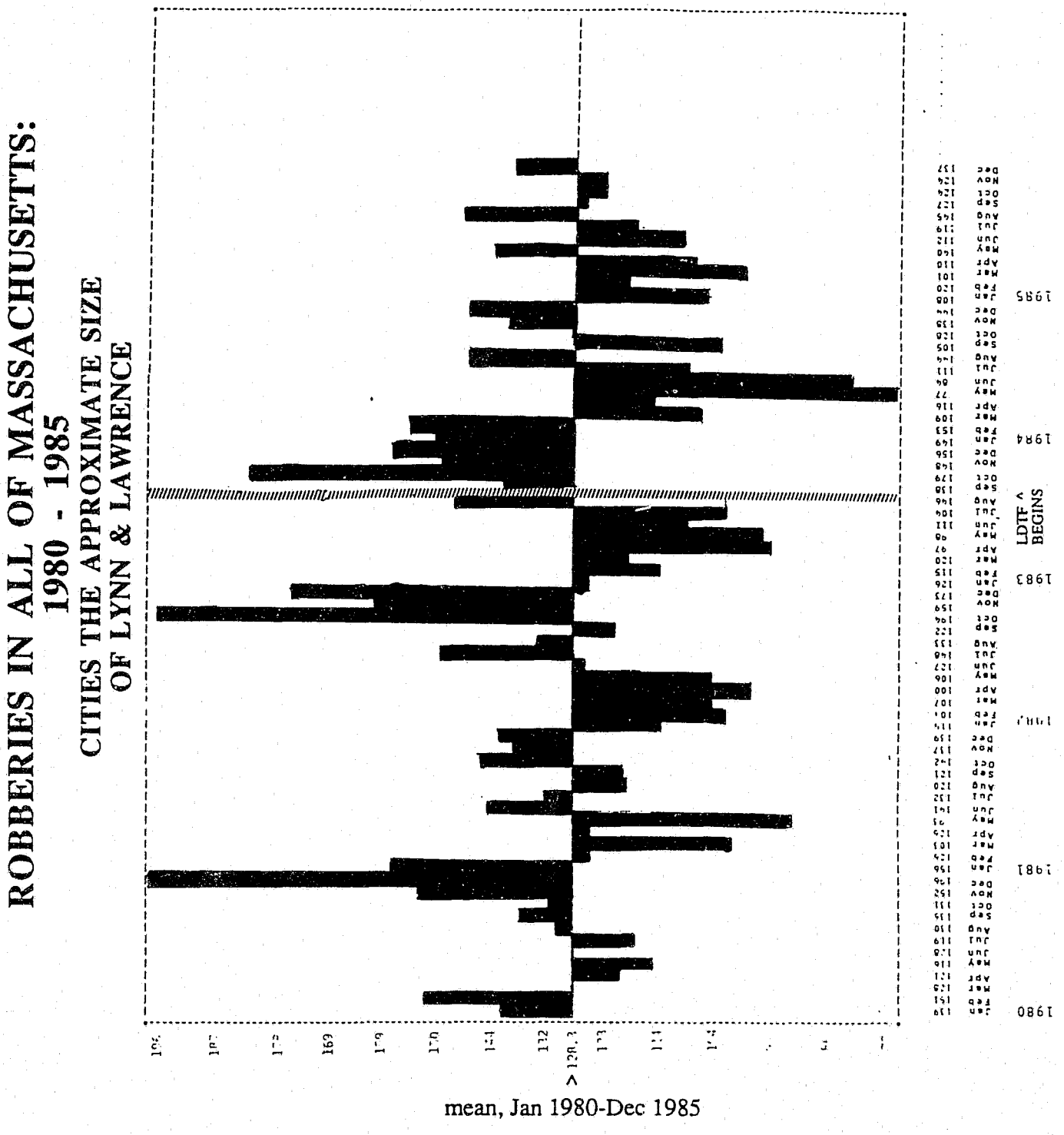

ROBBERIES IN ALL OF MASSACHUSETTS:
1980 - 1985
CITIES THE APPROXIMATE SIZE
OF LYNN & LAWRENCE
LDTF ^ BEGINS
1980
1981
1982
1983
1984
1985
MONTH
ROBBERIES
> mean, Jan 1980-Dec 1985

Figure B-]]

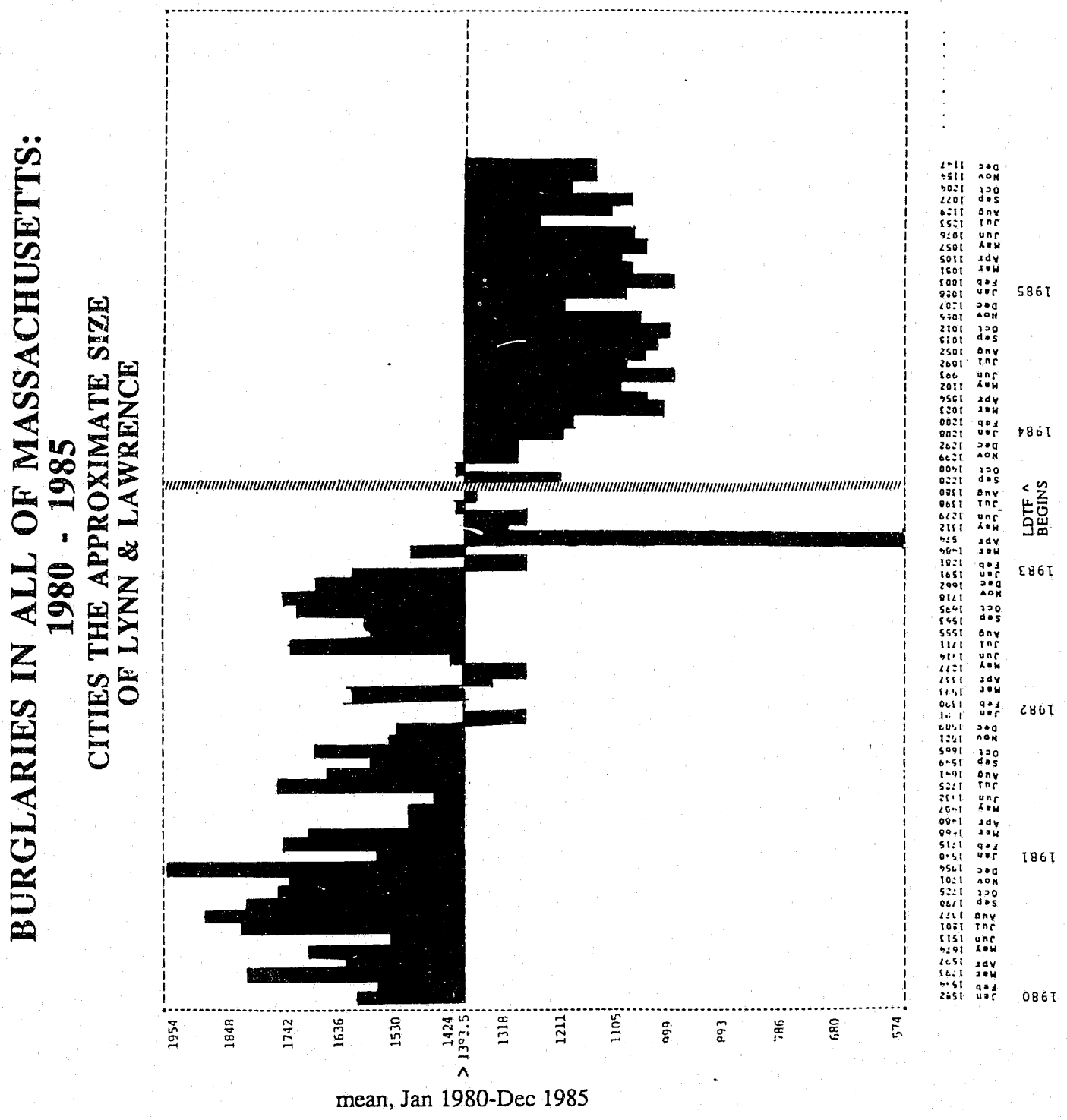
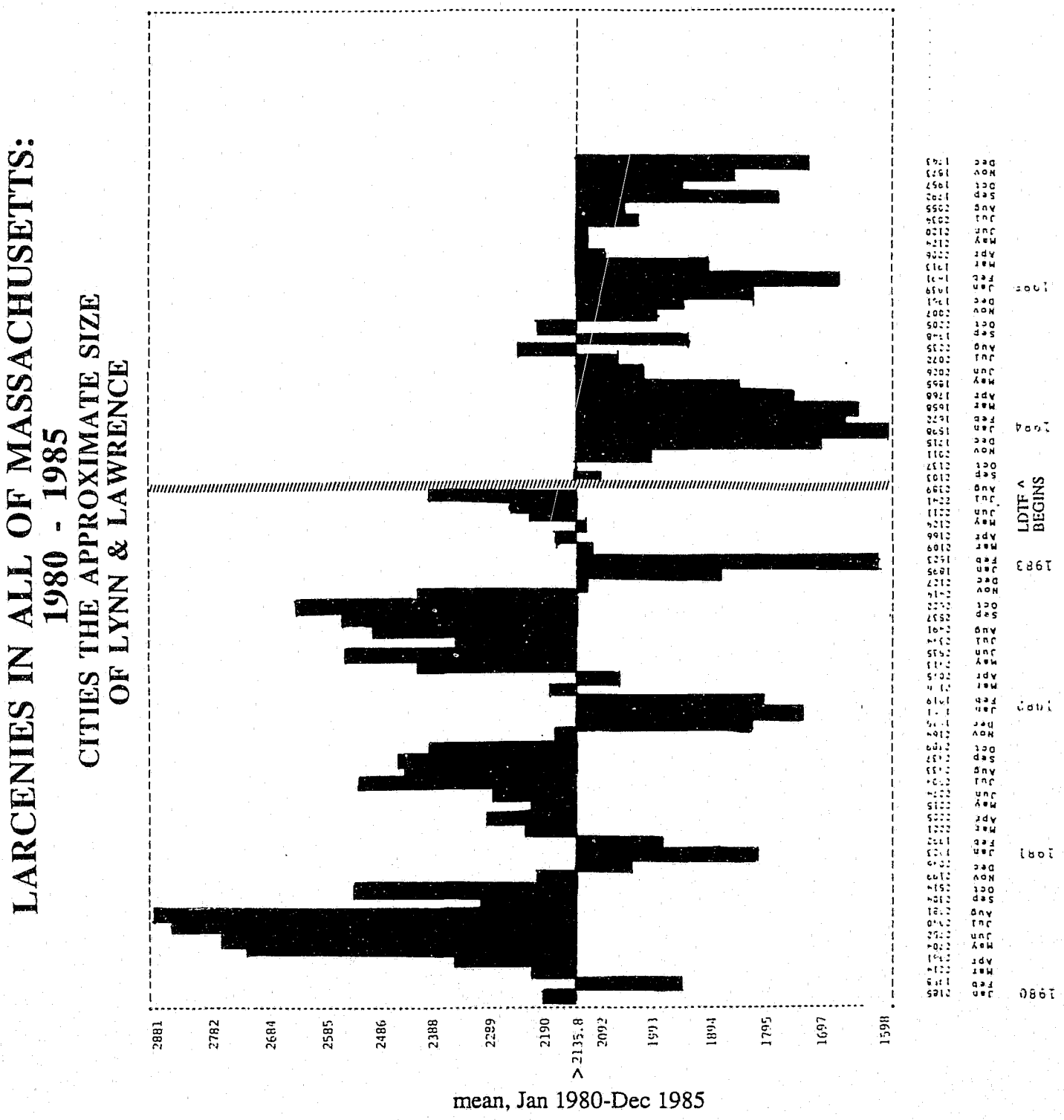

BURGLARIES IN ALL OF MASSACHUSETTS:
1980 - 1985
CITIES THE APPROXIMATE SIZE
OF LYNN & LAWRENCE
1954
1848
1742
1636
1530
1424
1318
1211
1105
999
893
786
680
574
> 1392.5
mean, Jan 1980-Dec 1985
1980
1981
1982
1983
1984
1985
LDTF > BEGINS
MONTH
BURGLARIES

Figure B-12


LARCENIES IN ALL OF MASSACHUSETTS:
1980 - 1985
CITIES THE APPROXIMATE SIZE
OF LYNN & LAWRENCE
2881
2782
2684
2585
2486
2388
2289
2190
> 2135.8
2092
1991
1894
1795
1697
1598
mean, Jan 1980-Dec 1985
LDTF A
BEGINS
1980
1981
1982
1983
1984
1985
LARCENIES
MONTH

5. Multivariate Analysis of Crime Reports in Lynn

Monthly crime reports co-vary with population size, season, and city characteristics. In addition there may be temporal trends in monthly crime reports reflecting deep and wide-ranging structural changes in society. To control for these effects partially, we estimated the following linear model using our data:

UCR(crime,time,season,population,city,intervention)

= A(crime,city) * time (in months from January 1980)

+B(crime,city) * season (1,0)=high crime season
May - September

(0,1)=low crime season
October - April

+C(crime,city) * yearly population of city

+D(crime,city) * intervention 0=pre-September,1983
1=post-September,1983

We estimated the parameters of this model separately for Lynn, the aggregate of cities surrounding Lynn, and the aggregate of all other Massachusetts cities. By comparing parameter D for these three cases, we determined the impact of the intervention after controlling for secular trend, seasonality, and population. If street-level drug enforcement was effective, D should be significant for Lynn and perhaps the area surrounding Lynn, but not significant for other Massachusetts cities.

Tables B-4 through B-6 present the results of this analysis. Comparing the coefficients and t-statistics of the dummy intervention variable among Lynn, the cities surrounding Lynn, and selected Massachusetts cities, our

earlier conclusions are confirmed. For crimes against the person, robberies, and burglaries, the intervention coefficient is always significant in the regression equations for Lynn. It is much more significant in the equations for Lynn than for surrounding cities or selected Massachusetts cities.

This model has several shortcomings which require that its conclusions be examined further. First, this model is not a very good reflection of reality. The R-squares, which represent the proportion of variance explained by the model, are quite low, with the exception of the equations for crimes against the person in Lynn and burglaries in Lynn and selected Massachusetts cities. In those equations that do have explanatory power, most of the explained variance is due to the effect of the time and intervention variables.

Second, the regression equations significantly understate the importance of the intervention variable because this variable is colinear with time. Also the effects of population are grossly understated by the model because of insufficiencies in the data. There was only a small amount of variance in population. The effects of this were further diluted by the fact that monthly populations were estimated by year-end population. Thus within any given year population data did not vary from observation to observation.

Despite its shortcomings this is the type of model that has traditionally been used to evaluate interventions of the type examined here. If this technique were the basis for our analysis we would refine the model to provide further insights. Instead, we base our analysis on several approaches of which this is the least important. As it exists now, the model confirms conclusions deduced more clearly from the earlier analysis. The following section will present the powerful and rigorous methods of ARIMA

TABLE B-4

REGRESSION ANALYSIS OF CRIMES AGAINST THE PERSON IN LYNN, THE CITIES SURROUNDING LYNN, AND SELECTED MASSACHUSETTS CITIES

	Lynn		Surrounding Cities		Massachusetts	
Parameters	Coefficient	T	Coefficient	T	Coefficient	T
Intercept	356.8	0.9	1707.6	1.6	1229.8	2.3
Population	0.0	-0.7	0.0	-1.6	0.0	-1.6
Time	-0.3	-0.8	0.6	2.7	-0.4	-0.5
Season	19.5	4.2	2.0	0.7	74.1	0.7
Intervention	-57.9	-5.4	-12.8	-2.2	40.1	1.3
Adjusted R**2	0.75		0.09		0.24	

TABLE B-5

REGRESSION ANALYSIS OF ROBBERIES IN LYNN, THE CITIES SURROUNDING LYNN, AND SELECTED MASSACHUSETTS CITIES

	Lynn		Surrounding Cities		Massachusetts	
Parameters	Coefficient	T	Coefficient	T	Coefficient	T
Intercept	387.0	-3.1	-514.8	-1.5	-15.5	-0.1
Population	0.0	-3.1	0.0	1.6	0.0	0.9
Time	-0.3	-2.8	-0.2	-2.5	-0.2	-0.7
Season	0.7	0.5	-2.3	-2.4	-11.9	-2.2
Intervention	2.1	0.6	0.7	0.4	4.2	0.4
Adjusted R**2	0.21		0.09		0.05	

TABLE B-6

REGRESSION ANALYSIS OF BURGLARIES IN LYNN, THE CITIES SURROUNDING LYNN, AND SELECTED MASSACHUSETTS CITIES

	Lynn		Surrounding Cities		Massachusetts	
Parameters	Coefficient	T	Coefficient	T	Coefficient	T
Intercept	336.4	0.4	2730.4	0.9	77.5	0.1
Population	0.0	-0.1	-0.0	-0.8	0.0	1.3
Time	-0.8	-1.1	-0.5	-0.8	-7.1	-3.7
Season	4.3	0.4	-1.0	-0.1	-1.5	-0.0
Intervention	-63.3	-2.6	0.4	0.0	-151.0	-2.0
Adjusted R**2	0.51		0.20		0.64	

analysis which more firmly establish these conclusions.

6. ARIMA Analysis of Crime Reports in Lynn

The essence of the ARIMA analysis was the same for the three time series which we analyzed in Lynn: monthly reports of crimes against the person, monthly reports of robberies, and monthly reports of burglaries. In each case preliminary analysis suggested that an ARIMA(0,1,0) model sufficiently described the series if the intervention variable was excluded, that is, that the data represented a random walk about a mean value. After estimation, the ARIMA(0,1,0) model was found to fit the data for each series reasonably well.

Adding the intervention variable to the analysis led to a statistically significant reduction in unexplained variance for each series. This is equivalent to saying that a model which assumes a random walk about a high mean value before intervention and a random walk about a lower mean value after intervention describes each series significantly more accurately than a model which assumes the same mean level before and after intervention. This formally demonstrates our previous conclusion resulting from the examination of time plots for these series, that is, that street-level drug enforcement reduced the reported levels of these three types of crime in Lynn.

Although we found similar results for robberies and burglaries in the cities surrounding Lynn, the intervention effects were much less pronounced, and there was no intervention effect for crimes against the person. Thus the results of the ARIMA analysis suggest neither spillover effects nor that the effect in Lynn was part of a background effect occurring in surrounding cities.

Massachusetts cities as an aggregate showed no intervention effects for crimes against the person or robberies in the ARIMA analysis. They did, however, show a strong intervention effect for burglaries. This was exactly comparable to the effect observed for Lynn. Thus the ARIMA analysis suggests that the decline in burglaries in Lynn may be an artifact of some statewide trend, rather than a result of street-level drug enforcement. The declines in crimes against the person and robberies in Lynn, however, appear clearly due to street-level drug enforcement.

Because the ARIMA analyses are so similar for each series, a detailed analysis is presented only for crimes against the person in Lynn, in the cities surrounding Lynn, and in aggregated Massachusetts cities of comparable size. All other ARIMA analyses are summarized in Tables B-7 through B-9.

7. Detailed ARIMA Analysis of Crimes Against the Person

Figure B-13 shows the ACF and PACF for crimes against the person in Lynn. These clearly show that this series is ARIMA(0,d,0). Figure B-14 shows the ACF and PACF for the differenced series. These are insignificantly different from the ACF and PACF for "white noise." Therefore this series is best modeled as an ARIMA(0,1,0) process, that is, a random fluctuation about some constant level.

The estimation of the parameter for this process, that is, the level about which the process fluctuates, is presented in the first section of Table B-7. The estimated level is 62.8 crimes per month. This is highly significant with a t of 13.8. Thus the ARIMA(0,1,0) model is validated, and the series of crimes against the person in Lynn, $w(t)$, can be modeled by the

TABLE B-7.A: LYNN-MONTHLY REPORTED CRIMES AGAINST THE PERSON

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	62.8	4.5	13.8	1489	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	88.6	3.2	28.0		
Interven.	-66.4	5.1	-13.1	441	70

TABLE B-7.B: LYNN-MONTHLY REPORTED ROBBERIES

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	19.7	0.8	24.8	45	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	21.8	0.9	23.3		
Interven.	-5.4	1.5	-3.57	38	16

TABLE B-7.C: LYNN-MONTHLY REPORTED BURGLARIES

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	220.2	7.3	30.4	3788	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	255.6	6.4	39.8		
Interven.	-91.0	10.3	-8.8	1819	50

TABLE B-8.A: CITIES AROUND LYNN-MONTHLY REPORTED CRIMES AGAINST THE PERSON

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	32.5	1.5	22.1	156	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	31.5	1.9	16.9		
Interven.	2.5	3.0	0.8	154	0

TABLE B-8.B: CITIES AROUND LYNN-MONTHLY REPORTED ROBBERIES

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	14.6	0.5	27.6	20	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	16.0	0.6	25.8		
Interven.	-3.6	1.0	-3.7	17	15

TABLE B-8.C: CITIES AROUND LYNN-MONTHLY REPORTED BURGLARIES

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	225.4	4.4	51.5	1382	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	236.9	5.2	45.8		
Interven.	-29.4	8.3	-3.6	1176	15

TABLE B-9.A: MASSACHUSETTS CITIES-MONTHLY REPORTED CRIMES AGAINST THE PERSON

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	409.2	9.0	45.7	5786	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	339.0	11.3	35.3		
Interven.	26.4	18.1	1.5	5620	3

TABLE B-9.B: MASSACHUSETTS CITIES-MONTHLY REPORTED ROBBERIES

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	128.3	2.7	48.1	513	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	129.3	3.4	37.9		
Interven.	-2.6	5.5	-0.5	511	0

TABLE B-9.C: MASSACHUSETTS CITIES-MONTHLY REPORTED BURGLARIES

Selected Model: ARIMA (0,1,0)

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	1383	32.3	42.8	75,101	0

Selected Model: ARIMA (0,1,0) with intervention

Parameter	Value	Standard Error	T-Ratio	Unexplained Variance	Percent Reduction
Level	1545	27.8	55.5		
Interven.	-415	44.7	-9.3	34,124	55

Figure B-]3

ESTIMATED AUTOCORRELATION AND PARTIAL AUTOCORRELATION FUNCTIONS FOR MONTHLY REPORTS OF CRIMES AGAINST THE PERSON IN LYNN

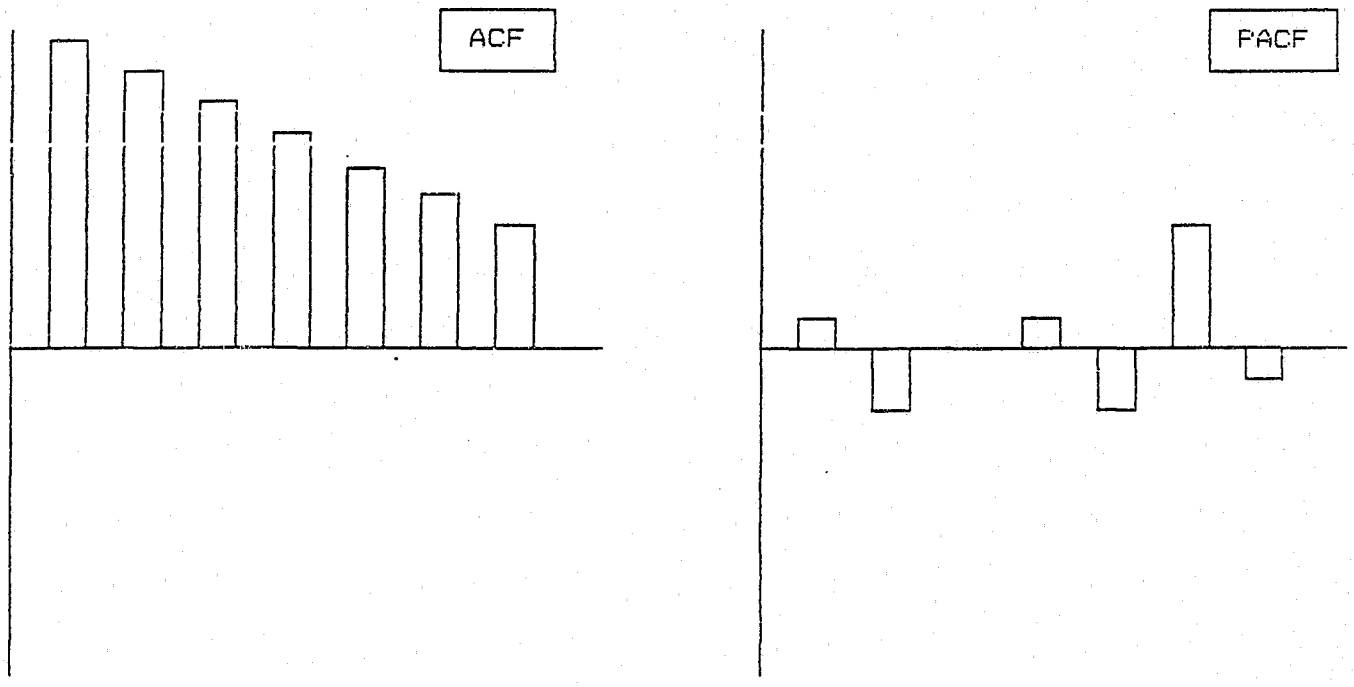
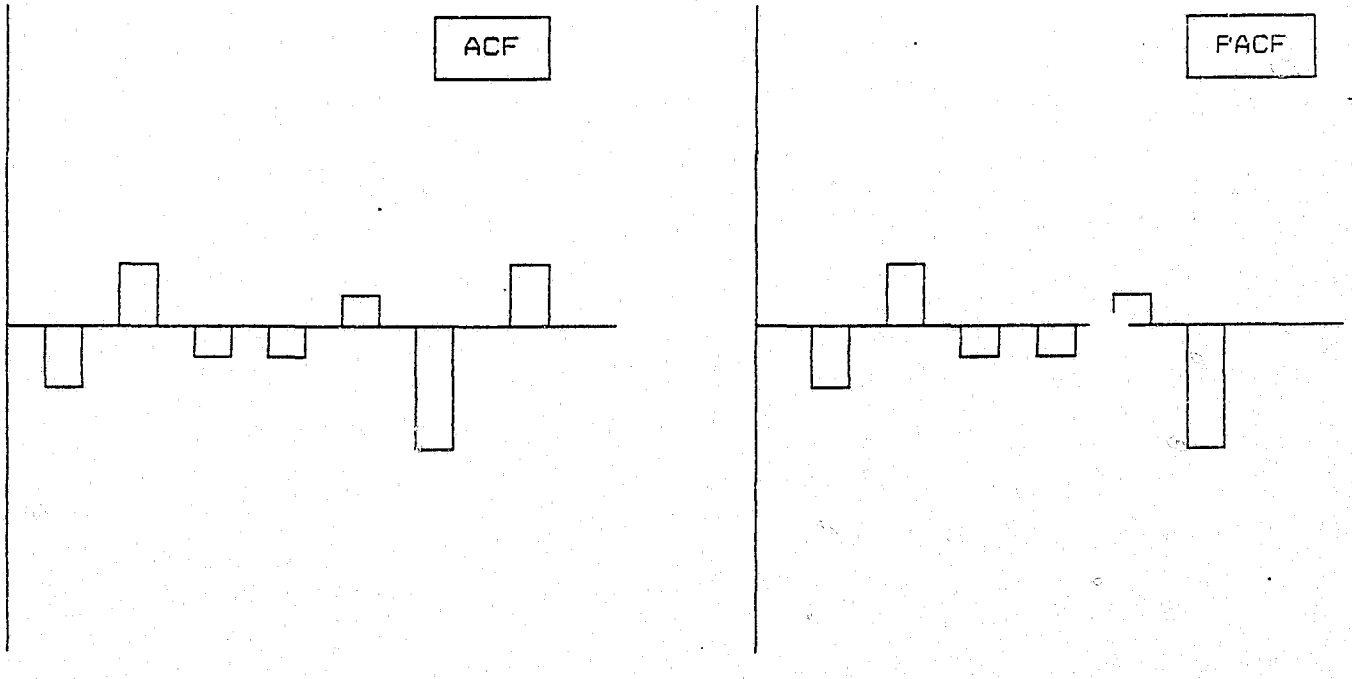


Figure B-]4

ESTIMATED AUTOCORRELATION AND PARTIAL AUTOCORRELATION FUNCTIONS FOR MONTHLY REPORTS OF CRIMES AGAINST THE PERSON IN LYNN DIFFERENCED



process $z(t) = w(t) - w(t-1) = L + e(t)$ where L is the level about which the process fluctuates.

To test for an intervention effect, we added a parameter, $I(t)$, to this model where $I(t)=0$ prior to intervention and $I(t)=1$ after intervention. The new model becomes

$$z(t) = w(t) - w(t-1) = L + i*I(t) + e(t)$$

where i is a constant measuring how much the level about which the series fluctuates is raised or lowered after intervention. We then estimated the parameters of this new model and tested them for significance.

The results of this analysis are shown in the second section of Table B-7. Both the new level of 88.6 and the -66.4 value of i, the intervention parameter, are highly significant, with t's of 28.0 and -13.1 respectively. But more importantly, this new model reduces unexplained variance in the simple ARIMA(0,1,0) model by 70%. Thus the ARIMA analysis clearly shows that intervention had an effect on crimes against the person in Lynn. In fact it suggests these crimes were reduced by 66.4 crimes per month as a result of street-level drug enforcement.

Figure B-15 shows the ACF and PACF for crimes against the person in the cities around Lynn. These clearly suggest that this series might be ARIMA(1,0,0); however, this proved not to be the case. We then checked the differenced series to see if an ARIMA(0,1,0) model adequately represented the series. Figure B-16 shows the ACF and PACF for the differenced series. These are insignificantly different from the ACF and PACF for "white noise." Therefore this series also can be modeled as an ARIMA(0,1,0) process.

The estimation of the parameter for this process is presented in the first section of Table B-8. The estimated level is 32.5 crimes per month.

Figure B-]5

ESTIMATED AUTOCORRELATION AND PARTIAL AUTOCORRELATION FUNCTIONS FOR MONTHLY REPORTS OF CRIMES AGAINST THE PERSON IN CITIES SURROUNDING LYNN

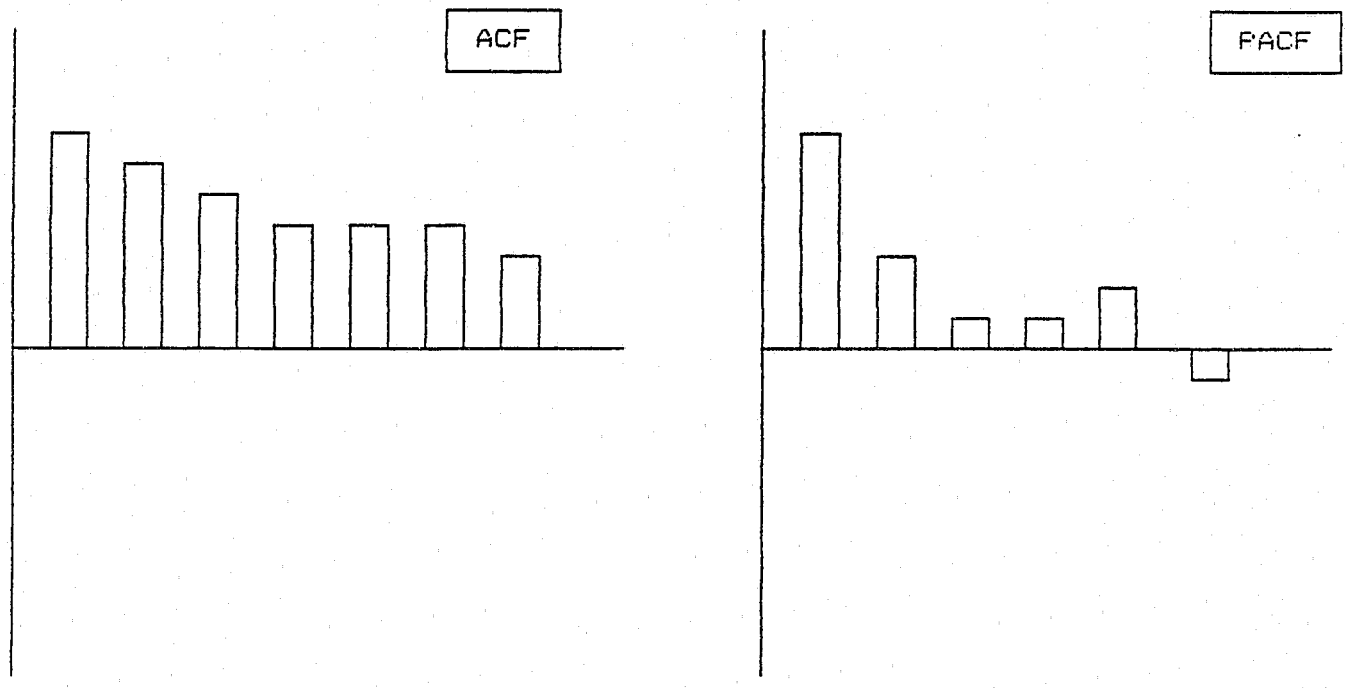
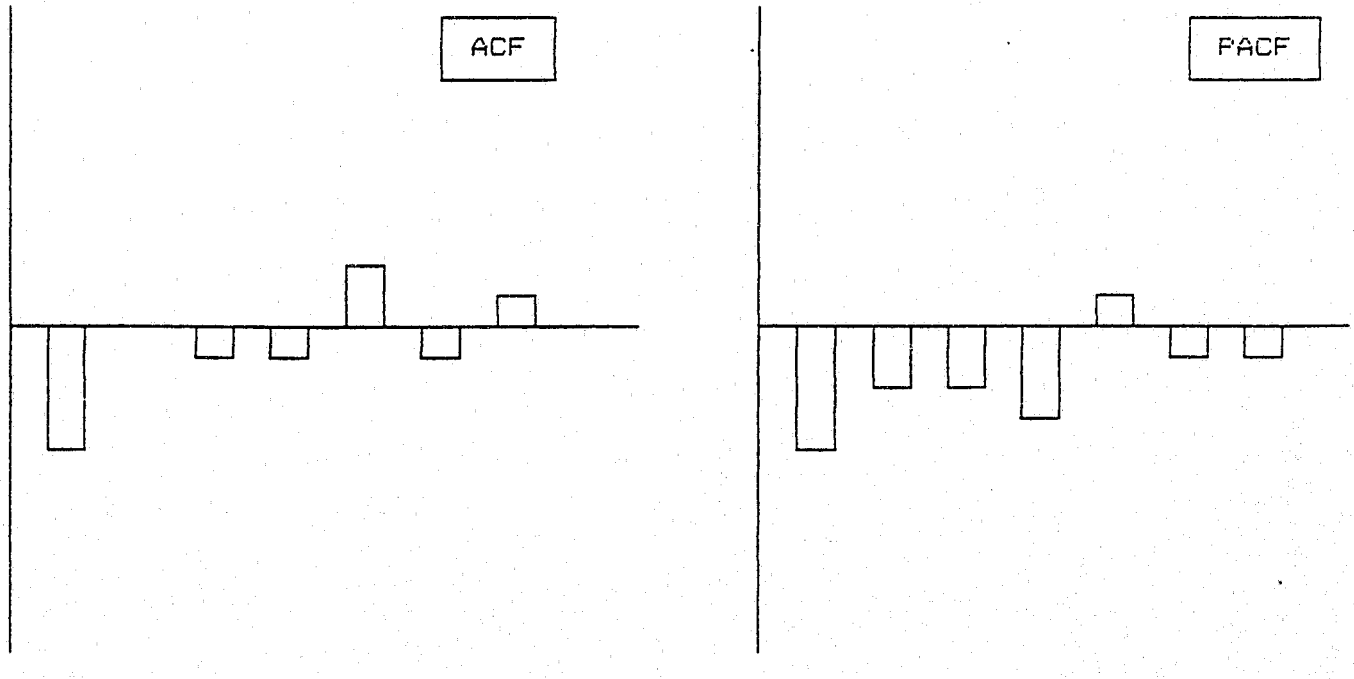


Figure B-]6

ESTIMATED AUTOCORRELATION AND PARTIAL AUTOCORRELATION FUNCTIONS FOR MONTHLY REPORTS OF CRIMES AGAINST THE PERSON IN LYNN DIFFERENCED



This is highly significant with a t of 22.1. Thus the ARIMA(0,1,0) model is validated, and the series of crimes against the person in cities around Lynn can be approximated by an ARIMA(0,1,0) model.

The results of our test for an intervention effect are shown in the second section of Table B-8. The new level of 31.5 is significant with a t of 16.9. But the intervention parameter of 2.5 is not significant with a t of only 0.8. Furthermore this new model causes no reduction in unexplained variance over the simple ARIMA(0,1,0) model. Therefore street-level enforcement in Lynn had no effect on crimes against the person in surrounding cities.

The estimation of the parameter for this process is presented in the first section of Table B-9. The estimated level is 409.2 crimes per month. This is highly significant with a t of 45.7. Thus the ARIMA(0,1,0) model is validated, and the series of crimes against the person in Massachusetts cities can be approximated by an ARIMA(0,1,0) model.

The results of our test for an intervention effect are shown in the second section of Table B-9. The new level of 399.0 is significant with a t of 16.9, as is the intervention parameter of 26.4 with a t of 1.5. But this new model causes almost no reduction in unexplained variance over the simple ARIMA(0,1,0) model. Coupled with the barely significant t for intervention, this suggests that the intervention variable has little, if any, explanatory effect. Therefore it is unlikely that coincidental drops in crimes against the person across Massachusetts account for those drops in crimes against the person in Lynn which we are attributing to street-level drug enforcement.

8. ARIMA Analysis of Robberies and Burglaries

Because the ARIMA analyses for robberies and burglaries were essentially identical to those for crimes against the person, they will not be presented in detail here. In every case we settled upon an ARIMA(0,1,0) model as our preliminary description of each series. Our estimations of these models, and these models with an added intervention parameter, are presented in Tables B-7 through B-9.

9. Import and Export of Criminals

As shown above, the drop in crime rates in Lynn was not a result of the displacement of crime into the surrounding area. To determine whether the Lynn heroin market attracted crime, as well as customers, from surrounding cities and towns, we sampled the population of offenders arrested in Lynn, reasoning that heroin purchasers might commit crimes in the same city in which they buy heroin. In this way, Lynn's heroin market might have imported crime. If so, a successful crackdown would reduce crime by reducing crime imports.

The data from Lynn do not confirm this hypothesis. There was no evidence that the Lynn Drug Task Force decreased the number of offenders traveling to Lynn to commit crimes. For each year between 1982 and 1986, we examined all arrests made in Lynn during February and June (about 20% of the total arrests), noting charge and home address for each arrestee. The "before" period (2/82 to 6/83) included 265 arrests; the "after" period (2/84 to 6/86) included 370 arrests.

The proportion of Lynn residents in the arrestee population did not

change significantly. About four-fifths (82%) of the sample of arrestees lived in Lynn both before and after the Lynn Drug Task Force began. Examining the subpopulation of offenders arrested for property crimes of theft, the proportion of Lynn residents barely changed: Prior to September, 1983, 84% of the arrestees lived in Lynn, while 82% of those arrested after September, 1983, were Lynn residents (see Table B-9).

There is a small, though not statistically significant, change in the proportion of Lynn residents in the subpopulation of those arrested on drug charges. Note in Table B-9 that 77% of the sample were Lynn residents before the Lynn Drug Task Force started, while 81% of those arrested for buying or selling drugs were Lynn residents after the intervention began. While the change is in the direction of our initial speculation, the chi square statistic fails to show that the change is not due to chance.

10. Summary

In summary the data suggest that street-level drug enforcement had a pronounced effect upon crimes against the person and robberies in Lynn. These effects did not result in a spillover of crime to surrounding communities, nor could they be traced to any secular trends in crime across the state. A sharp drop in burglaries in Lynn was also noted, but this decline seems due to a statewide trend.

APPENDIX C

ANALYSIS OF STREET CRIME IN LAWRENCE

1. The Data

The statistical techniques used to analyze the effect of the Lynn Drug Task Force on crime were repeated for the Lawrence Drug Task Force. Again, we relied on monthly tabulations of crimes reported to the police.

The analysis of the Lawrence Drug Task Force and crime examined two major questions:

1. Did street level drug enforcement lower the levels of crime in Lawrence independently of the decline in crime in Massachusetts?

2. If decreases in crime did occur, was this due to a displacement of crime into surrounding areas or, alternatively, did the program decrease crime in these areas also?

In order to answer these questions, data was analyzed for the following geographic areas:

1. Lawrence;

2. The area surrounding Lawrence: Andover, Haverhill, Lowell, and Methuen;

3. All remaining Massachusetts cities of the approximate size of Lawrence for which complete crime data is available.

2. Comparison of Monthly Crime Reports Before and After Street-Level Crackdown

Tables C-1 through C-3 provide a comparison of the mean monthly reports of crime before and after intervention in Lawrence, the cities surrounding Lawrence, and the aggregate of all comparable cities in Massachusetts. Comparisons are provided for four crime categories: crimes against the person, robbery, burglary, and larceny.

With the exception of murder, none of these categories shows a decrease in mean monthly reports after street level drug enforcement. Furthermore, the apparent decrease in Lawrence murders after intervention is more than matched by an apparent increase in murders in Lawrence's surrounding cities.

It thus appears on the surface that street level drug enforcement had little impact on crime in Lawrence. The next section will examine this data as time series.

3. Monthly Crime Reports Graphed as Time Series

Figures C-1 through C-12 show no clearcut pattern in Lawrence relating drops in reported crimes to the introduction of street level drug enforcement in the summer of 1984. The decline in crimes against the person reflects a secular trend across the period of study. There are similar secular rises in reported robberies, burglaries, and larcenies.

Interestingly, the secular patterns for the cities surrounding Lawrence, shown in Figures C-5 through C-8, are almost mirror images of the pattern for Lawrence. There is a secular rise in reported crimes against the person, and

a secular decline in reported robberies, burglaries, and larcenies. These declines and rises appear much more clearly in these graphs than in the aggregate analysis of the preceding section.

The analysis of time plot data for Lawrence and surrounding areas does not support the hypothesis that street level drug enforcement affected the level of crime in that city or neighboring cities. Although interesting patterns in the secular trends of crime reports were observed, these were unrelated to the introduction of street level drug enforcement.

The striking effects of the Lynn Task Force on crime were not matched in Lawrence for reasons that have not been determined. The conditions under which a crackdown does have impact on crime rates are imporant subjects of future inquiry.

TABLE C-1

COMPARISON OF MONTHLY CRIMES BEFORE AND AFTER INTERVENTION IN LAWRENCE FOR LAWRENCE

	Before Intervention			After Intervention			Diff. Signif.
Crime	Mean	SD	Mnths	Mean	SD	Mnths	At p=.01
Against Person	26.6	12.8	56	16.5	5.4	28	YES
Robbery	12.9	6.3	56	18.8	5.2	28	NO
Burglary	125.7	29.7	56	163.0	65.3	28	NO
Larceny	142.7	73.0	56	198.4	58.2	28	NO

TABLE C-2

COMPARISON OF MONTHLY CRIMES BEFORE AND AFTER INTERVENTION IN LAWRENCE FOR LAWRENCE AREA

	Before Intervention			After Intervention			Diff. Signif.
Crime	Mean	SD	Mnths	Mean	SD	Mnths	At p=.01
Against Person	62.9	22.4	43	98.2	22.7	16	NO
Robbery	20.8	6.7	47	18.9	4.2	16	NO
Burglary	260.9	56.9	46	218.1	32.5	16	YES
Larceny	441.1	82.5	47	424.4	63.2	16	NO

TABLE C-3

COMPARISON OF MONTHLY CRIMES BEFORE AND AFTER INTERVENTION IN LAWRENCE FOR MASSACHUSETTS CITIES

	Before Intervention			After Intervention			Diff. Signif.
Crime	Mean	SD	Mnths	Mean	SD	Mnths	At p=.01
Against Person	417.6	78.5	56	379.8	63.2	16	NO
Robbery	129.5	24.7	56	123.9	14.1	16	NO
Burglary	1462.7	261.0	56	1106.1	71.5	16	YES
Larceny	2186.3	308.0	56	1959.3	145.5	16	YES

Figure C-1

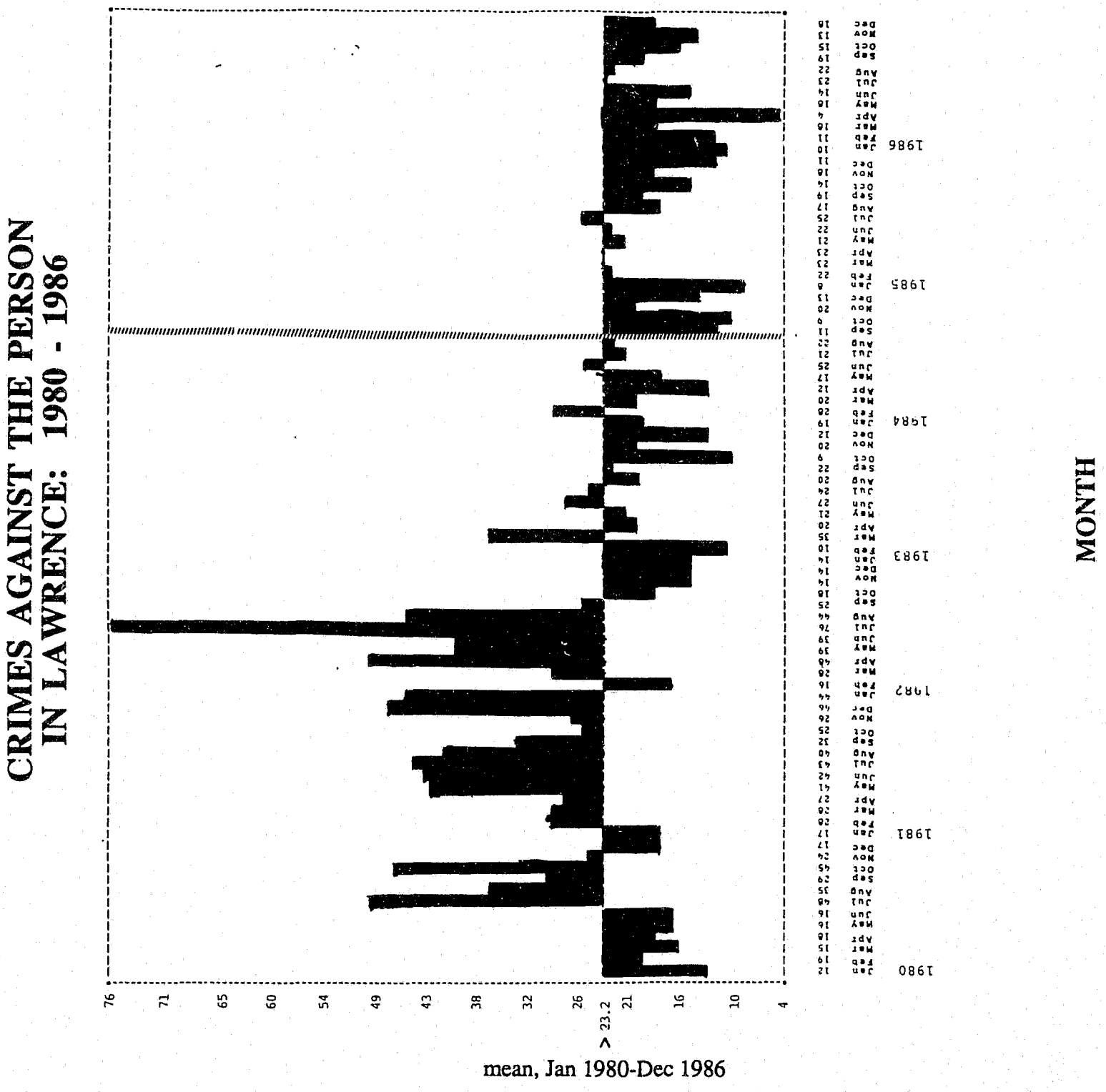

CRIMES AGAINST THE PERSON
IN LAWRENCE: 1980 - 1986
76
71
65
60
54
49
43
38
32
26
> 23.2
21
16
10
4
mean, Jan 1980-Dec 1986
1980
1981
1982
1983
1984
1985
1986
MONTH
CRIMES AGAINST THE PERSON

Figure C-2

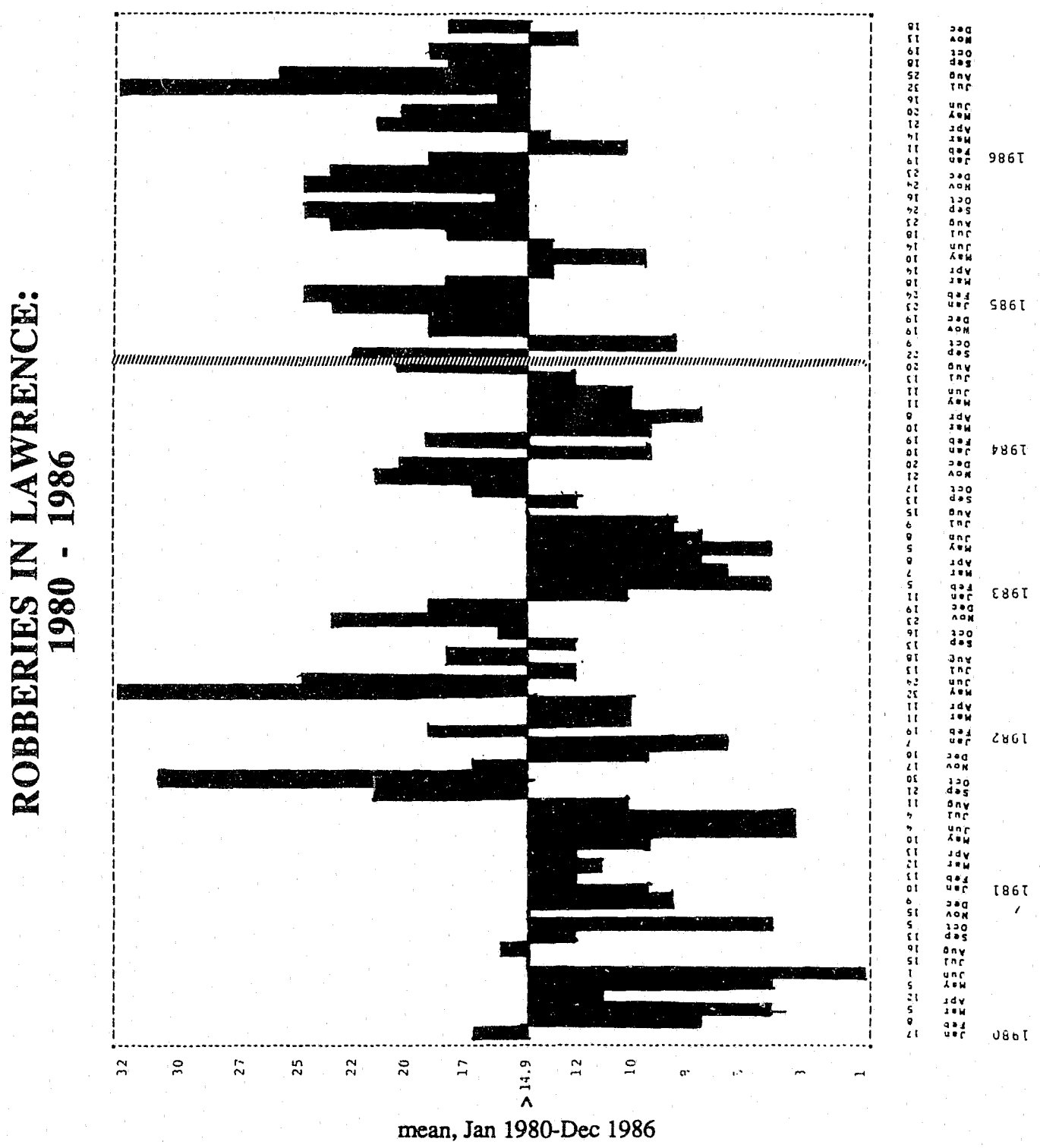

ROBBERIES IN LAWRENCE:
1980 - 1986
ROBBERIES
MONTH
mean, Jan 1980-Dec 1986
> 14.9
32
30
27
25
22
20
17
12
10
3
1
1980
1981
1982
1983
1984
1985
1986

Figure C-3

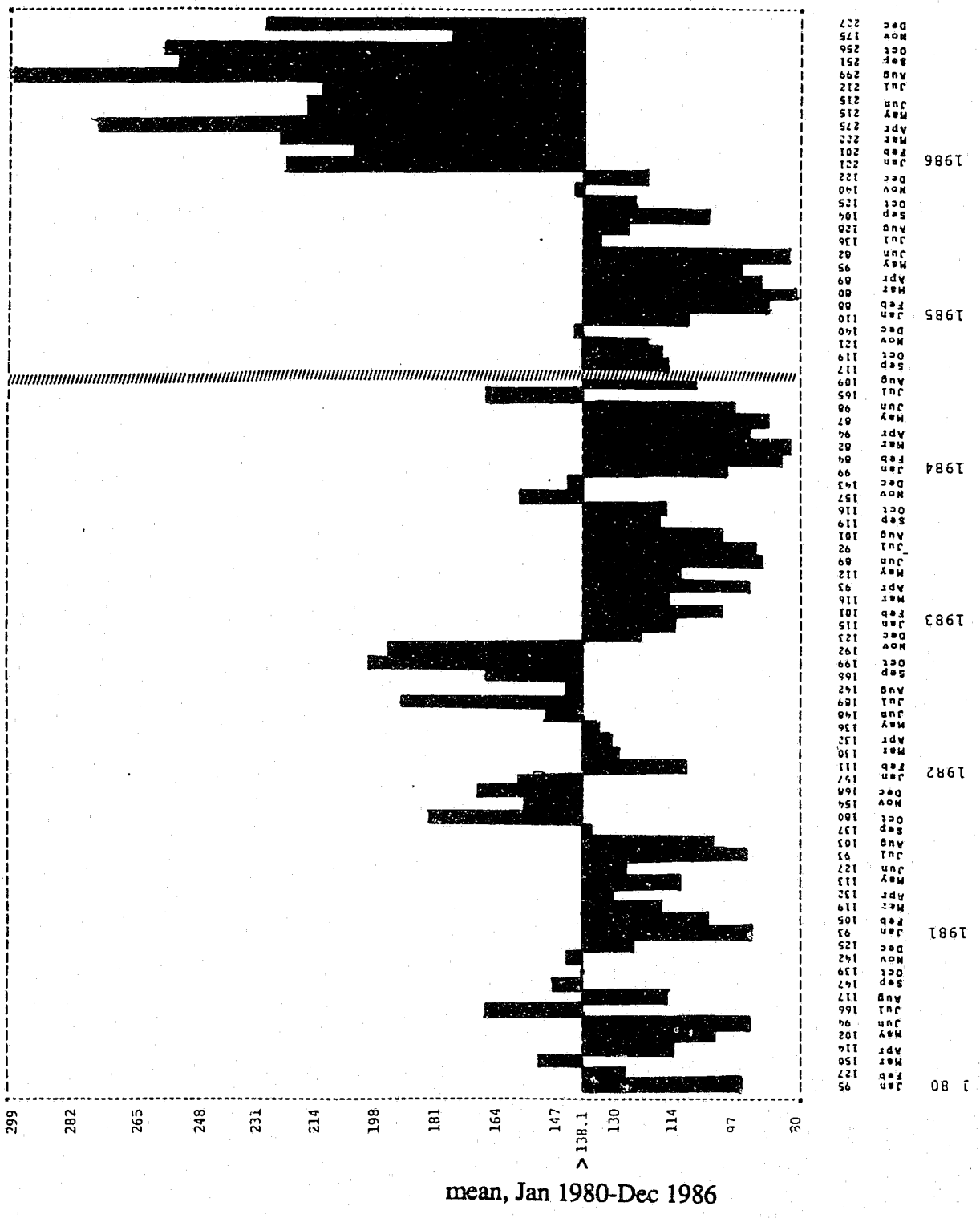

BURGLARIES IN LAWRENCE:
1980 - 1986
BURGLARIES
MONTH
299
282
265
248
231
214
198
181
164
147
130
114
97
80
> 138.1
mean, Jan 1980-Dec 1986
1980
1981
1982
1983
1984
1985
1986

Figure C-4

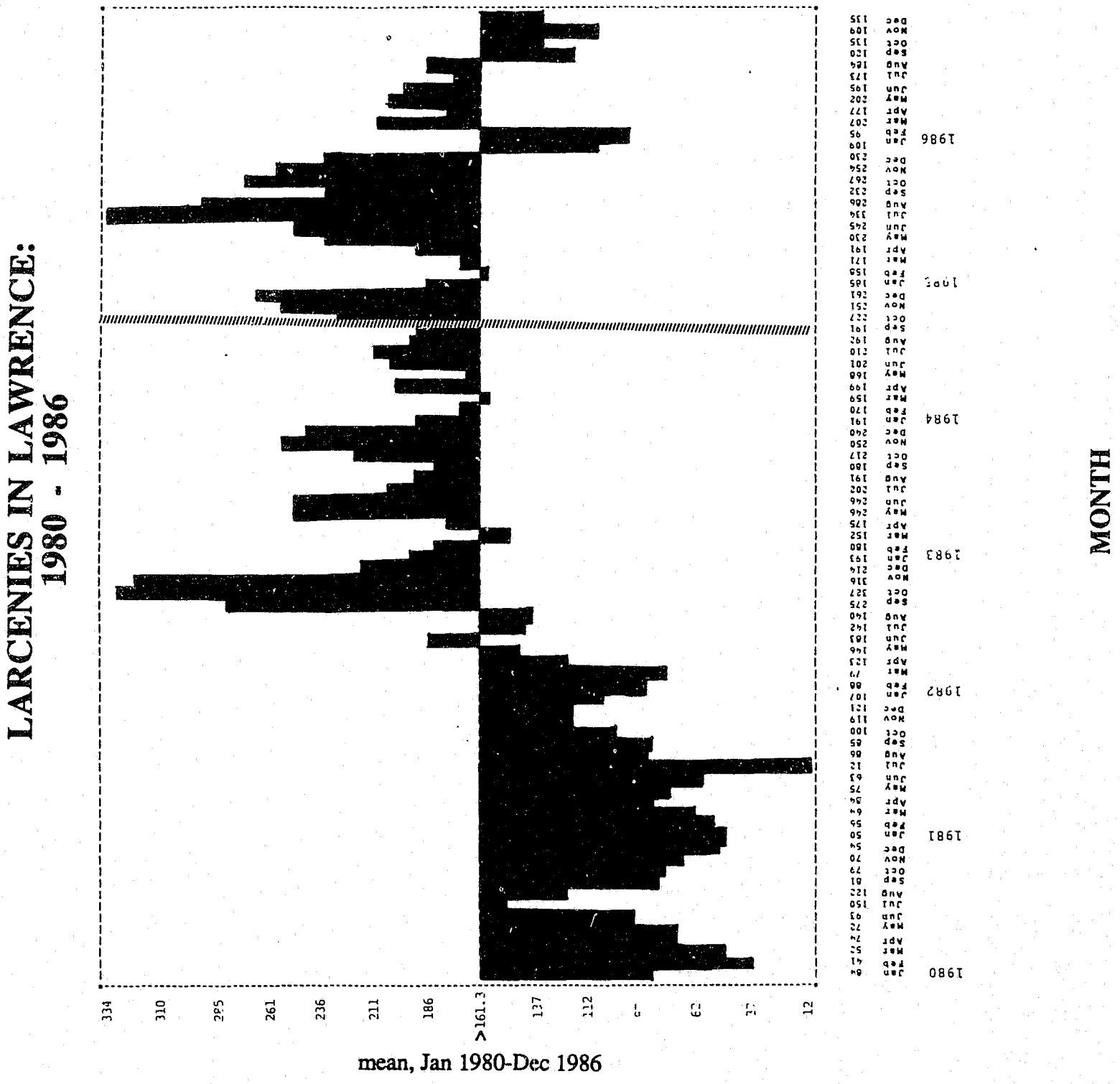
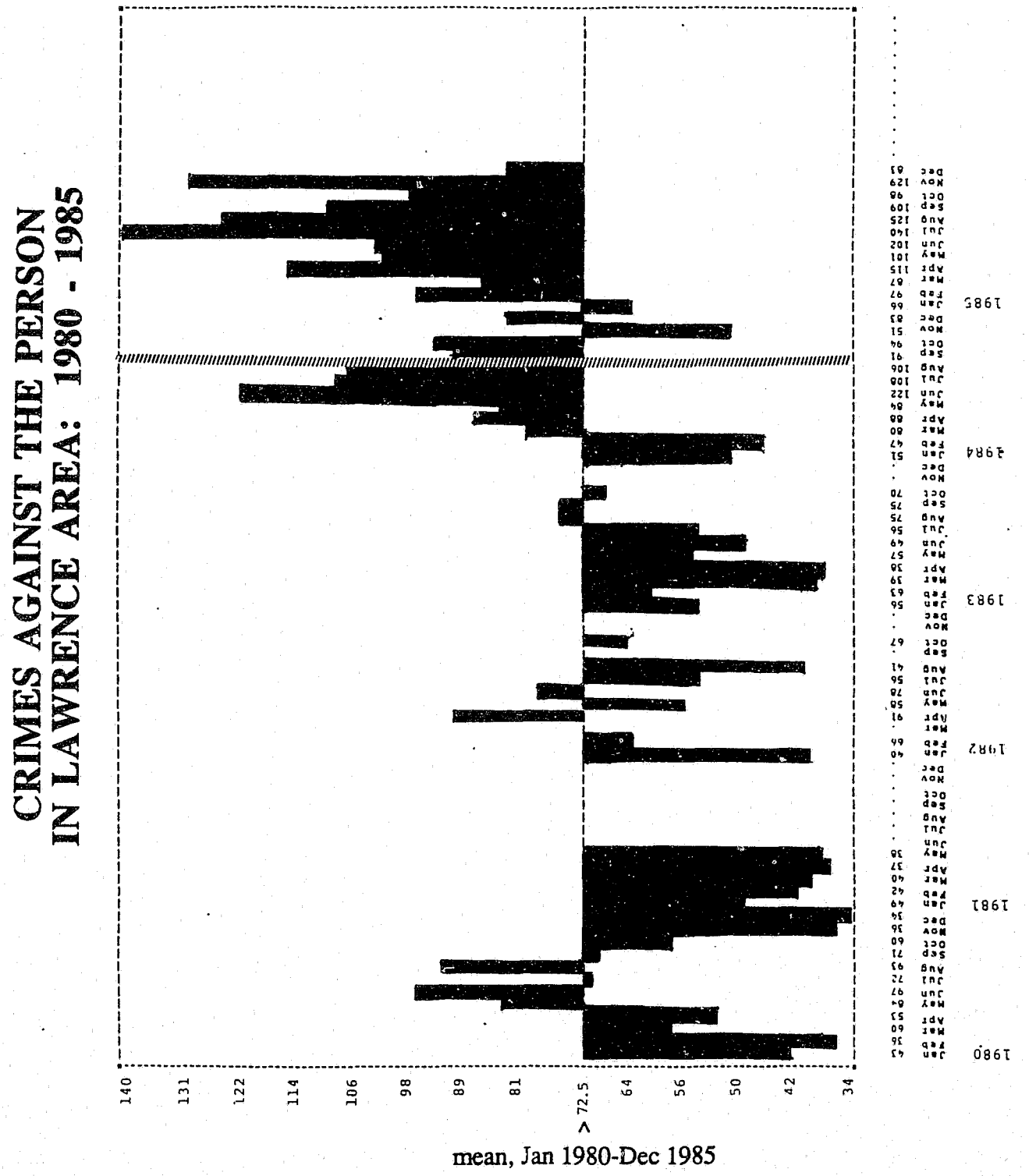

LARCENIES IN LAWRENCE:
1980 - 1986
MONTH
LARCENIES
mean, Jan 1980-Dec 1986
>161.3
334
310
285
261
236
211
186
137
112
12
1980
1981
1982
1983
1984
1986

Figure C-5


CRIMES AGAINST THE PERSON
IN LAWRENCE AREA: 1980 - 1985
140
131
122
114
106
98
89
81
> 72.5
64
56
50
42
34
mean, Jan 1980-Dec 1985
1980
1981
1982
1983
1984
1985
MONTH
CRIMES AGAINST THE PERSON

ROBBERIES

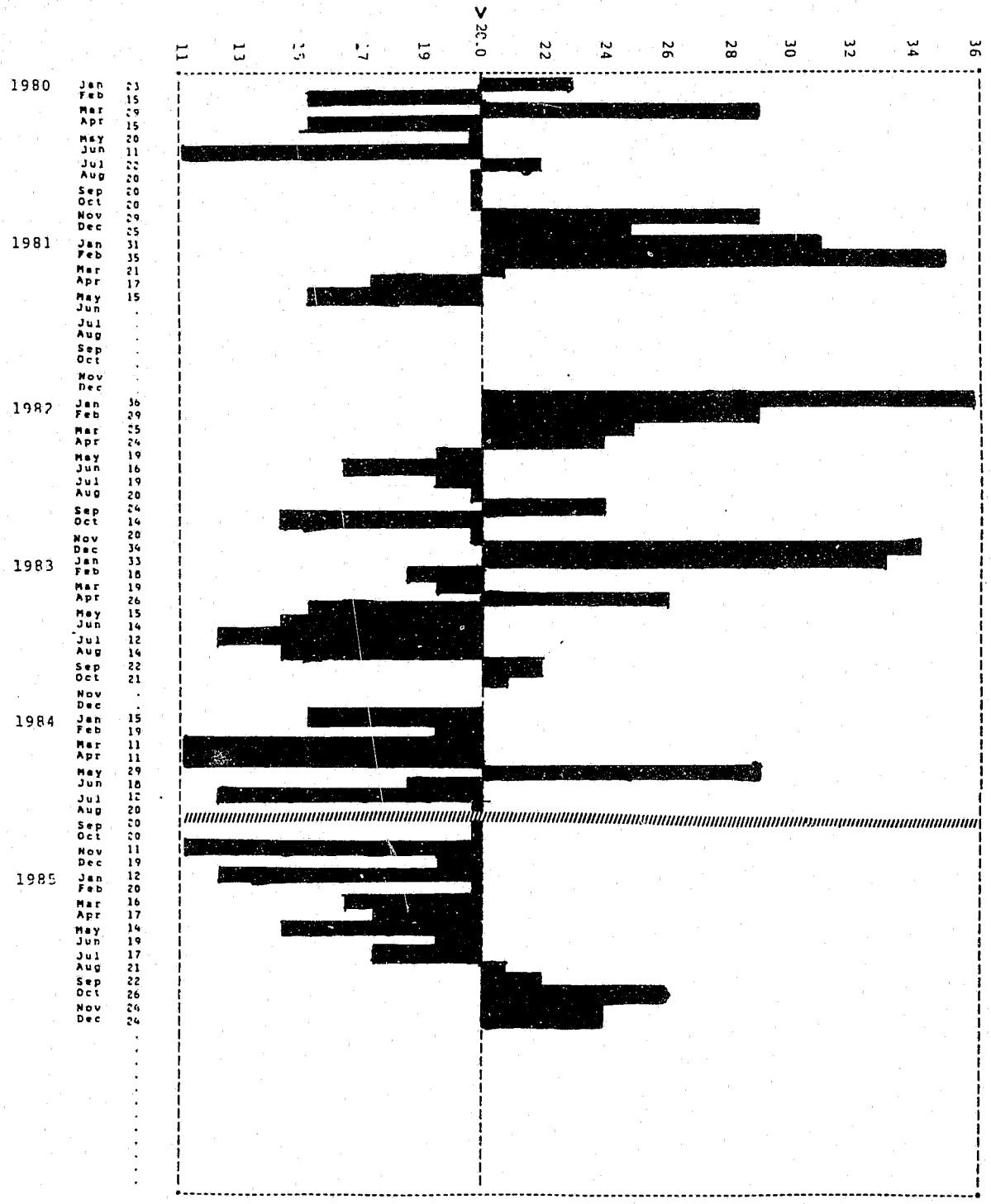
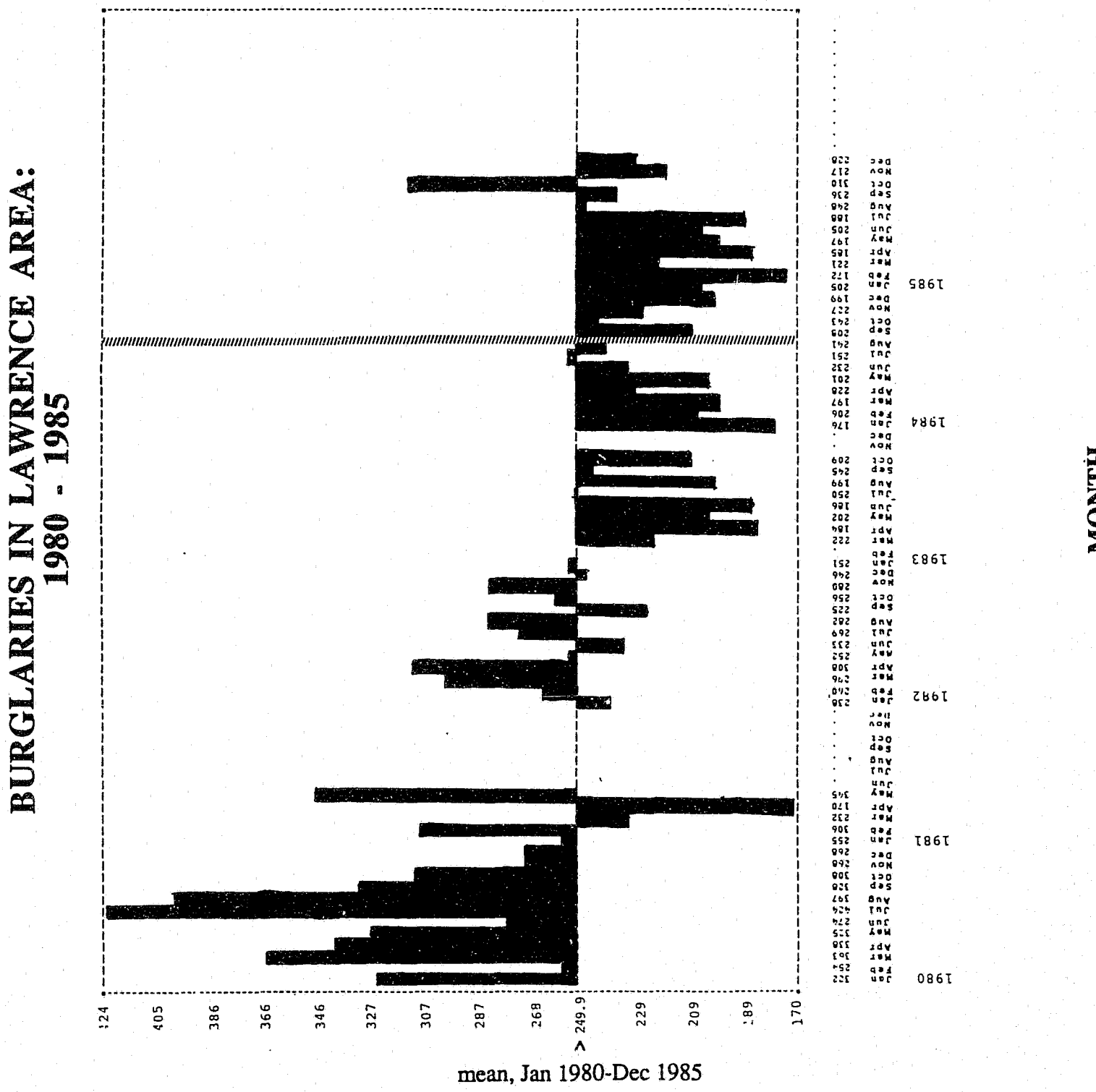
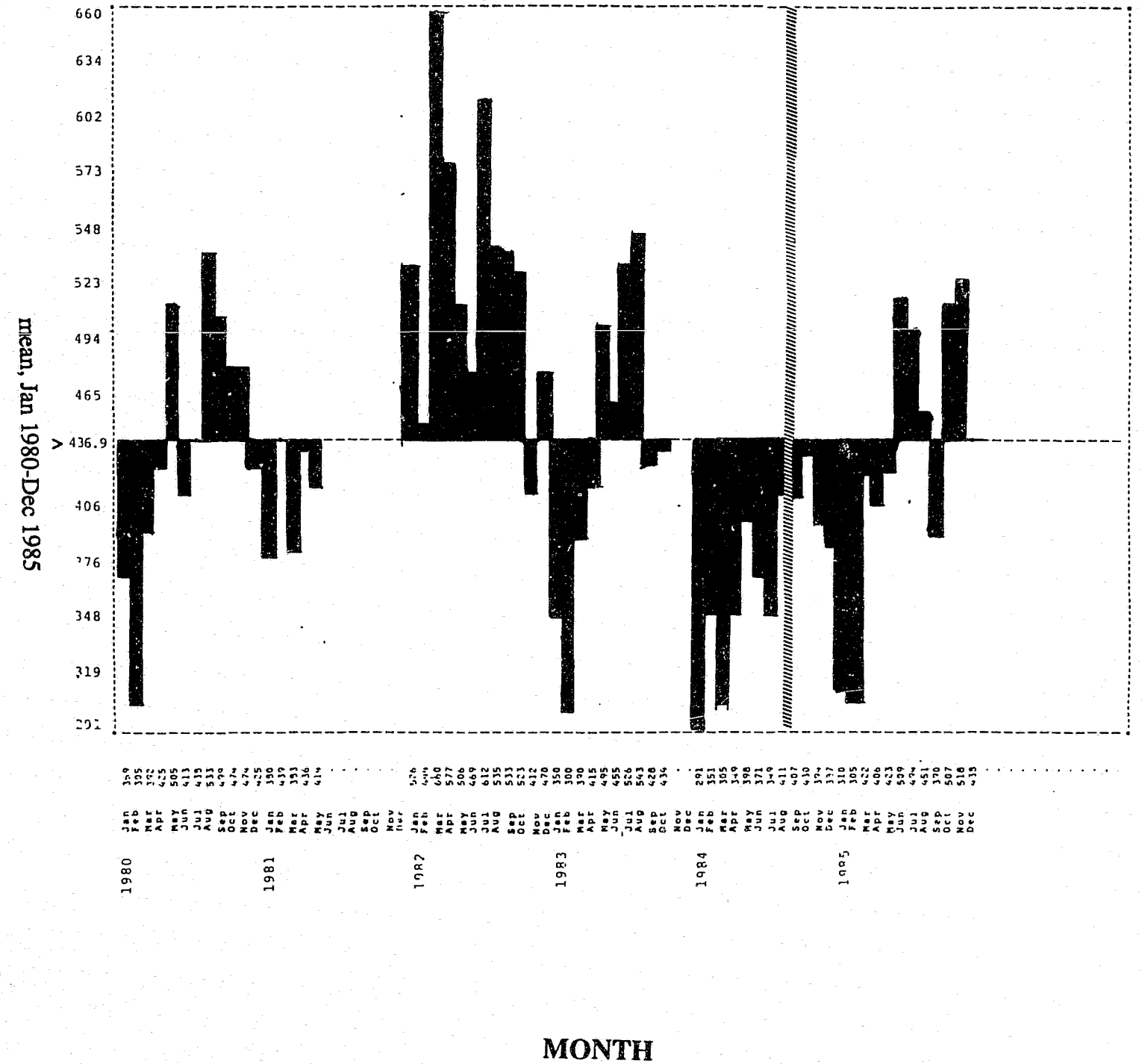


Figure C-6

Figure C-7


BURGLARIES IN LAWRENCE AREA:
1980 - 1985
BURGLARIES
MONTH
1980
1981
1982
1983
1984
1985
124
405
386
366
346
327
307
287
268
249.9
229
209
189
170
mean, Jan 1980-Dec 1985

LARCENIES IN LAWRENCE AREA: 1980 - 1985



LARCENIES

Figure C-8

CRIMES AGAINST THE PERSON
IN ALL OF MASSACHUSETTS: 1980 -1985
CITIES THE APPROXIMATE SIZE
OF LYNN & LAWRENCE

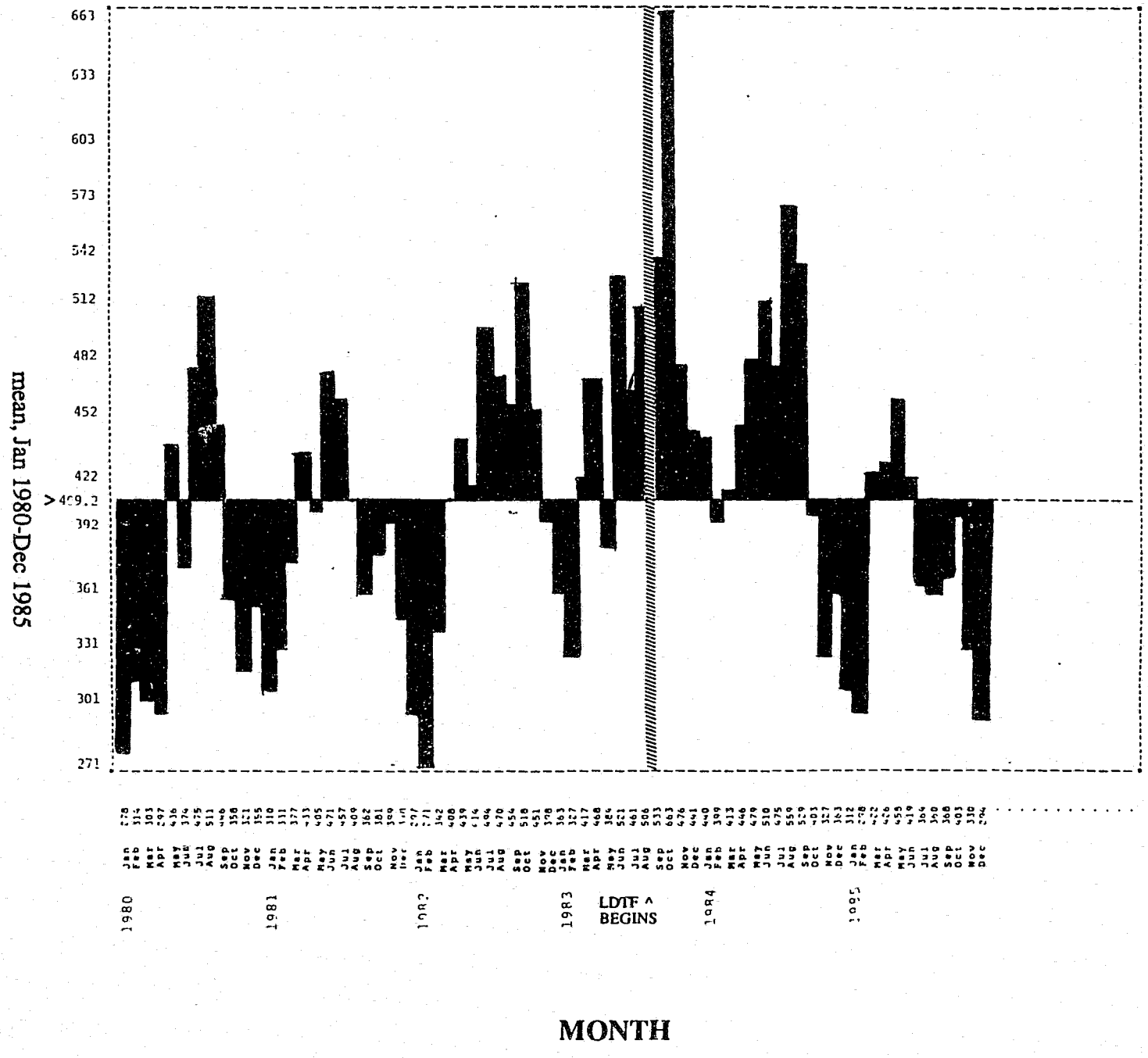
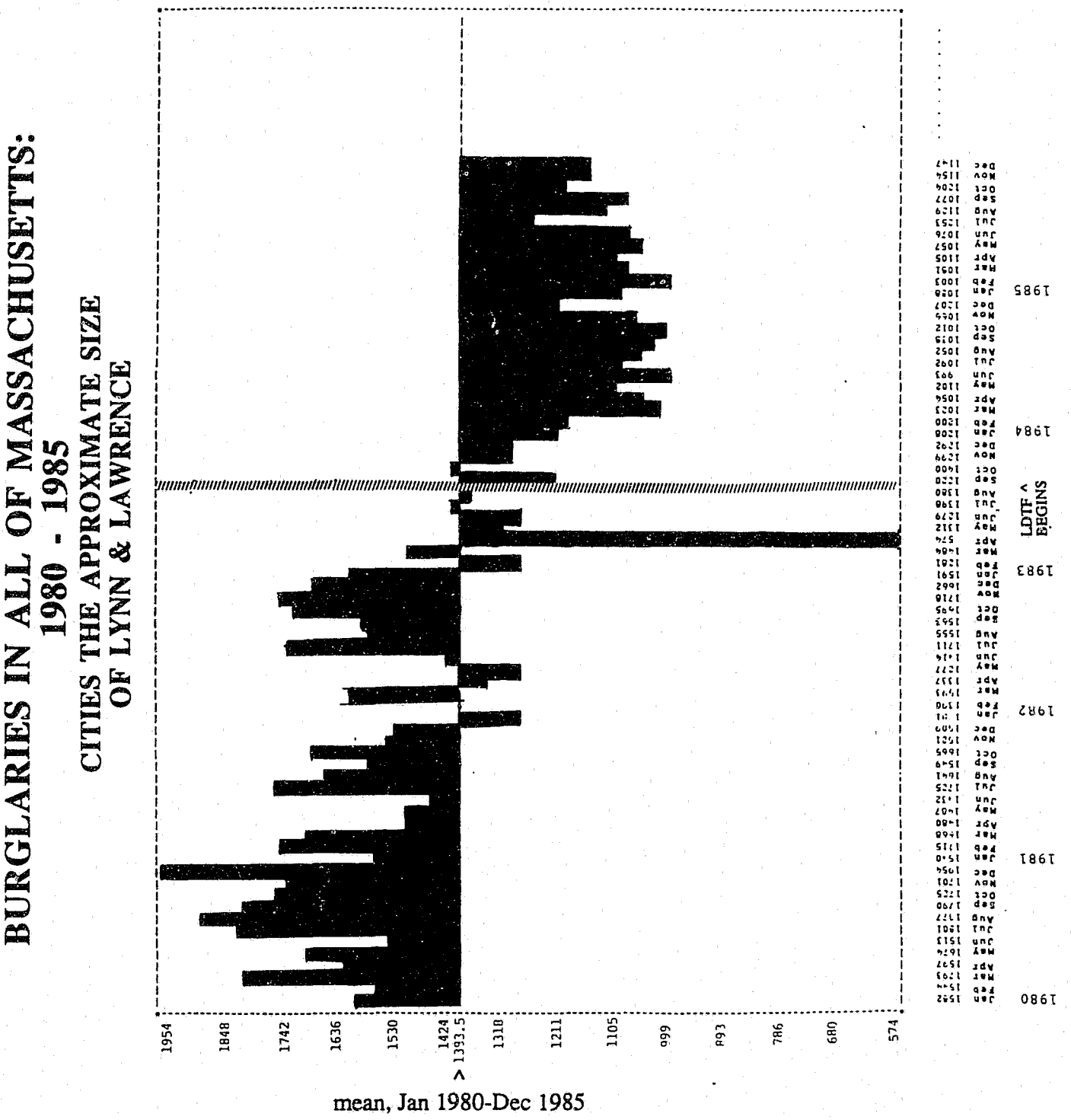


Figure C-9

Figure C-11


BURGLARIES IN ALL OF MASSACHUSETTS:
1980 - 1985
CITIES THE APPROXIMATE SIZE
OF LYNN & LAWRENCE
1954
1848
1742
1636
1530
1424
> 1393.5
1318
1211
1105
999
893
786
680
574
mean, Jan 1980-Dec 1985
BURGLARIES
1980
1981
1982
1983
1984
1985
LDTF < BEGINS
MONTH

ROBBERIES IN ALL OF MASSACHUSETTS: 1980 - 1985

CITIES THE APPROXIMATE SIZE OF LYNN & LAWRENCE

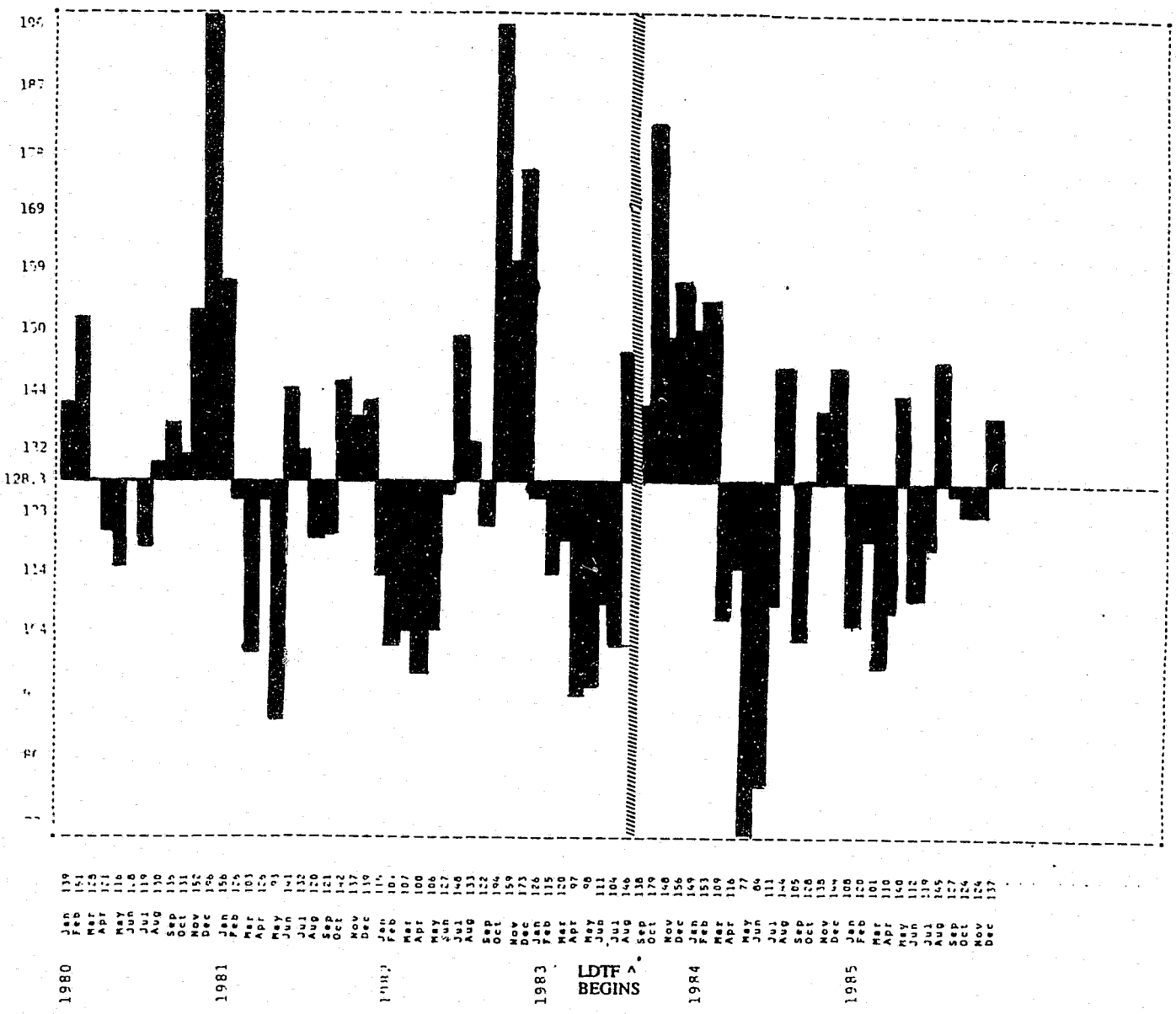


Figure 2-10

LARCENIES IN ALL OF MASSACHUSETTS: 1980 - 1985

CITIES THE APPROXIMATE SIZE OF LYNN & LAWRENCE