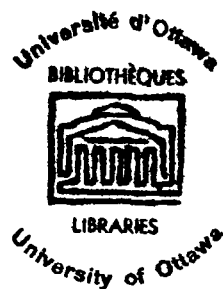


THE PHENOMENON OF DISPLACEMENT IN POLICE PREVENTION PROGRAMS

Thomas Gabor  
(1977)



Submitted to the Graduate Studies, University of Ottawa,  
in partial fulfillment of the requirements for the degree  
of Master of Arts.

UMI Number: EC55172

### INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

**UMI<sup>®</sup>**

---

UMI Microform EC55172  
Copyright 2011 by ProQuest LLC  
All rights reserved. This microform edition is protected against  
unauthorized copying under Title 17, United States Code.

---

ProQuest LLC  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106-1346

### Acknowledgements

The writer would like to express deepest gratitude to his advisors, Dr. Cleobis H. S. Jayewardene and Dr. Frank J. Blum, Professors in the Department of Criminology, for their constructive criticisms and guidance during the preparation of this thesis.

Grateful acknowledgement is due to Mr. Avtar Singh, for his assistance in the statistical components of the study, and to Mr. Gary Wolf, for gratuitously providing his services in the preparation of the graphs and map.

Appreciation is also due to the Nepean Township Police Force, without whose co-operation the study could not have been undertaken; particularly, to Sgt. Wayne Phillips and to his secretary, Ms. Donna Wallace, for their inexhaustible efforts in the data collection process.

## Table of Contents

	<u>Page</u>
List of Tables	
List of Figures	
Introduction	1
1. The Limits of Crime Prevention	3
1.1 The Functions and Stability of Deviance	3
1.2 The Assumptions of Mechanical Prevention . Programs	14
a) The Assumption of Opportunism	16
b) The Assumption of Inflexibility and Immobility	19
c) The Assumption of Direct Deterrence	23
1.3 The Displacement Issue	26
References	37
2. Operation-Identification and Displacement	45
2.1 Operation-Identification	45
2.2 Patterns of Burglary	50
2.3 Summary and Conclusions	65
References	68
3. Nepean Township	72
References	79
4. Methodology	80
References	97
5. Results	99
References	127
6. Summary and Conclusions	128
References	135
Bibliography	136
Abstract	

List of Tables

	<u>Page</u>
1(A). Breaking and Entering Offences for Total Residences and the Participant and Non-Participant Cohorts (March 1973 - August 1976).	100
1(B). Continued from Table 1(A).	101
2. Breaking and Entering Offences for Total Premises, Residences and Businesses (March 1973 - August 1976).	109
3. Type of Items Taken during Residential Break and Entries (1970 - 1976).	115

List of Figures

	<u>Page</u>
1. Nepean Township Police Patrol Zones.	74
2. Breaking and Entering Rates for Total Residences Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.	102
3. Breaking and Entering Rates for Unprotected Dwellings Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.	106
4. Breaking and Entering Rates for Total Premises (Residences and Businesses) Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.	110
5. Breaking and Entering Rates for Non-Residential Premises Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.	111

## Introduction

This study concerns the phenomenon of crime displacement as it relates to police-initiated preventive programs. The displacement hypothesis is predicated on the assumption that criminality can not be eliminated or substantially reduced. Consequently, according to this hypothesis, preventive efforts will produce a reappearance of criminality in another form, time or place. It is suggested that this phenomenon will be particularly prominent when the preventive programs employed involve mechanical measures--that is, measures which are directed toward criminal opportunity reduction and/or deterrence, as opposed to those oriented toward correcting the underlying factors presumed responsible for criminality.

The first two chapters establish the theoretical framework for the study. In Chapter One, the general functions and stability of deviant behavior are discussed, followed by a critique of mechanical prevention programs. In the final section of the chapter, the displacement issue is introduced and previous studies which have observed evidence of displacement are reviewed. The second chapter presents a literature review of Operation-Identification, the burglary prevention program examined in this study, as well as the offence of burglary, to ascertain the deterrence-potential

of the program.

The third chapter contains a description of Nepean Township, the location of the study. Explored were the socioeconomic, demographic and ecological characteristics of the region. In addition, activities of the Nepean Police Department, which may have produced an impact on the findings, were examined.

The fourth chapter reviews the various methodological and statistical techniques available for the assessment of displacement and outlines the methodology followed in this study. The results are presented in Chapter Five, and Chapter Six comprises the conclusions and implications of the study.

## Chapter 1

### The Limits of Crime Prevention

#### 1. The Functions and Stability of Deviance

Durkheim proposed that criminality (referring to traditional forms) was both normal, in that no society could enforce total conformity, and functional, in that it endured to fulfill particular consequences which, in turn, were frequently beneficial to the social system. Deviance from societal norms, he indicated, permits the social order to remain flexible and receptive to new modes of adaptation (25). Criminal actions, as well, elicit collective reactions from the community membership, thereby reinforcing social solidarity and normative consensus (26).

The specific mechanism underlying this process may be understood from a psychodynamic perspective. It would appear that moral indignation purges conformists from contemplating their own wrongdoings and helps sustain their own moral identity. Such indignation, it has been claimed, may serve as a reaction-formation against the repressed impulse to identify with the criminal. By reacting in opposition to deviants, the citizenry affirm their own normality (31).

Moral indignation is collectively expressed through what have been termed "status degradation ceremonies", or

rituals (such as the criminal trial) which transform the public identity of an individual through institutionalized means (32). Zilboorg, in fact, has referred to the mechanisms of justice as "agencies of counter-aggression" (89). By opposing the deviant, the community also redefines the boundary beyond which behavior is no longer considered permissible (27).

Coser indicates that deviance may also have functional consequences for a group if the deviant is accepted rather than opposed (18). Dentler and Erikson provide examples of groups where tolerance and group cohesion are strongly valued. In these cases, a reconciliation between the group and the deviant reaffirms these values (24).

Similarly, Simmel postulated the inevitability of social conflict as he viewed the individual as constituting a dialectical relationship with society. The individual was seen as both incorporated into social structures and, at the same time, striving for autonomy and self-actualization (19). Simmel argued that conflict possessed latent positive aspects as it served as an outlet for negative attitudes and feelings, thus permitting existing relationships to continue and avoid total dissolution. Conflict could also serve to strengthen the position of one or more parties of a relationship, thereby enhancing the individual's self-esteem (69).

Reciprocal antagonisms in society also conserve social divisions and stratification systems. Thus, conflict can be seen as a means of reassessing relative power between contenders in society and, as a result, serves as an equilibrating mechanism which helps maintain and consolidate societies (17).

Coser further indicates that social systems contain sources of "realistic" conflict in as much as individuals compete for scarce status, power and resources, and adhere to a diversity of value orientations. "Nonrealistic" conflicts emerge, as well, although these emanate as a result of deprivations and frustrations stemming from the socialization process and adult role expectations. The differentiation lies in the fact that the first type of conflict is oriented toward the frustrating agents themselves, whereas the latter is a free-floating form which involves a release of tension, through aggressive action, where the recipients are alternating (17).

Dahrendorf asserts that social conflict is ubiquitous because every society rests on the constraint of some of its members by others. Both quasigroups (mere aggregates) and interest groups are constantly in conflict over the preservation or change of the status quo (21).

Sociologists, Wrong notes, should discard their here-

tofore "oversocialized" conception of man in favor of models recognizing the existence of intrapsychic conflict. He avers that when sociologists speak of the "internalization" of a norm, what is frequently meant is that the individual both affirms and habitually conforms to the norm in his conduct. This conception rules out the possibility of internal conflict and therefore attributes deviant behavior to extraordinary circumstances impinging upon the individual. The possibility of the experience of conflict with social norms, on the part of all individuals, is inconceivable to proponents of the consensus model (88).

If social conflict and, more specifically, deviant behavior is omnipresent and provides beneficial consequences for social groups, can it be surmised that mechanisms operate in the social structure to maintain a certain level of deviance? In response to this, Erikson has shown how a community both generates deviance and regulates its flow, according to the extent to which that community is equipped to handle deviance. He indicates that the resources available in a given region (police, courtroom and correctional facilities, etc.) will dictate the volume of behavior identified as "crime" therein (28).

That social agencies maintain delinquent self-images and roles and, hence, behavior was recognized early by

Tannenbaum (74). He noted that regardless of the intentions of control agents (manifest function of intervention), the mere process of identification of an individual as one requiring treatment and/or segregation, may be perceived to constitute a form of social rejection and thus ally the actor progressively closer to anti-social elements (latent function).

Similarly, Goffman has illustrated the manner in which mental hospital staff reinforce, through both formal and informal means, the "ill" self-conception of inmates, thereby diminishing the likelihood of "recovery" (35).

Furthermore, agencies of social control may maintain deviance through means other than the mere reinforcement of negative identities. Institutions designed to combat deviant behavior paradoxically perpetuate such behavior through, firstly, providing the gratification of physical and security needs, thereby offering deviant persons an advantage in the competition for social resources. Secondly, such institutions offer deviant persons an opportunity to agglomerate and thus enable them to assume attitudes and learn skills conducive to committing deviant acts (73).

Finally, organizational needs per se may impede efforts to reduce deviance. This situation may take the form of an incompatibility between organizational style and objectives.

One study found that police departments that are more formalized and professional in nature produced higher arrest rates than their more informal counterparts (86). Here formalization (which was motivated by the need to appear impersonal and fair to juveniles in order to ultimately reduce the volume of delinquency) was counterproductive in terms of the concerned objective.

Another salient factor with respect to organizational needs are their vested interests and the role they play in sustaining deviance. Policies which threaten the existence of an organization, including those which can potentially contribute to the reduction of criminality, may be opposed and sabotaged (67).

The consequence of the unsuccessful intervention into the life situation of a deviant has motivated Lemert to distinguish between primary and secondary deviation (47). While the former refers to the initial act of deviation, the latter concerns continued deviance resulting from an interaction between the "role engulfment" of the deviant and the social responses directed toward him (66).

This concern with society's exacerbation of deviance comprises the primary focus of the "Labeling" theorists. Proponents of this perspective contend that acts are not deviant per se, but are relative to the direction and magni-

tude of the social reaction they elicit. Kitsuse has even suggested that the orientation in Criminology shift from investigation into types of deviants and their behaviors to "the processes by which persons come to be defined as deviant by others" (42).

Indeed, it is this malleable property of crime which appears to allow for its stability. A criminal act must first be identified as such by some member of the public or by the police. It would appear that as the crime rate rises the propensity to report ostensible criminal acts may decrease correspondingly (54). This may be due to poor police-community relations which, in turn, may be both productive of and a consequence of high crime rates. A soaring crime rate may also induce a skepticism among citizens with respect to the likelihood of the offender's apprehension (55). Furthermore, it may even be possible that citizens in a high crime area become adapted to crime or, at least, their fear threshold rises and, in essence, the public becomes desensitized (52). Biderman, on the basis of an analysis of victimization surveys, claims that individuals who are frequent victims of a particular offence will eventually cease their reporting of it (6). Therefore, despite an increase in "actual" criminal behavior, the official crime rate may remain relatively stable.

Similarly, law enforcement personnel may also contribute to a stabilization of crime rates. Both their interpretation of a given act and their general motivation to make arrests may be guided by a quota system which requires that a minimum level of arrests be attained (70). In the same way, pressures on the police arising due to saturated police stations and jails, courts, correctional agencies and institutions, place a ceiling on the crime rate (55).

Aside from expediency, the aforementioned discretion in law enforcement has been incorporated at the various levels of the criminal justice system for three principal reasons. Firstly, as Davis argues, much discretionary justice that is not now governed by rules perhaps should be. In this respect, there has simply been a failure to determine an optimal point on the rule-to-discretion continuum. Secondly, rules can not be formulated on certain aspects of criminal justice and, also, all possible circumstances can not be anticipated. Finally, discretion exists in certain spheres due to the preferability of individualized justice (22).

Police discretion, with respect to laying charges for certain offences, is recognized under the common law (41). In addition, the Ouimet Committee has suggested that the decision not to prosecute be considered where the offender

is young or undergoing psychological treatment or where the offence concerned is minor (8). Other examples of police discretion, particularly that involving an election not to arrest, have been forwarded by LaFave. Policemen may believe that the community or his superiors desire non-enforcement or lax enforcement, a policeman may have compassion for an offender, the victim does not press for arrest or seems to have precipitated the offence, the policeman may make a deal for information, the prospective penalty may appear too severe, etc. (43).

Prosecutorial discretion is also relevant as it may profoundly influence police decision-making. Failure to prosecute may occur for reasons similar to those elucidated above, as well as for the purpose of expediency (87). As Chambliss and Seidman note, judges may pressure prosecutors to avoid processing "questionable" cases due to the overcrowdedness of courtrooms (11). That this feedback is available to police departments is quite evident. It would also appear that when these feedback and equilibrating mechanisms can no longer cope with the systemic tension, procedures such as decriminalization and diversion must be resorted to. This evolution can particularly be discerned from the Canadian situation of recent years (45).

Aside from the stabilizing effects of crime rates on

the criminal justice system, the impact of the criminal justice system on crime rates appear equally productive of stability. The inability of law enforcement, correctional and social service agencies to produce a significant impact on crime has been well documented.

A recent police patrol experiment in Kansas City, for example, determined that altering the level of preventive patrol in a neighbourhood had no marked effect on criminality. It was further found that the increased police visibility resulting from the program did not abate public insecurity resulting from crime (40). One problem here concerns the possibility that the augmented presence of policemen may increase citizen reporting thus counteracting a reduction in the actual violation rate (38). Levine also notes that the addition of police manpower is generally insignificant in relation to the criminal opportunities available (49).

From the survey of correctional treatment research undertaken by Lipton, Martinson and Wilks, indications can be discerned to the effect that differential recidivism rates among experimental and control groups were as much the result of the offender's propensities and the behavior of social control agents, as they were due to the effects of the various programs. Notwithstanding that observation, in terms of the recidivism criterion, studies pointed to

the general inefficacy of probationary treatment programs and the irrelevance of caseload size for both probation and parole; the futility of incarceration for a length of time over two years with respect to parole outcome and severe limitations of casework, vocational and standard educational programs (50).

In an analysis of social service policies (manpower training, public education, etc.) in the United States, Cho has found that this form of intervention has also not proven successful in terms of producing an impact on crime rates (12). Many of these policies have been based on the assumption that improved equity in the opportunity structure would help dissipate some of the socially-induced factors underlying criminality.

Two key factors mitigating the effect of criminal justice systems on crime rates involve the nature of the criminal act itself and the resources available to the various agencies and institutions.

Much of criminal behavior does not involve random, isolated acts but, rather, must be understood from a systems perspective (20). In theft related offences, for example, one must be cognizant not only of the perpetrator's internal motives and his social environment, but frequently of the criminal organization underlying the offence (85). Thus,

in understanding and contending with anti-social behavior, agencies of social control must correspondingly respond as a system, which has seldom been the case.

Also, the resources available to agencies within the criminal justice system are frequently inadequate in attaining objectives. Jones has found in one jurisdiction that changes in crime rate explained less than three percent of the variation in changes of police protection expenditures. This was due to fiscal constraints, political factors and other considerations (39). It should not be assumed, therefore, that increasing criminal activity will necessarily result in concomitant increases of police budgets. While it is not claimed that increased expenditures will necessarily reduce crime rates, the lack of such measures might preclude such possibilities. This constraint on expenditures is, therefore, a contributing factor to the constancy of crime rates.

## 2. The Assumptions of Mechanical Prevention Programs

Three types of crime prevention have been identified:

- 1) punitive prevention or that involving the deterrence of an individual through the threat and/or administration of punishment, 2) corrective prevention, which involves eliminating individual or social conditions deemed responsible

for crime and 3) mechanical prevention, which is oriented toward reducing criminal opportunity through "target hardening", architectural planning and increased surveillance levels in the community (46). These are not mutually exclusive categories, however, as one program may conceivably be characterized by aspects of all three. As the concern of the ensuing study is a preventive program which can be considered to be primarily mechanical in nature, the subsequent discussion will focus on that mode of prevention.

Shanahan, an exponent of the mechanical approach, claims that the pervasive employment of technologies provided by the security industry and other means of opportunity reduction, can potentially succeed against all, but the most highly skilled and dedicated criminals. Given that most crime is committed by relatively unskilled individuals, he avers that crime rates would be considerably reduced as these persons would be forced to turn to legitimate pursuits for their livelihood. In addition, Shanahan notes that skilled criminals can be countered more effectively by extending such practices as designing security devices for a short life span in order to prevent skilled individuals from defeating these devices before new ones are developed (68).

The implementation of mechanical prevention programs can be said to be based on three principal assumptions: 1) that

a significant decrease of crime can be attained through opportunity reduction, 2) that offenders in general are both inflexible (undertaking only one form of criminal activity) and relatively immobile (committing offences on familiar territory) and 3) that direct deterrence is effective due to offenders' fear of apprehension and ensuing punishment.

a) The Assumption of Opportunism - This assumption involves the notion that offenders are opportunistic and that, as a result, the reduction of criminal opportunity would produce a substantial decrease of criminal activity. Such a position, in turn, is based either on a premise of rational-choice, a situational determinism or a reinforcement model.

The rational-choice perspective was particularly adhered to by the Classical School. It was believed that people behaved according to a hedonistic ethic whereby an individual committed a crime if the anticipated pleasure was greater than the subsequent punishment that might be expected. Therefore, if a "tariff system" of sanctions is employed, that is, increasing the punishment so as to surmount the expected pleasure of an act, the criminal could be deterred (59).

The applicability of this rational-choice model to criminology has been questioned. Schuessler, over two decades ago, had indicated that behavioral scientists conceive

of behavior as largely unplanned and habitual, rather than as calculated and voluntary. He viewed the perpetuation of the rational-choice model as serving to provide a rationale for maintaining the vengeance motive existing in conventional penal systems (65). Although this position is not currently prevalent (75), it is unlikely that a complete reinstatement of the Classical position will occur.

An opportunistic perspective may also be based upon a situational determinism. This orientation is based on the notion that those committing deviant acts are not special types of people, but have been subjected to circumstances to which many would have responded in a similar manner. Elements involved in a situation, such as provocation, temptation, extreme stress and opportunity are deemed responsible for what may be considered deviant, but, which is actually, appropriate behavior (16).

Cloward and Ohlin have illustrated how both the motivation to engage in delinquent behavior and the form of deviant adjustment one selects, may be dependent upon the extent and form of illegitimate opportunity structure available in one's neighbourhood (15). Grenough, when referring to police preventive operations, also notes the extent to which situational factors can influence the outcome of an event (37).

A situational perspective may, for example, include an extreme victimological approach, postulating that crime is frequently victim-precipitated and that the offender is merely reacting to enticement or provocation. Von Hentig, among others, constructed a typology of victims, demonstrating the extent to which the victim can be perceived to be responsible for the consummation of the criminal act (82). However, the notion that the offender reacts reflexively to cues presented by the victim is based on a simplistic stimulus-response psychology which disregards the offender's role in both the initiation of the act and in the interpretation of the victim's behavior (30). Emphasis on the victim may, in any case, require corrective measures, as well as those associated with mechanical prevention. Opportunity reduction, alone, would thus be insufficient in numerous cases.

The third theoretical orientation underlying opportunity reduction involves learning theory. Rykert indicates that such reduction not only diminishes the individual's likelihood of learning about crime, but it also reduces the positive reinforcements he is likely to obtain from criminal actions. Failure to achieve criminal success will preclude the reinforcement of criminal belief structures and will result in the belief that legitimate avenues to success are

more attractive (63).

The apparent inadequacy of the mechanical approach stems from the fact that such programs do not provide alternative reinforcements to those accrued from criminal activity. Moreover, proponents of the mechanical orientation appear oblivious to the possibility that the offender has previously failed to be reinforced in legitimate pursuits. Such failures may have resulted in the individual's association with criminal elements as a means of "self-insulation" (36). A concomitant of these affiliations is the assumption of attitudes and the development of skills conducive to criminal undertakings (72).

The reinforcements obtained as a direct consequence of the criminal act, then, constitute only one explanation for the perpetuation of criminal activity. Secondary reinforcements (peer group acceptance, confirmation of identity, etc.), not otherwise available to the offender, are equally responsible for the continuation of the anti-social conduct. Preventive strategies, which do not provide substitutes for these gratifications, are not likely to alter the conduct of those committed to deviant behavior.

b) The Assumption of Inflexibility and Immobility - The success of a prevention program oriented toward reducing the occurrence of a particular offence in a given neighbour-

hood, hinges on the belief that offenders in that area will not engage in other forms of criminality or will not simply shift their operations to other neighbourhoods.

The formulation of criminal typologies (based on behavior patterns as the criterion) is predicated on the assumption that a certain regularity exists in offender behavior, differentiating one class of individuals from other classes.

Gibbons notes that delinquents pose major problems for classification, as they are relatively unskilled in criminality, their interests fluctuate and they oscillate between deviance and conformity due to numerous situational factors (33).

On the adult level, typological efforts have been required to include omnibus categories to identify those individuals who defy the stereotypical image of career criminals.

Roebuck, when studying 400 black offenders in Washington, D.C., deduced 13 criminal patterns. Over 50% of these offenders were engaged in at least a double pattern of offences; that is, they were habitually involved in two or more forms of criminality. He identified the "mixed pattern" offender, or one committing a diversity of property offences from shoplifting to burglary; a "triple pattern" offender engaging in drunkenness, assault and larceny; and a group partaking

in a double pattern of larceny and burglary (62).

Clinard's "habitual, petty property offender" is somewhat akin to Roebuck's "mixed pattern" category. Such individuals hold a low status in the criminal underworld and exhibit a diversity of behavior ranging from petty theft to alcoholism, drug trafficking, vagrancy, etc. (14).

Diverse patterns of property crime, undertaken by "occasional" offenders, may arise as a result of situational stresses. Included here are numerous cases of shoplifting, vandalism and check forgery (14). The "naive" check forger, for example, emerges due to social isolation and a perceived unavailability of legitimate means of sustenance (48).

It would therefore appear that although certain skilled career offenders pursue one form of criminal conduct only, the majority of delinquents, unskilled career criminals and occasional offenders (who constitute the bulk of the offender population) are relatively flexible in their selection of a mode of operation and target.

Another common assumption involves the idea that most criminal behavior is undertaken in proximity to the offender's habitat, where he is in greater command of a situation due to the familiarity of the surroundings.

Turner has found that the delinquent offender tends to

reside in propinquity to the location of his offence and that this relationship is maintained for various types of offences and notwithstanding the presence or absence of accomplices (79). The author notes, however, that professional criminality may not adhere to such geographic constraints.

Essentially, professional crime involves the idea that the role incumbent possesses the attitudes, skills and affiliations conducive to the pursuit of his vocation and is capable of overcoming spatial impediments. Professional criminals, Sutherland asserts, have interurban and frequently international connections (71). In the same vein, Velde indicates that improved urban transportation possibilities and the large transient population in North America, attest to the potential mobility of the offender population. He refers to a study undertaken in the Washington, D.C. metropolitan area, which revealed that over 17% of all persons arrested in 1965 were nonresidents of the community in which the crime was committed (81).

Other factors which lend credence to the notion of offender mobility are the racial and political undertones of certain criminal acts. Quarantelli and Dynes have pointed to the selective victimization of organizations during the course of racial disturbances. The authors aver that under such circumstances criminal behaviors are seldom random,

but are oriented toward specific establishments in consonance with emergent norms and relationships. Rioters may travel the distance necessary to approach their targets (57).

Similarly, Boggs asserts that numerous offenders tend to cross over into adjacent neighbourhoods as a result of their reluctance to victimize local residents and shopkeepers (6).

c) The Assumption of Direct Deterrence - Aside from opportunity reduction, a mechanical prevention program can conceivably reduce the incidence of criminality by deterring the prospective offender through increasing the probability of his apprehension and conviction.

The conviction and ensuing punishment of the offender can themselves have preventive consequences through incapacitation or punitive surveillance (probation or parole), reformation, normative validation (the reaffirmation of social norms through the administration of punishments for contrary acts) and normative insulation (the reduction of the offender's interaction with others in order to diminish his influence of their attitudes and values) (34).

Mechanical prevention is also dependent upon the impact of "direct" deterrence, which refers to the deterrent effect of specific and immediate measures, rather than the mere effect of the more remote legislative apparatus.

Empirical support exists for the deterrence of extremely

specific violations. Chambliss found, for example, with respect to parking violations on a university campus, that an increase in the certainty and severity of punishment deterred such violations (10). Decker found that the use of illicit coins for parking meters, in New York City, decreased dramatically when the certainty of apprehension was increased through the use of a coin-view window, through which the most recently inserted coin could be observed (23).

It appears less probable, however, that a more pervasive program of direct deterrence, oriented toward a diversity of offences, would attain a similar success. Riccio has asserted that deterrence is operative only when the amount of opportunity reduction is sufficiently high to create active competition between the demand for criminal opportunities and the opportunities remaining available. After this hypothetical level is reached, the crime rate should dramatically decrease. However, continued opportunity reduction, according to the author, will have a progressively reduced influence on crime rates, due to the intrinsic limitations of direct deterrence (61).

A conceptual analysis of deterrence supports these latter assertions. The extent to which a statute will elicit compliance depends, firstly, on whether the act it proscribes is conceived of as *mala quia prohibita* (deemed

wrong due to its illegality) or mala per se (wrong in its own right) (1) and whether the statute is regarded as having emanated from legitimate authority (2).

The impact of deterrence-related initiatives will, also, be determined by the meaning imputed to a particular criminal act by the actor. Chambliss has differentiated between instrumental and expressive behavior--the one concerns the undertaking of particular behaviors as a means to the pursuit of more remote objectives, the latter involves engagement in certain behaviors as intrinsically reinforcing (10). As criminal conduct approaches the "expressive" end of the continuum, it becomes more resistant to deterrent efforts (76).

Individual differences may affect the potency of legal sanctions in two basic ways. Personality systems are divergent, capable of being located on various continua (e.g., future-oriented--hedonistic) (90). Secondly, such differences may color one's perception relating to the probability of apprehension (13) and the severity of the sanction that can be imposed (83).

Furthermore, the objective certainty of apprehension (78), the objective severity of the concerned sanction (78) and the expected celerity of the impending punishment (53) may all intensify or mitigate the deterrent effect of pre-

ventive programs.

The above considerations, particularly objective certainty, severity and celerity are not mutually exclusive but, rather, dynamically interrelated (29) (77). In extremely oversimplified terms, the certainty of apprehension varies directly with the seriousness of the offence and, therefore, the severity of the sanction; however, these vary inversely with the certainty of conviction (once apprehended) and the celerity of the punishment (29). Therefore, in a sense, the greater the potential deterrent impact of a mechanical prevention program (due to a high certainty of apprehension and severity of sanction), the lower the likelihood that the individual will be punished or, if punished, that this will be meted out in temporal contiguity to conviction. Hence, the ultimate deterrent impact of the program is reduced.

Thus, direct deterrence is compromised by features of the criminal justice system itself, as well as by individual proclivities and values, socio-political processes and the form of violation involved.

### 3. The Displacement Issue

Certain preventive programs, which were ostensibly effective, have been characterized by a reappearance of

crime in some form, a phenomenon referred to as "displacement" or as a "mercury" effect (60).

Repetto has identified five forms of crime displacement--geographic, temporal, tactical, target and activity-related displacement (60). An offender may, in response to a reduction of opportunity and/or an increased risk of apprehension, with respect to a particular offence, relocate his activity or the time of its commission, revise his tactics, shift his attention to another form of target or engage in an alternative type of crime. An additional form of effect, statutory displacement, has also been identified, although this is closely related to the above forms (4). An increase in the expected certainty and/or severity of punishment with respect to an offence in a particular jurisdiction, may produce geographic, activity or other displacements. Statutory displacement, however, differs from the others in that it is a function, primarily, of judicial rather than police activity.

All, but the activity displacement effect, have been observed. However, much of the evidence forwarded has ranged from conclusions based on quasi-experimental and ex post facto studies to categorical statements devoid of a methodological basis. The authors, in general, do not specify the criteria and confidence intervals according to

which one could ascertain whether the phenomenon has occurred.

The remainder of this section includes a literature review of crime displacement, the methodologies used in the studies (where applicable) and the results obtained. A critical assessment of these methodologies has been deferred to Chapter Four.

Press, in an evaluation of a 40% increase of police manpower in the 20th police precinct of New York City instituted in 1966, included an investigation of possible geographic displacement effects experienced by the three adjacent precincts (the 18th, 22nd and 24th) (56). At that time, police manpower elsewhere in the city remained fairly constant. Press' examination of the adjacent precincts was based on the assumption that a displacement effect would be a local phenomenon, rather than manifesting itself throughout the metropolis. Control precincts were selected to gauge the effects of extraneous events.

While studying numerous offence categories, Press found only two displacement effects in the 18th and 24th precincts. He discovered that, while grand larcenies decreased by 6.64 crimes per week (seasonally adjusted) in the 20th precinct, an increase was experienced in the 18th precinct by 12.45 crimes per week and in the 24th precinct by 1.41 crimes per week. Furthermore, while "inside" total

misdemeanours (those not visible from a patrol car) showed no statistically significant ( $p=.05$ ) change in the 20th precinct, these increased by 6.20 incidences per week in the 18th precinct. The most obvious displacement effects seemed to occur in the 22nd precinct. Total felonies and total misdemeanours decreased in the 20th precinct by 23.68 and 4.50 net incidences per week respectively, while increasing in the 22nd precinct by 7.19 and 1.07 net incidences per week respectively. The crimes of robbery, felonious assault and grand larceny were most salient in contributing to this effect; in fact, the net decrease of robbery in the 20th precinct was surpassed by the net increase in the 22nd precinct.

Press qualifies these findings by indicating that during the period in question the police manpower in the 22nd precinct actually declined by 11%. He further qualifies the findings by noting that the quality of the additional patrolmen in the 20th precinct (relative to the others) could not be assessed and that the manner in which they were deployed could not be determined.

On the basis of the evaluation of an experimental police helicopter patrol in Columbus, Ohio, inaugurated in January 1972, Lateef contends that a geographic relocation of criminal activity had occurred as a result of the program (44).

For the purposes of the experiment, the city's 15 police precincts were divided into two groups, with eight spatially contiguous precincts receiving routine patrol and the remaining seven receiving such patrol only on demand for a specific service. The basis for this division was not indicated. The author found the patrol to be most influential upon robbery, burglary and auto theft rates. In the first quarter of 1972 (the period immediately following the institution of the experiment), the eight precincts provided with routine patrol experienced a decrease of 8.6% in robberies, 17.2% in burglaries and 9.4% in auto thefts, from that experienced in the first quarter of 1971. The average decrease of these three offences from the previous year amounted to 14%. Those precincts not provided with routine helicopter patrol experienced a 22.5% decrease in robberies, a 9.9% decrease in burglaries and a 28.8% increase in auto thefts--this represents an overall increase of 4.9% in the three offence categories.

In a study of residential burglary and larceny in King County, Washington, Waldt found displacement to have occurred in relation to the latter category, following the implementation of an intensive preventive program there (84). The one-year program commencing in October 1973, included such strategies as close surveillance of burglary suspects,

an increase of intelligence activities, the monitoring of criminal receivers and public education. The target area included six precincts of King County not politically incorporated into Greater Seattle. A comparison was made with the unprotected segment of the unincorporated region and a control zone (similar in socioeconomic characteristics to the target area) was selected from a contiguous Seattle neighbourhood. Although no geographic displacements appeared to occur with respect to burglary, such effects were noted in the case of larceny. The incidence of this offence increased by 9.7% in the target area, by 30.1% in the unprotected region and by 20.8% in the control zone. As the increase in the unprotected area exceeded that occurring in the control zone, with the smallest increase being recorded in the target area, displacement was deemed to have occurred.

An experiment concerning the possible geographic displacement effects of a street lighting intensification program in Newark, New Jersey, implemented from July 1973-September 1974, has been undertaken by Tyrpak (80). In that city, five high-crime precincts were designated for the installation of high intensity street lamps. Displacement was studied through the selection of precincts adjacent to the experimental zones and the observation of particular

offences in order to determine if changes occurred from the same period of the previous year. Then, the rate of change for the entire city was computed for the same time periods. If the increase experienced by an adjacent zone (corresponding to a decrease in an experimental zone) with respect to a particular offence, exceeded the change occurring in the city as a whole, then displacement was inferred to have taken place. Tyrpak indicated that displacement occurred from only one of the five experimental precincts, as only that sector experienced a reduction in the target offences. Of the six precincts bordering on that precinct, one appeared to be the principal recipient of the displacement. The experimental sector experienced reductions in all five target offences, whereas the adjacent precinct under consideration experienced an increase in four of the five target crimes. The author, however, qualified these findings due to the simultaneous implementation, in the experimental precinct, of a team policing project. He attributed the lack of crime reduction in the other four target precincts to the fact that, in two of these, a modernization of lighting preceeded the program, thereby rendering insignificant the influence of the intensification. In the remaining two sectors, an insufficient number of high intensity lights were installed.

A study of Atlanta, Georgia and five surrounding counties, in 1973, revealed an abundance of interjurisdictional criminality (3). In the previous year, a comprehensive preventive effort was undertaken in Atlanta, involving both mechanical and corrective programs. Interjurisdictional criminality was studied through the examination of the residences of arrested offenders. Although several of these counties experienced an increase of criminality by non-residents, over that of 1972, in only one county did a displacement effect, attributable to the Atlanta program, appear to occur. In Dekalb County, over 50% of robberies and rapes and almost 50% of homicides and burglaries were committed by Atlanta residents. However, no information was provided concerning the situation prior to the program.

Raab has reported that several incidences of geographic displacement have occurred according to a New York City Police Department study in 1974 (58). This study examined city-wide trends relating to four major crime categories-- homicide, rape, robbery and burglary, between the years 1968 and 1973. It was found that a levelling-off had occurred in the traditionally crime-ridden sectors of New York and that sharp increases in criminality were taking place in middle class neighbourhoods. This situation was widespread, occurring in Manhattan, the Bronx, Brooklyn and Queens.

It was hypothesized that this situation was due to increased police surveillance in the high crime districts. Specific data supporting these statements was not presented, nor was consideration given to demographic, socioeconomic or ecological changes occurring in New York at the time.

Insofar as temporal displacement is concerned, Burnham has reported that the alteration of police tactics in the Bronx, New York, involving increased patrol in the evening hours, had resulted in a marked decline of certain types of offences during these hours (7). This decline was accompanied by increases in the commission of certain offences during the late afternoon. The crimes concerned were not specified and the basis for the conclusion forwarded has not been elaborated.

Luedtke, in an anecdotal manner, has noted the occurrence of tactical displacement (51). He indicated that improved alarm systems installed in numerous establishments across the United States has resulted in the alteration of the modus operandi of burglars, from surreptitious entry to the employment of more crude techniques of entry. Again, the assertions are not supported by empirical data, nor are the criteria for determining the existence of the suggested displacement effect elucidated.

Chaiken, Lawless and Stevenson have discovered target

displacements of robberies between the subway system and municipal buses of New York City (9). Robberies on buses were virtually non-existent in early 1968; however, a dramatic increase ensued, resulting in a peak of 67 incidents per month just prior to the institution of an exact fare system in August 1969. The implementation of this system was followed by a 98% average monthly decline in bus robbery rates. These rates were computed on the basis of the six-month period preceeding the program and the fourth through the ninth month period following the program. Subway robberies, which had been increasing at an annual rate of 46% in the year prior to the exact fare system, began to increase at an annual rate of 92%.

The authors propose a possible alternative explanation to that of displacement. They postulate that a "multiplier" effect may have occurred. That is, when several individuals demonstrate that a particular offence is relatively safe to commit at a given time, an exponential increase in that activity takes place. The introduction of an inhibiting measure reverses the direction of the multiplier, producing a decrease in incidence which may exceed that merited by the effectiveness of the measure. After a period of adjustment, a portion of the crimes reappear, although this may not be detected due to their appearance in other forms,

times of the day or locations. According to this explanation, a partial movement of potential robbers, away from the subway, may have occurred in 1968 when robbing buses became "popular". Then, in 1969, when the exact fare system was introduced, the increase in subway robberies constituted only a fraction of the decrease in bus robberies. In fact, subway robberies both before and after the spurt of bus robberies consistently increased by approximately 56% annually.

Statutory displacement was observed in Cleveland, Ohio, through the computation of a "price index", representing the expected punishment obtainable for the commission of particular offences (4). This index was calculated through the multiplication of the conviction rate for an offence with the mean sentence handed out for those adjudged to have committed that offence. As the expected punishment for burglary, robbery, larceny and auto theft rose in Cleveland during 1973, geographic displacements were discerned to have occurred to four neighbouring suburban areas. The data and basis for this conclusion were not explicated.

## References

1. ANDENAES, J. (1966) The General Preventive Effects of Punishment. University of Pennsylvania Law Review, 114, 949-83.
2. ANDENAES, J. (1975) General Prevention Revisited: Research and Policy Implications. The Journal of Criminal Law and Criminology, 66, 338-65.
3. ANONYMOUS (1973) Atlanta Impact Program: Master Plan Update. Atlanta, Georgia: Atlanta Regional Commission, Criminal Justice Planning Division.
4. ANONYMOUS (1974) Crime Incidence and Displacement Model. Santa Barbara, Cal.: Planning and Management Consulting Corporation.
5. BIDERMAN, A.D. (1973) Victimology and Victim Surveys in I. Drapkin and E. Viano, Victimology: A New Focus. Lexington, Mass.: D.C. Heath, 153-169.
6. BOGGS, S.L. (1966) Urban Crime Patterns. American Sociological Review, 30, 899-908.
7. BURNHAM, D. (December 24, 1969) Bronx Police Aim at Indoor Crime. The New York Times. The New York Times Company.
8. CANADIAN COMMITTEE ON CORRECTIONS (1969) Toward Unity: Criminal Justice and Corrections. Ottawa: Information Canada.
9. CHAIKEN, J.M., M.W. Lawless and K.A. Stevenson (1974) The Impact of Police Activity on Crime: Robberies on the New York City Subway System. New York: The New York City Rand Institute.
10. CHAMBLISS, W.J. (1969) Crime and the Legal Process. New York: McGraw-Hill.
11. CHAMBLISS, W.J. and R.B. Seidman (1971) Law, Order and Power. Reading, Mass.: Addison-Wesley.
12. CHO, H.Y. (1974) Public Policy and Urban Crime. Cambridge, Mass.: Ballinger.

13. CLASTER, D. (1967) Comparison of Risk Perception Between Delinquents and Non-Delinquents. Journal of Criminal Law, Criminology and Police Science, 58, 80-86.
14. CLINARD, M.B. (1963) Sociology of Deviant Behavior. New York: Holt, Rinehart and Winston.
15. CLOWARD, R.A. and L.E. Ohlin (1960) Delinquency and Opportunity. New York: The Free Press.
16. COHEN, A.K. (1966) Deviance and Control. Englewood Cliffs, N.J.: Prentice-Hall.
17. COSER, L.A. (1956) The Functions of Social Conflict. New York: The Free Press.
18. COSER, L.A. (1962) Some Functions of Deviant Behavior and Normative Flexibility. American Journal of Sociology, 68, 172-182.
19. COSER, L.A. (1971) Masters of Sociological Thought. New York: Harcourt Brace Jovanovich.
20. CRESSEY, D.R. (1972) Criminal Organization: Its Elementary Forms. New York: Harper&Row.
21. DAHRENDORF, R. (1964) Towards a Theory of Social Conflict in A. and E. Etzioni, Social Change. New York: Basic Books.
22. DAVIS, K.C. (1969) Discretionary Justice: A Preliminary Inquiry. Baton Rouge, La.: Louisiana State University Press.
23. DECKER, J.F. (1972) Curbside Deterrence? An Analysis of the Effect of a Slug-Rejector Device, Coin-View Window and Warning Labels on Slug Usage in N.Y. City Parking Meters. Criminology, 10, 127-142.
24. DENTLER, R.A. and K.T. Erikson (1959) The Functions of Deviance in Groups. Social Problems, 7, 98-107.
25. DURKHEIM, E. (1950) The Rules of Sociological Method. New York: The Free Press.
26. DURKHEIM, E. (1956) The Division of Labor in Society. New York: The Free Press.

27. ERIKSON, K.T. (1962) Notes on the Sociology of Deviance. Social Problems, 2, 307-314.
28. ERIKSON, K.T. (1966) Wayward Puritans. New York: Wiley.
29. FATTAH, E.A. (1972) A Study of the Deterrent Effect of Capital Punishment With a Special Reference to the Canadian Situation. Ottawa: Information Canada.
30. FRANKLIN, C.W. and A.P. Franklin (1976) Victimology Revisited: A Critique and Suggestions for Future Direction. Criminology, 14, 125-136.
31. FREUD, A. (1946) The Ego and the Mechanisms of Defense. New York: International Universities Press.
32. GARFINKEL, H. (1956) Conditions of Successful Degradation Ceremonies. American Journal of Sociology, 61, 420-424.
33. GIBBONS, D.C. (1970) Delinquent Behavior. Englewood Cliffs, New Jersey: Prentice-Hall.
34. GIBBS, J.P. (1975) Crime, Punishment and Deterrence. New York: Elsevier.
35. GOFFMAN, E. (1961) Asylums: Essays on the Social Situation of Mental Patients and Other Inmates. Garden City, New York: Doubleday.
36. GOLD, M. and D. Mann (1972) Delinquency as Defense. American Journal of Orthopsychiatry, 2, 463-479.
37. GRENOUGH, J.L. (1974) Crime Prevention: A New Approach--Environmental Psychology and Criminal Behavior. Journal of Police Science and Administration, 2, 339-343.
38. JONES, E.T. (1973) Evaluating Everyday Policies: Police Activity and Crime Incidence. Urban Affairs Quarterly, 8, 267-279.
39. JONES, E.T. (1974) The Impact of Crime Rate Changes on Police Protection Expenditures in American Cities. Criminology, 11, 516-524.

40. KELLING, G.L., T. Pate, D. Dieckman and C.E. Brown (1974) The Kansas City Preventive Patrol Experiment: A Technical Report. Kansas City: The Police Foundation.
41. KELLY, W. and N. Kelly (1976) Policing in Canada. Toronto: MacMillan.
42. KITSUSE, J.L. (1962) Societal Reactions to Deviant Behavior: Problems of Theory and Method. Social Problems, 9, 248-260.
43. LAFAVE, W.R. (1965) Arrest: The Decision to Take a Suspect into Custody. Boston: Little, Brown & Co.
44. LATEEF, A.B. (1974) Helicopter Patrol in Law Enforcement--An Evaluation. Journal of Police Science and Administration, 2, 62-65.
45. LAW REFORM COMMISSION OF CANADA (1974) The Principles of Sentencing and Dispositions. Ottawa: Information Canada.
46. LEJINS, P. (1967) The Field of Prevention in W.E. Amos and C.F. Wellford, Delinquency Prevention: Theory and Practice. Englewood Cliffs, N.J.: Prentice-Hall.
47. LEMERT, E.M. (1951) Social Pathology. New York: McGraw-Hill.
48. LEMERT, E.M. (1953) An Isolation Closure Theory of Naive Check Forgery, Journal of Criminal Law and Criminology, 44, 298.
49. LEVINE, J.P. (1975) The Ineffectiveness of Adding Police to Prevent Crime. Public Policy, 23, 523-545.
50. LIPTON, D., R. Martinson and J. Wilks (1975) The Effectiveness of Correctional Treatment. New York: Praeger.
51. LUEDTKE, G. and Associates (1970) Crime and the Physical City: Neighbourhood Design Techniques for Crime Reduction. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice.

52. MALLESON, N. (1959) Panic and Phobia: A Possible Method of Treatment. Lancet, 1, 225-227.
53. MATTICK, H.W. (1966) Unexamined Death: An Analysis of Capital Punishment. University of Chicago: Center for Studies in Criminal Justice.
54. PRESIDENT'S COMMISSION ON LAW ENFORCEMENT AND ADMINISTRATION OF JUSTICE (1967) Task Force Report: The Police. Washington, D.C.: U.S. Government Printing Office.
55. PRESIDENT'S COMMISSION ON LAW ENFORCEMENT AND ADMINISTRATION OF JUSTICE (1967) The Challenge of Crime in a Free Society. Washington, D.C.: U.S. Government Printing Office.
56. PRESS, S.J. (1971) Some Effects of an Increase in Police Manpower in the 20th Precinct of New York City. New York: The New York City Rand Institute.
57. QUARANTELLI, E.L. and R.R. Dynes (1973) Organizations as Victims in American Mass Racial Disturbances: A Re-examination in I. Drapkin and E. Viano, Victimology: A New Focus. Lexington, Mass.: D.C. Heath & Co., 121-142.
58. RAAB, S. (December 2, 1974) Crime Rate Down in Perilous Areas, Up in Rest of City, The New York Times, 1, 38.
59. RADZINOWICZ, L. (1965) Ideology and Crime. New York: Columbia University Press.
60. REPPETTO, T.A. (1976) Crime Prevention and the Displacement Phenomenon. Crime and Delinquency, 22, 166-177.
61. RICCIO, L.J. (1974) Direct Deterrence--An Analysis of the Effectiveness of Police Patrol and Other Crime Prevention Technologies. Journal of Criminal Justice, 2, 207-217.
62. ROEBUCK, J.B. (1967) Criminal Typology. Springfield, Ill.: Charles C. Thomas.
63. RYKERT, W. (1971) Reduction of Criminal Opportunity. Pittsburgh, Pa.: National Crime Deterrence Council.

64. SCHNEIDER, A.L. (1975) Use of Victimization Surveys for Evaluation and Planning, An Overview of the Portland, Oregon Studies: 1974. Paper presented at the 1975 Victimization Survey Seminar. Washington, D.C., June 24, 1975.
65. SCHUESSLER, K.F. (1952) The Deterrent Influence of the Death Penalty. Annals of the American Academy of Political and Social Science, 284, 54-62.
66. SCHUR, E.M. (1971) Labeling Deviant Behavior: Its Sociological Implications. New York: Harper & Row.
67. SCHUR, E.M. (1973) Radical Non-Intervention: Rethinking the Delinquency Problem. Englewood Cliffs, N.J.: Prentice-Hall.
68. SHANAHAN, D.J. (1975) Patrol Administration. Boston: Holbrook Press.
69. SIMMEL, G. (1956) Conflict and the Web of Group Relations, translated by K.H. Wolff and R. Bendix. New York: The Free Press.
70. SKOLNICK, J.H. (1966) Justice Without Trial. New York: John Wiley & Sons.
71. SUTHERLAND, E.H. (1937) The Professional Thief. Chicago: University of Chicago Press.
72. SUTHERLAND, E.H. and D.R. Cressey (1960) Principles of Criminology. Philadelphia: J.B. Lippincott.
73. SYKES, G.M. (1958) The Society of Captives. Princeton, N.J.: Princeton University Press.
74. TANNENBAUM, F. (1938) Crime and the Community. Boston: Ginn.
75. TAYLOR, I., P. Walton and J. Young (1973) The New Criminology: For a Social Theory of Deviance. London: Routledge and Kegan Paul.
76. THOMAS, C.W. and J.S. Williams (1974) Deterrence of Crime: A Reformulation of Chambliss' Typology of Deterrence. Williamsburg, Va.: Metropolitan Criminal Justice Center.

77. TITTLE, C.R. and C.H. Logan (1973) Sanctions and Deviance: Evidence and Remaining Questions. Law and Society Review, 7, 371-392.
78. TITTLE, C.R. and A.R. Rowe (1974) Certainty of Arrest and Crime Rates: A Further Test of the Deterrence Hypothesis. Social Forces, 52, 455-462.
79. TURNER, S. (1969) Delinquency and Distance in T. Sellin and M.E. Wolfgang, Delinquency: Selected Studies. New York: John Wiley & Sons.
80. TYRPAK, S. (1975) Newark High Impact Anti-Crime Program: Street Lighting Project Interim Evaluation Report. Newark, N.J.: Office of Criminal Justice Planning.
81. VELDE, R.W. (1971) The Mobility of Offenders. Paper presented to the Metropolitan Washington, D.C. Crime Conference. New Carrollton, Md., September 13, 1971.
82. VON HENTIG, H. (1967) The Criminal and his Victim. New York: Archon.
83. WALDO, G. and T. Chiricos (1972) Perceived Penal Sanctions and Self-Reported Criminality: A Neglected Approach to Deterrence Research. Social Problems, 19, 522-540.
84. WALDT, L.G. (1975) Residential Burglary Prevention Program--Final Report. Seattle: King County Department of Public Safety.
85. WALSH, M. and D. Chappell (1974) Operational Parameters in the Stolen Property System. Journal of Criminal Justice, 2, 113-129.
86. WILSON, J.Q. (1968) The Police and the Delinquent in Two Cities in S. Wheeler, Controlling Delinquents. New York: John Wiley & Sons.
87. WRIGHT, D.B. (1959) Duties of a Prosecutor. Connecticut Bar Journal, 33, 293.
88. WRONG, D.H. (1961) The Oversocialized Conception of Man in Modern Sociology. American Sociological Review, 26, 183-193.

89. ZILBOORG, G. (1954) The Psychology of the Criminal Act and its Punishment. New York: Harcourt and Brace.
90. ZIMRING, F.E. (1971) Perspectives on Deterrence. Center for Studies on Crime and Delinquency, National Institute of Mental Health. Washington, D.C.: U.S. Government Printing Office.

## Chapter 2

### Operation-Identification and Displacement

#### 1. Operation-Identification

The current study concerns the police preventive program termed "Operation-Identification" (hereafter referred to as O-I), designed to reduce the incidence of crimes against property such as breaking, entering and theft. The program was initially introduced by the Monterey, California Police Department in 1963. Individuals enrolled in the program engrave, with an electric pencil, an identification number (their social security number, driving license number or a special number designated by program administrators) on their property--normally including household appliances and electronic equipment (televisions, stereos, etc.). In addition, they place a warning decal on their front door (occasionally, on a rear entrance as well) indicating to prospective intruders that they are participating in the program (1).

The two major objectives of O-I are burglary deterrence and property recovery. Advocates of the program indicate that the objectives can be attained through at least six means: 1) publicity about the program and its effects may lead to the decision not to burglarize, 2) the use of decals

to identify participants may result in their non-selection as targets, 3) participants may adopt other target hardening devices thereby rendering entrance into their homes more difficult, 4) the marking of items may prevent the burglar from taking these items, 5) the burglar's possession of marked property increases the risk of his apprehension and conviction and 6) the publicity related to the project and the presence of identification on property results in an increased difficulty of its conversion (19).

Numerous authors have commented on the efficacy of O-I. Most of these studies, however, are descriptive and lack adequate statistical controls (19).

Lee recounts the experience of four U.S. cities with O-I (20). In New Orleans, the program was implemented in 1969 due to a 39% increase of burglaries for the first three months of that year. The results indicate that during every month since May 1971, burglaries in the city have decreased (often as much as 33%) from the corresponding period in 1969. Furthermore, the total number of burglaries in New Orleans, in 1971, was 3% below the total for 1969. Of the 2,500 participating residences and businesses, only one had been burglarized as of 1972. In Washington, D.C., 400 houses joined the program in December 1971. As of the middle of 1972, none of the houses were burglarized. In

Roanoke, Virginia, 1,000 houses took part during 1971 and, by mid-year 1972, none had been burglarized. In Hickory Hills, Illinois (a suburb of Chicago), O-I was implemented in October 1971. As of March 1972, no burglaries were reported for participants.

Crawford has described the effects of O-I in St. Paul, Minnesota (13). In that city, 9,200 residential and non-residential establishments were enrolled in the program since 1972. As of the beginning of 1974, only 41 of these had been burglarized. During the same period of time, 12,000 burglaries had occurred in St. Paul.

O-I was introduced in St. Louis, Missouri on May 15, 1972 (34). Schirmerman indicates that 2.5% of the city's households registered in the program as of February 1974. It was found that participants showed a 24.9% decrease in burglary as compared to two years prior to the program. During that same period, rates for the entire city increased by 9.1%. No significant differences were found, in terms of vulnerability, for the participant and non-participant groups prior to the program. The rate of property recovery was still found to be low.

In Denver, Colorado, an O-I recruitment program was in operation from October 1972 to June 1973 (4). A total of 26.7% of all residential units enrolled in the program.

During the recruitment period, burglaries for participants decreased by 14.8%, while the overall city rate decreased by 10.9%.

Schneider used a victimization survey to evaluate a Portland, Oregon O-I program in order to control for possible differences in participant and non-participant reporting rates (35). It was found that, since the program's inception, 7% of participants and 10% of non-participants had been victimized.

Heller, Stenzel, Gill, Kolde and Schimerman, in an overall evaluation of O-I, present a less optimistic picture (19). Their study indicates that O-I has not, in general, reduced city-wide burglary rates, nor has the program increased the rate of property recovery. One reason provided for this is the lack of sufficient participation in the program.

Mattick, Olander, Baker and Schlegel have evaluated O-I programs in 255 Illinois cities (24). They found that neither the deterrence, apprehension or conviction of thieves was improved as a result of the program. In an interview of 69 convicted burglars, only 12 indicated that they would avoid marked merchandise. They found that the program was ineffective in increasing the risk of apprehension and conviction because the stolen property can be quickly trans-

ported to other areas, markings can be altered and the public is willing to buy stolen merchandise. The following reasons were given for the lack of success in property recovery: 1) a high percentage of items are not markable, 2) police forces are overburdened and can not process the volume of recovered property that they handle, 3) tracing procedures of the police have not improved in recent years and 4) the absence of a uniform system of property marking prevents the nation-wide tracing of property owners.

The evaluation of O-I programs has not taken into consideration the possibility of displacement--a phenomenon found associated with other preventive programs, especially those involving the reduction of opportunity. Displacement as a possible reaction to police preventive programs depends, to a large extent, on the nature of the criminal activity sought to be prevented. Hence, before postulating displacement as a possible reaction to an O-I program, it is necessary to explore the spatial patterning of the offences the program seeks to prevent, the types of offenders committing these offences (their compulsiveness or opportunism, the extent of their mobility and flexibility) and their preventive capability. In this way, the displacement-potential of these offences can be ascertained.

## 2. Patterns of Burglary

For the purposes of this study, the focus will be on burglary, this being the principal offence that O-I is designed to prevent. The term "burglary" will be used synonymously with "breaking and entering", which is defined in the following manner in Section 308 of the Canadian Criminal Code:

...(a) a person enters as soon as any part of his body or any part of an instrument he uses is within anything that is being entered; and (b) a person shall be deemed to have broken and entered if (i) he obtained entrance by a threat or artifice or by collusion with a person within, or (ii) he entered without lawful justification or excuse, the proof of which lies upon him, by a permanent or temporary opening.

The ecological patterning of burglary provides evidence of the opportunism of burglars. Brantingham and Brantingham note that burglary assumes a distinct spatial distribution which differs from that of other offences (9). The relationship of the physical environment and crime, they claim, is strongest for crimes against property (7). In a study of burglary patterns in Tallahassee, Florida, they found that, while the burglary rate did not vary with the cost of housing or of apartments, rental areas tended to have higher rates than privately owned areas (7). They further found that city blocks with a high percentage of small apartments were at a greater risk than those com-

prising large apartments. The authors additionally found that, when the amount of rent paid, racial and income factors were controlled for, blocks bordering on the outskirts of any given section of the city were victimized more than twice as often as interior blocks (8). With respect to both single-family dwellings and small apartment houses, outside blocks containing these types of premises had more than four times the burglary rate of interior blocks with the same type of premises. Outside blocks containing large apartment houses had 21.5 times the probability of victimization than interior blocks with the same configuration.

The authors present several reasons for these findings: 1) houses on bordering blocks are more accessible due to reduced visibility of points of entry and routes of transportation are in proximity to these blocks, 2) inconspicuousness is more easily attainable on bordering blocks due to the physical isolation of these blocks from the remainder of the city and 3) cohesion of the community is lacking due to the transient nature of these blocks.

Repetto, in his study of robbery and burglary in Boston, found support for the "Chicago School" hypothesis that crime rates are directly related to proximity to the city's central commercial district (30). He found three areas in the city's core which deviated from this pattern.

These areas primarily comprised luxury, high-rise apartment buildings which contained various security devices and private guards.

Aside from the contribution of the total urban form to the patterning of burglary, the physical design of buildings and their immediate surroundings also deserves attention (18).

Luedtke, in a study of 289 residential and non-residential premises which were the site of burglaries in Detroit in 1969-70, found numerous design factors to be related to burglary vulnerability (22). These included the intensity of street lighting, the visibility of houses, the volume of pedestrian traffic, the distance to adjacent structures, the location of the structure on the block, access routes to the structure and the presence of alarm systems. He avers that the two key elements involved in target selection are intrusion time (the time required to unlawfully enter a premise) and the extent of concealment afforded the offender by the site. He found that corner sites were involved in 71.1% of all the burglaries. The need for concealment was further demonstrated by the fact that only 24% of residential entries occurred from the front of the establishment.

Waladt's study of residential burglary in Seattle, Washington corroborated these findings (38). He discovered

that 83% of all entries occurred at points of the structure not visible from the neighbour's home and 63% occurred at entry points not visible from the street.

Repetto has noted the pertinence of dwelling occupancy to burglary rates (30). He found that low occupancy areas (areas in which 60% of the dwellings are unoccupied in the daytime more than 35 hours per week) experienced a higher rate of victimizations than those containing higher degrees of occupancy.

Additional support for the opportunism of numerous burglars emanates from studies concerning the victim's contribution to this offence. Fooner has asserted that victims not exercising adequate prudence create a "temptation-opportunity" situation which both encourages and assists the potential offender in committing an offence (16). Mansfield, Gould and Namenwirth, in constructing an economic model for the prediction of theft rates, indicate that these rates are not affected by individual propensities, but by variations in the supply of stealable goods available (23).

Repetto's interviews of 220 burglary victims revealed that the experience of victimization was associated with fear. This fear, in close to one-half of the cases, was translated into improved security practices (30). These

findings were contradicted by those of Block and Long (6). These authors studied the demand for security on the part of 763 burglary victims. It was found that those not previously experiencing burglary were more apprehensive of being victimized. This latter finding appears to indicate that less prudent individuals are more likely to be victimized and that burglars, perhaps, selectively victimize the more vulnerable premises.

Studies of arrested and adjudicated offenders show that most of these individuals were exposed to adverse economic, social and psychological conditions or were plagued by special problems (drug use, mental disorder, etc.).

Ferdinand has reviewed criminal patterns in Boston since 1849 (15). He has found that burglaries consistently tended to increase during periods of depression and exhibited marked declines during wartime periods.

Podlesny examined the criminal histories of 199 burglars incarcerated in Wyoming (28). He found that 50% were from unstable families and another 25% from families only marginally stable. With respect to education, 50% completed no more than the 11th grade. Approximately 60% of the burglars were laborers, 30% unemployed, 9% were blue collar workers and 1% were white collar workers at the time of their most recent arrest. Thirteen percent of the subjects

had at least experienced one previous psychiatric commitment.

Davies studied 418 burglary suspects in Liverpool, England (14). These individuals overwhelmingly came from the industrial central core of the city. Although their families and communities were predominantly well-integrated, many of the burglars were from families and neighbourhoods which were antagonistic toward agencies of social control. Close to 70% of the sample were unemployed at the time of arrest. Only slightly over 10% of the sample remained in school past the age of 15.

Chimbos studied breaking and entering offences occurring between 1965 and 1970 in "Northern City", Ontario (11). The number of individuals arrested for burglary during this period was 113. The author found that, of the offenders aged 18 and over, 97.7% could be defined as being from the lower socioeconomic stratum. This compares with 70% of the general population of the city which were located in that stratum. Of youthful offenders (those 18 years of age and under), the families of the majority were characterized by a high degree of disorganization (i.e., divorce, separation, desertion or death of a parent). Chimbos observed that 30.4% of the young offenders had at least one sibling who had been previously arrested for burglary.

A study of the files of 121 burglars registered with the Kentucky Department of Corrections in Louisville revealed that only 16.6% possessed special vocational skills and that the average number of years of education, for the group, was approximately nine years (2).

Studies indicate that burglars are frequently involved in heavy alcohol and illicit drug consumption. Roebuck, based on his study of 50 black narcotics addicts in Washington, D.C., has depicted the addict in the stereotypical fashion, as one who partakes in criminal behavior in response to physiological compulsion (31). Babst, Koval and Neittercutt have shown that the use of alcohol and/or illicit drugs reduces the possibility of parole outcome success for convicted burglars (5). Reppetto indicates that the drug addict undertakes fairly unsophisticated acts of burglary, which involve relatively low dividends (30). Due to these low rewards accrued, the addict may burglarize several houses within the span of one week. The addicted subjects in Reppetto's study averaged from five to six burglaries committed per week.

One motivating factor, frequently overlooked with regard to burglary, is the intrinsic satisfaction that the vocation provides for the actor involved (41). The excitement provided for the burglar extends through the three

principal stages of the offence--planning, execution and reliving (evaluation).

Scarr, adhering to a rational model, has identified the following nine stages involved in the execution of a burglary: 1) the needs fulfilled through successful burglarizing, 2) knowledge of burglary technology, 3) the perceived opportunities available, 4) burglary perceived as a means to the fulfillment of the initial needs, 5) the selection of burglary over alternative means of attaining needs, 6) the burglary attempt, 7) the conversion of goods into a useful form, 8) the satisfaction that the act provides and 9) reinforcement and the increased probability of continuation (33). Scarr views the stages of burglary as a process involving the offender, victim and police. Although the tendency to burglarize may be deflected at any stage, the successful completion of the cycle tends to ensure the behavior's perpetuation.

The continuation of an individual in burglary can be understood from factors other than his motivation, perceptions and skills. Walsh and Chappell have applied a systems orientation to the study of theft (40). They indicate that the "Stolen Property System" has six dimensions: 1) research and planning, which involves the determination of a demand for an item, its location and the best method of its ac-

quisition; 2) extraction of the item (the theft); 3) exchange of the item, involving its transfer from extractor to marketer (the individual selling it); 4) marketing, which involves transportation and storage, demand analysis and packaging; 5) redistribution, which pertains to the discovery of the buyer and the determination of the sales price; and 6) evaluation, the analysis of the feedback to the system in terms of performance. In such a system, the criminal receiver (fence) occupies a central position. He possesses information concerning the merchandise which is marketable and the targets available to obtain the merchandise. The fence provides the burglar with the relevant information, encourages the latter to undertake the theft and, if the burglar is reluctant to do so, may resort to coercion in order to elicit compliance.

The majority of burglars involved in such a system can be designated as "professional". Gibbons and Garrity have differentiated between the non-professional and professional property offender (17). The non-professional (excluding occasional offenders) exhibits a lack of planning and crime skills, generally gaining meager profits. He tends to possess aggressively anti-social attitudes. The professional, on the other hand, partakes in planning, possesses sophisticated skills and obtains more lucrative

profits. He does not view police encounters in antagonistic terms but, rather, as occupational risks he must contend with. In addition to technical competence, Shover asserts that professional burglars have a reputation for integrity and are closely affiliated with people engaged in legitimate activities (lawyers, "tipsters"--individuals providing clues for target selection, etc.) (36).

Another set of factors relevant to the question of displacement deals with the items stolen in a burglary. Studies on this aspect have focused on the needs and sophistication of the perpetrator and, hence, the extent of his professionalism. Professionals tend to seek jewelry, furs and silver, items which are difficult to convert. Amateurs tend to seek electronic equipment, cash, liquor and similar items (30).

Repetto's study of 1,673 residential burglaries showed that most of the cases were committed by amateurs (30). In 21% of the burglaries, less than \$100 worth of goods were stolen, 38% of the cases involved losses of \$100-\$300, 34% involved losses of \$300-\$1,000 and, in 7% of the cases, the losses exceeded \$1,000.

The findings of the Dayton, Ohio-San Jose, California Victimization Project were in concurrence with these findings (37). With respect to those residential burglaries where

the items taken were known, 75.2% of the incidents in Dayton and 76.9% in San Jose involved a loss of under \$250. In Dayton, 69.4% of commercial burglaries involved a loss of under \$250 and, in San Jose, 61.7% of all commercial cases involved less than \$250.

A victimization study undertaken in Toronto by Waller and Okihiro revealed that the average amount of loss for residential burglaries was less than \$300 (39).

In Atlanta, Georgia, 637 burglaries (including residential and non-residential) were examined (3). It was found that 67% involved electronic equipment, 10% involved cash, in another 10% jewelry or guns were taken and, in the remainder, no loss occurred or the amount was unknown.

The observation that the majority of burglaries involve amateurism was contradicted by the findings of Conklin and Bittner (12). They discovered, in a northeastern U.S. suburban study, that 51.8% of all incidents involved jewelry, furs or silver, 34.9% included cash, 34.7% included electronic equipment and 16.3% included liquor and the like.

The age of the perpetrator is another indicator of the commitment, mobility and sophistication of the individual. Cavan notes that the younger the offender, the more opportunistic (situationally-determined), the less mobile and less sophisticated he tends to be (10). Studies of arrested

and adjudicated burglars overwhelmingly indicate that the majority are under 25 years of age.

Waldt found the peak age for residential burglary in his sample to be 15 years after which the most frequent ages of offenders were in the following order: 16, 17, 18 and 14 years (38). The largest category of offenders in Letter's study of residential burglary involved the 17-20 age group, followed by the 21-25 and 13-16 age groups. For commercial burglaries, he again found the 17-20 age group to predominate, followed by the 13-16 and 21-25 groups (21). Podlesny, considering individuals over the age of 18, observed that 75% of his sample of 146 burglars fell within the 18-25 age range, followed by 23% in the 26-35 range and only 2% in the over 35 category (28). Davies, also considering adults over the age of 18, found the median age for his sample of 418 to be 20.8 years (14). Penn and Hegner, in a Northern California study of adult burglary offenders in 1971, found 29.7% to be 18-19 years of age, 34.6% to be in the 20-24 age bracket, 16.3% were in the 25-29 age group, 7.8% in the 30-34 group, 2.8% in the 35-39 group and 8.8% were 40 years and over (26). The same authors, in a 1972 study of seven major California metropolitan areas, found 49.4% of arrested burglars to be 17 years of age or less, 13.3% to be 18-19, 19.6% to be 20-24 and the remaining 17.7%

to be over 25 (27). Chimbos, in his Ontario study of burglary suspects, found 84% to be under the age of 23, 62% being under the age of 18 (11). Reppetto found the median age of arrested burglars in his study to be 18 (30). A Louisville, Kentucky study of burglary-related arrests in 1971 revealed that 42.4% of the total were under the age of 18, 19.9% were in the 18-21 age range, 20.9% were from 22-29 years, 9.1% ranged from 30-39, 5.8% ranged from 40-49 and 1.9% were 50 years of age or older (2). Mckissack has noted that the peak ages for property theft are 14-15, a period when the youth is completing his final years of compulsory schooling. The accumulated frustration provided by education, opportunities for association with delinquent peers and lack of material satisfactions combine as an explanation (25).

The mobility of burglars also bears a relationship with the extent of their commitment to a career of criminality. The committed offender, it would be expected, would not be deterred by distance, while the amateur would be more likely to confine himself to his neighbourhood.

Waldt's study shows that 73% of juveniles and 41% of adults arrested for burglary were operating within a one mile radius of their home. In fact, 37.8% of the juveniles lived within one-quarter of a mile from the offence's

location (38). Letter indicates, without presenting empirical evidence, that the majority of residential burglars in his study tended to reside within ten blocks of the crime scene (21). Penn and Hegner found that 50.5% of burglaries studied occurred within one mile of the perpetrator's residence, 21.1% occurred from one-three miles from the offender's residence, 9.4% from three-five miles, 9.2% from five-ten miles and 9.8% from ten miles or farther (27). Repetto, in his interviews of arrested burglars, found that approximately 50% were unwilling to travel more than one hour from their homes. This group predominantly consisted of the young and non-whites who, due to their lack of available transportation, most frequently operated within their own neighbourhoods. The older age group (18 and over), however, were willing to travel more than 24 hours (25% indicated this) (30).

In Cobb, Fulton and Gwinett Counties, Georgia, the number of burglaries committed by residents of other jurisdictions indicates a high extent of mobility (3). In Cobb County, interjurisdictional burglary was responsible for 30% of all arrests; in Fulton County, the figure was 53.5% and, in Gwinett County, 33% of those arrested for burglary resided outside of the county.

The flexibility of offenders, in committing a variety

of offences, also provides indications with respect to the likelihood of displacement to other criminal activities. Flexibility has been most frequently observed among young and unskilled offenders. Professionals, it has frequently been assumed, possess skills in only one area of expertise and confine themselves to it. Studies suggest that delinquents, on the other hand, tend to be unstructured in their criminal behavior, altering frequently the type of activity undertaken (10).

Similarly, drug addicts, constituting 12.5% of Roebuck's sample of 400 Washington, D.C. inmates, involve themselves in a variety of non-violent property offences--burglary, shoplifting, petty larceny, etc. (31). Roebuck, in the same study, identified the "Mixed-Pattern" offender type, which refers to non-addicted offenders engaged in a diversity of property offences (from petty larceny to burglary), rather than in one or two principal areas. This group constituted 17.7% of the sample. Also identified in the study was a group (16% of the total) partaking in a double pattern of larceny and burglary (32).

Finally, affecting patterns of criminality and displacement is police activity. Reppetto has identified four aspects of police preventive activity: 1) omnipresence, the conveyance to the potential offender that a high pro-

bability of police presence at any given time or place exists, 2) aggressive patrol, which involves the active prevention of offences, 3) rapid response, which facilitates the apprehension of the offender during the commission of the act and 4) follow-up investigation, the optimum use of investigative techniques in order to apprehend those individuals who have succeeded in committing an offence (29).

Omnipresence and aggressive patrol are ineffective in deterring burglary due to the low visibility of the offence (29). Rapid response is difficult due to the frequent delayed reporting of burglary, resulting from a delayed discovery of the crime. Conklin and Bittner found that only 16.2% of burglaries were reported within one hour of their commission and only 54.8% were reported within six hours (12). This factor is also primarily responsible for difficulties in follow-up investigations. The clearance rate in Conklin and Bittner's study was only 4.6%. The rate of property recovery also appears to be low. Letter found, for example, that the rate of recovery for residential burglaries was 9% and, for commercial burglaries, recovery occurred in 11% of the cases (21).

### 3. Summary and Conclusions

Existing knowledge indicates that the majority of

burglars are young and unsophisticated. Most of the offences appear to involve selectivity by offenders, with respect to target choice (due to physical design factors, situational variables--victim contribution, etc.), as demonstrated by the ecological patterning of burglary. This may either indicate opportunism in response to a "temptation-opportunity" situation or selectivity by more committed offenders. In either case, the suggestion is that preventive programs involving opportunity reduction should result in successful prevention.

The etiological factors (socioeconomic correlates of burglary) and the mechanisms outlined in the "Stolen Property System" seemingly create demands which are met through the perpetuation of burglary. This, together with the apparent flexibility of offenders, particularly the unskilled, may render insufficient the influence of an opportunity reductive program for prevention.

The evidence on mobility indicates that the youthful and poor offenders are relatively immobile and that a hard core of more experienced burglars would travel the distance required to commit an offence.

The above suggests that success may depend on factors other than opportunity reduction or direct deterrence. Under these circumstances, displacement can constitute a

possible response to burglary preventive measures.

### References

1. ANONYMOUS (1972) A Simple Way to Stop Burglars. RCMP Gazette, 34, 21.
2. ANONYMOUS (1972) Burglary--Louisville Region. A Report of the Louisville and Jefferson County Crime Commission and Louisville Regional Crime Council. Louisville, Kentucky.
3. ANONYMOUS (1973) Atlanta Impact Program: Master Plan Update. Atlanta, Georgia: Criminal Justice Planning Division, Atlanta Regional Commission.
4. ANONYMOUS (1973) Operation Identification--Denver High Impact Anti-Crime Program: Final Evaluation Report. City and County of Denver, Colorado.
5. BABST, D.V., M. Koval and M.G. Neittercutt (1972) Relationship to Time Served for Different Classifications of Burglars Based on Males Paroled in Fifty Jurisdictions in 1968 and 1969. Journal of Research in Crime and Delinquency, 9, 99-116.
6. BLOCK, M.K. and G.J. Long (1973) Subjective Probability of Victimization and Crime Levels: An Econometric Approach. Criminology, 11, 87-93.
7. BRANTINGHAM, P.J. and P.L. Brantingham (1974) Housing Patterns and Burglary in a Medium-Sized American City. Tallahassee: School of Criminology, Florida State University.
8. BRANTINGHAM, P.J. and P.L. Brantingham (1975) The Spatial Patterning of Burglary. Howard Journal of Penology and Crime Prevention, 14, 11-23.
9. BRANTINGHAM, P.L. and P.J. Brantingham (1975) Residential Burglary and Urban Form. Criminology, 12, 273-284.
10. CAVAN, R.C. and T.N. Ferdinand (1975) Juvenile Delinquency. Philadelphia: J.B. Lippincott.
11. CHIMBOS, P. (1973) A Study of Breaking and Entering in "Northern City", Ontario. Canadian Journal of Criminology and Corrections, 15, 316-325.

12. CONKLIN, J.E. and E. Bittner (1973) Burglary in a Suburb. Criminology, 11, 206-232.
13. CRAWFORD, J.H. (1974) Number that Thieves Avoid. The Police Chief, 41, 26.
14. DAVIES, C. (1970) Four Hundred Burglary Suspects. Howard Journal of Penology and Crime Prevention, 13, 34-46.
15. FERDINAND, T.N. (1967) The Criminal Patterns of Boston since 1849. The American Journal of Sociology, 73, 84-99.
16. FOONER, M. (September 2, 1966) Victim-Induced Criminality. Science, 153, 1080-1083.
17. GIBBONS, D.C. and D.L. Garrity (1962) Definition and Analysis of Certain Criminal Types. The Journal of Criminal Law, Criminology and Police Science, 53, 27-35.
18. GIRARD, P.J. (1960) Burglary Trends and Protection. The Journal of Criminal Law, Criminology and Police Science, 50, 511-518.
19. HELLER, N.B., W.W. Stenzel, A.D. Gill, R.A. Kolde and S.R. Schirmerman (1975) Phase 1--Evaluation of Operation Identification. St. Louis, Missouri: The Institute for Public Program Analysis.
20. LEE, E.L. (1972) Operation Identification. The Police Chief, 39, 50-52.
21. LETTER, M.D. (1972) A Profile of Portland Target Crimes, 1972. Portland, Oregon: City-County Office of Justice Co-ordination and Planning.
22. LUEDTKE, G. and Associates (1970) Crime and the Physical City: Neighbourhood Design Techniques for Crime Reduction. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice.
23. MANSFIELD, R., L.C. Gould and J.Z. Namenwirth (1974) A Socioeconomic Model for the Prediction of Societal Rates of Property Theft. Social Forces, 32, 462-472.

24. MATTICK, H.W., C.K. Olander, D.G. Baker and H.E. Schlegel (1974) An Evaluation of Operation Identification as Implemented in Illinois. Chicago: University of Illinois.
25. MCKISSACK, I.J. (1973) The Peak Age for Property Crimes. The British Journal of Criminology, 13, 253-261.
26. PENN, H.S. and Q.J. Hegner (1971) Criminal Histories of Burglary and Drug Offenders in Selected California Counties. Sacramento, Cal.: Bureau of Criminal Statistics.
27. PENN, H.S. and Q.J. Hegner (1972) The Burglar in California: A Profile. Sacramento, Cal.: Bureau of Criminal Statistics.
28. PODLESNY, J.A. (1973) Some Characteristics of Burglars, Larcenists, Assaultists and Drug Offenders in Wyoming. Washington, D.C.: U.S. Government Printing Office.
29. REPPETTO, T.A. (1973) Crime Control Management and the Police. Sloan Management Review, 14, 45-54.
30. REPPETTO, T.A. (1974) Residential Crime. Cambridge, Mass.: Ballinger.
31. ROEBUCK, J.B. (1962) The Negro Addict as an Offender Type. The Journal of Criminal Law, Criminology and Police Science, 53, 36-43.
32. ROEBUCK, J.B. (1967) Criminal Typology. Springfield, Ill.: Charles C. Thomas.
33. SCARR, H.A. (1973) Patterns of Burglary. Washington, D.C.: U.S. Government Printing Office.
34. SCHIMERMAN, S.R. (1974) Operation Identification: Project Evaluation Report. St. Louis, Missouri: Missouri Law Enforcement Assistance Council.
35. SCHNEIDER, A.L. (1975) Use of Victimization Surveys for Evaluation and Planning, An Overview of the Portland, Oregon Studies: 1974. Paper presented at the 1975 LEAA Victimization Survey Seminar. Washington, D.C.: June 24, 1975.

36. SHOVER, N. (1972) Structure and Careers in Burglary, The Journal of Criminal Law, Criminology and Police Science, 63, 540-549.
37. U.S. DEPARTMENT OF JUSTICE (1974) Crimes and Victims: A Report on the Dayton-San Jose Pilot Survey of Victimization. Washington, D.C.: LEAA, National Criminal Justice Information and Statistics Service.
38. WALDT, L.G. (1975) Residential Burglary Prevention Program--Final Report. Seattle: King County Department of Public Safety.
39. WALLER, I. and N. Okihiro (1974) Burglary and the Public: A Methodology and Some Early Findings. Toronto: University of Toronto.
40. WALSH, M. and D. Chappell (1974) Operational Parameters in the Stolen Property System. Journal of Criminal Justice, 2, 113-129.
41. WARREN, M.A. (1971) Preventing Burglaries. FBI Law Enforcement Bulletin, 40, 6-10, 25-26.

Chapter 3  
Nepean Township

The current study was undertaken in Nepean, a suburb of Ottawa operating independently as a township. Nepean covers 86.3 square miles and it contained, in 1976, an estimated population of 76,200. The area has experienced a sharp rate of population growth since 1961. At that time, the population of the township was 19,753, in 1966 this increased to 43,919 and, in 1971, to 64,606 (3).

The land usage in Nepean indicates the rural configuration of the township. Residential land use accounts for 8.48% of the total land area and commercial use occupies .56% of Nepean. Agricultural use constitutes 36.3% and a greenbelt, containing federal government installations, occupies 34.97% of Nepean's total land area. Industrial, institutional and recreational land use account for 4.71%, 2.25% and 1.01%, respectively, of the township. Idle rural land accounts for 7.57% and vacant land use for 4.06% of the total area (3).

Residential construction has averaged 1222.5 units per year from 1961-1974, the most recent year for which building records are available. The highest point of construction was 1964 when over 1,600 units were built, the lowest, 1973,

when 910 units were constructed (3).

Four major industrial areas are located in Nepean, employing (as of January 1, 1976) a total of 17,978 people, which constitutes 64.6% of all employees in Nepean. The Bells Corners industrial area, accounting for 17.4% of employees, is located in the northwestern section of the township, situated on the border of police patrol zones 1 and 2 (Figure 1). The Merivale Corridor, employing 16.8% and the Merivale industrial area, employing 11.3% of the total, are located in patrol zones 6 and 8 respectively. The research areas (agricultural, defence, etc.), located in zones 1 and 4, employ 19.1% of all employees in Nepean (3).

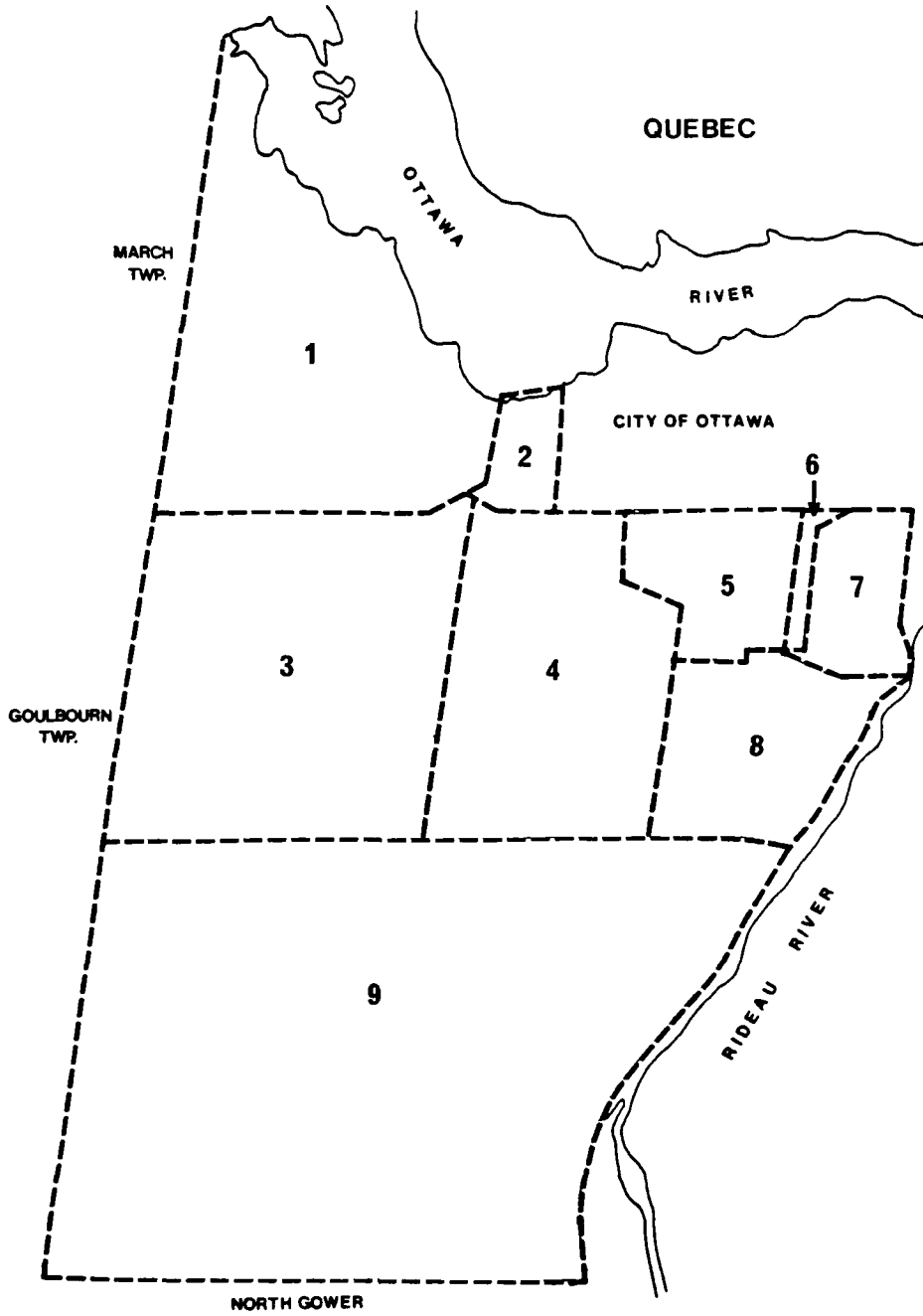
The pattern of criminality in Nepean is similar to that of other growing suburbs. Although the crime rate is not unduely high, it has been increasing at a more rapid rate than can be accounted for by the population growth. In 1970, there were 1,592 Criminal Code offences reported and recorded; in 1975, the figure had increased to 4,629 (2).

Law enforcement, at the present, is the function of the Nepean Police Force which emerged as a separate entity in 1964, after having been amalgamated with the Gloucester Township Force from 1957. Prior to 1957, Nepean Township was patrolled by the Ontario Provincial Police (1).

Since its inception, the Nepean Force has maintained

Figure 1.

# NEPEAN TOWNSHIP POLICE PATROL ZONES



an efficient crime record system. Presently, monthly reports are produced for all Criminal Code categories. With respect to breaking and entering offences, these reports show the date and place of commission, the type of premise entered (residential or commercial), the point and time of entry and the objects taken.

The Nepean Police have been involved in the pursuit of functional community relations. The Force has made extensive use of the communications media in order to familiarize the community with the services it provides, to explain the various By-Laws and to keep the citizens informed of the department's effectiveness in combatting criminality. The Force annually participates in a Police Week during which the above and additional functions are performed. Members of the Police Force also visit the community on a regular basis and lecture on such matters as drug consumption, Block Parent programs and driver's education (2).

In 1972, a personnel branch was established within the Force to investigate grievances initiated by community residents concerning the conduct of police officers. The individual with the grievance has an opportunity to discuss the problem with a senior officer, who is then authorized to take remedial action where necessary (2).

In 1974, the Operation-Identification program was in-

troduced which, as mentioned, enhances police-community relations through the acceleration of police-community contacts, the exposure of citizens to other security devices and the increase of, where the program is successful, the community's perception of police efficacy (2).

In 1976, a neighbourhood team policing program was instituted in Nepean. This involves a regular deployment of policemen in one specific patrol zone, the objective being both improved policing and improved community relations. This system is expected to bind the officer more closely to the community, hopefully eliciting altruistic sentiments from him. Reciprocally, the community is expected to respond to the police's greater accessibility and devotion through increased co-operation (2).

For police patrol purposes, the township is divided into nine zones. For the purposes of this study, attention was concentrated on zone 8, which coincides with federal census tract #130, with the exception of one enumeration area (3). The enumeration area not contained in zone 8 comprises mostly barren land. As such, figures derived from census information, can be applied to a description of the concerned patrol zone without distortion.

The eighth zone was chosen for the displacement study because of its suitable geographic location (Figure 1).

Residences and businesses in the zone are separated from those of adjacent zones by uninhabited land. On the northern boundary, which separates zone 8 from zones 5, 6, and 7, Canadian National Railroad Lines, surrounded by idle land, are present. On the east, the zone is separated from the City of Ottawa by the Rideau River. The land bordering on the south and west is devoted to agriculture and research. In only the northwest corner of the zone are residences of zone 8 in proximity to residences of an adjacent zone (zone 4). This geographic isolation of the zone from the remainder of the region, permits the study of displacement with a minimum of exogeneous interference.

Ethnically, the zone comprised, in 1971, 64.4% British, 9.5% French, 7.4% German, 3.6% Dutch, 2.7% Italian, 2.4% Ukranian, 2.3% Polish, 1.2% Scandinavian and 6.5% were of some other ethnic origin; of whom 53.0% were Protestant, 34.1% Roman Catholic, 9.4% had no religion and 3.5% belonged to some other faith (3).

In 1971, 86.9% of males and 43.5% of females, 15 years of age and over, participated in the labour force. The average income per family in that year was \$14,735. The median value of owner occupied dwellings, in 1971, was \$31,546. The average amount of monthly rent paid by tenants was \$158. As of January 1, 1976, the area contained 894

single family dwellings, 258 semi-detached units and 323 row houses. Since that time, several apartment buildings have also been constructed.

References

1. ANONYMOUS (1974) History of the Nepean Police Force.  
Nepean, Ont.: The Nepean Police Department.
2. ANONYMOUS (1970-75) Nepean Township Police Force Annual Reports.
3. NEPEAN PLANNING DEPARTMENT (1976) Special Studies.  
Township of Nepean, Ontario.

Chapter 4  
Methodology

The current study involves an examination of the possible displacement effects of the O-I program in the eighth police patrol zone of Nepean Township. A patrol zone, rather than a census tract(s), was selected as it enables a more accurate assessment of police activity in the area. Also, as indicated, the particular zone studied virtually constitutes a geographic entity. The relative isolation of the zone places constraints upon interactions with other communities. The zone was also selected for its highest proportional participation in the prevention program as of August 31, 1976, the cut-off date for the study. At that date, 171 of 1,093 or 15.6% of occupied dwellings, in the zone, were involved in the program. Only one of the 625 operating businesses, in the area, was covered.

Displacement, as already indicated, can assume at least five forms: 1) geographic, 2) target, 3) temporal, 4) tactical and 5) activity.

Temporal displacement is not applicable as O-I offers constant coverage through time. Activity-related displacement calls for the study of patterns of offences other than burglary. The lack of relevant zone-specific data precludes such a study. Remaining for study are geographic, target

and tactical displacement.

Different procedures have been employed or proposed for the study of geographic displacement by Press (19), Lateef (13), Tyrpak (22), Maltz (15), Reppetto (20) and in the Atlanta High Impact Program (1).

Press studied the effects of an augmentation of police manpower in one New York police precinct (19) (p. 28). This involved the assumption that such effects would be local rather than dispersed more equitably throughout the city. As a result, he focused on the three bordering precincts, selecting controls for each precinct from other parts of the city in order to monitor contemporaneous events. He attributed all decreases in the experimental zone, accompanied by increases in any of the three adjacent zones to displacement, rather than to possible chance effects. He thus ignored the possibility both of random events occurring within each zone and the normal interaction taking place between the four precincts. It is noteworthy that changes also occurred in the direction opposite from that which would indicate displacement. The study utilized weekly data in time-series and favored the use of control precincts for monitoring effects over the prediction of expected frequencies, due to the numerous points of observation after, as opposed to before, the program's implementation.

The police helicopter patrol program described by Lateef also apparently produced geographic displacement effects (13) (p. 29). No information was provided concerning the basis of the selection of the eight precincts to be routinely patrolled. Whether the precincts were selected randomly or due to need is unknown. In addition, displacement effects were ascertained through the observation of crime rates for the same period of the previous year. These before-after comparisons preclude the observation of a trend which may indicate the pre-intervention situation and the operation of chance or cyclical fluctuations.

The street lighting program evaluated by Tyrpak (p. 31) can be subjected to several methodological criticisms (22). Aside from the aforementioned weakness of before-after comparisons and the questionable assumption that displacement effects only occur in contiguous neighbourhoods, two additional criticisms can be raised here. The selection of precincts experiencing the city's highest crime rates introduces the possibility of regression artifacts (6). The selection of extreme cases may result in change in the direction of the mean independent of the intervention, which may explain both decreases in the experimental areas and increases in adjacent areas. Also questionable in this study is the use of city-wide rates as a baseline for assessing

program effects and displacement, due to the possible effect of the program on these rates.

A proposed experimental study by Maltz involves the use of three zones, the locations of which can be depicted by concentric circles (15). This is a variation of the design described by Waldt (23) (p. 30). Selected for the study would be an innermost zone containing the prevention program, a bordering zone and a peripheral control zone. If the bordering zone experiences an increase in the target crime rate exceeding that of the control zone, while the experimental zone records a decrease, then displacement is inferred to have occurred. This approach appears to be superior to others in that it attempts to gauge interactions with a larger portion of the surrounding area, rather than selective adjacent zones. The assumption that displacement is a local phenomenon is, however, implied. A comparable increase in criminality experienced by the bordering and control zones would be, according to this model, indicative of a lack of displacement effect. However, in reality, this effect may have been relatively equally dispersed in the two regions. Also, the use of concentrically situated zones may introduce the problem of differential rates of change in extraneous variables, in accordance with an ecological perspective (21).

Also, in terms of controlling for contemporaneous variables, indications exist to the effect that it is insufficient to gauge only the activity of law enforcement agencies, socioeconomic and demographic variables in the assessment of the effects of preventive measures. Properties of the judicial system, such as the conviction rate and the severity of punishment, are also capable of exercising substantial effects; in fact, these factors have apparently themselves been responsible for displacements (2) (p. 36).

Another approach to studying displacement can be pursued through focusing on the activities of the offender population, rather than on offences committed.

Repetto, through interviews and detailed analyses of criminal histories, probed offenders' motivation, their rationale for target selection and their mobility (20). This form of investigation inevitably introduces a selection bias due to the requirement of adjudicated offenders for the sample. Also, the veracity of responses is open to question.

Geographic displacement may also be studied by comparing the residence of an adjudicated offender with the location of the offence. This was done in the Atlanta High Impact Program evaluation (1) (p. 33). The general concern with respect to selection is also present with this approach.

In addition, a knowledge of the proportion of offenders originating from another neighbourhood does not indicate the proportion of offences committed by these persons (12).

As well, crossing-over may not be indicative of displacement. Targets may be more appealing in neighbouring areas, due to factors other than the implementation of preventive programs in the offender's community. In that case, the offender relocates his activity due to attraction rather than repulsion. This problem may be overcome by a regular monitoring of the cross-over rate and the observation of undue changes which may be attributable to the institution of a program (10).

Geographic displacement can also be explored through a comparison of victimizations experienced by participant and non-participant dwellings before and after the onset of a program. This type of displacement, which could be referred to as spatial, rather than geographic, was deemed to be a more appropriate means of investigation for this study, than the comparison of burglary rates with those of adjacent jurisdictions. This is due to the hypothesis that displacement effects would manifest themselves in maximum proximity to the program's location, given available opportunities.

Retrospective cohorts have been utilized to probe dif-

ferences in burglaries among residential program participants and non-participants which may be attributable to the program. Such studies involve the selection of cohorts on the basis of effects experienced and the retrospective investigation of factors presumed responsible (14). This method, as well, obtains its name as a result of its ex post facto character--the investigator temporally succeeding the occurrence of events studied. The first cohort comprised program participants at the final period of the study (August 31, 1976) and the second cohort (non-participants) consisted of those still not enrolled in the program by that date. Essentially, differences in burglary rates between participants and non-participants that are in excess of those brought by time (time being a proxy for all events occurring with the exception of the intervention and its concomitants), may be attributed to the program.

The use of time-series analysis is indicated for several reasons. To begin with, the O-I program involved here is characterized by multiple interventions. Also, time-series analysis, Glass, Willson and Gottman note, permits the assessment of the immediacy, duration and changing character of intervention effects (9). Also, this procedure enables focus on a single experimental unit (in this case, residences). Another advantage noted by the authors, specifically appli-

cable to the study of displacement, is the ability to gauge the interdependence of experimental units in the two groups studied. Intervention effects on one set of units may produce a related (perhaps inverse) effect upon the comparison units (9).

Campbell, although indicating that time-series designs may assume innumerable forms, has illustrated three basic variations (5). First, the interrupted time-series is the most crude form, being applicable when all subjects are exposed to the intervention and where, as a result, no comparison group can be used. This modality is not pertinent to the present study as the program is not ubiquitous, nor does it occur in merely one stage. Second, regression discontinuity analysis is appropriate where randomization can not be expected due to the exposure of a highly select group to the experimental treatment. This situation is remedied through eliminating extreme pre-intervention scores, while retaining those cases which are similar within a narrow range. A random tie-breaking procedure ensues, with half of the subjects being assigned the exposure and the other half serving as controls. This approach of assessing intervention effects can not be employed for the purposes of this study, as accurate measurements of vulnerability to burglary can not be allocated to the subjects. The third variation

of time-series, the control series design, involves the use of a comparison group which (even if non-equivalent) functions to gauge the effects of some extraneous variables. This design has been used for this study, with the necessary accommodations made for the multi-staged interventions occurring.

Data on breaking and entering was recorded from 1970 through 1976. The initial participant in the zone studied entered the program during March 1975. Breaking and entering rates were computed in terms of occupied units. Each apartment, private house and commercial establishment was considered to constitute one unit. Premises, rather than population, were used as a base for computing the rates due to the frequent observation that offences tend to cluster in areas according to the availability of criminal opportunity, rather than according to population size (8). The number of occupied premises in existence was secured through the annually distributed City of Ottawa Directory.

After rates were computed per 1,000 occupied premises, those subjected to trend analysis were adjusted for seasonal and random fluctuations through the ratio-to-moving average method (18). Cyclical variations were not observable due to the short temporal span of the study (18). The trends studied involved a period of only three and one-half years.

A characteristic problem in retrospective cohort analysis involves the determination of the number in that cohort existing at given points in time preceeding the cohort's selection (14). This problem was also encountered in this study. The only information pertaining to housing construction available was the number of houses constructed each year. Consequently, interpolations were made assuming equally distributed entry into the cohort, for any given year, by both participant and non-participant cohort members.

The cohorts were traced back to March 1, 1973, two years prior to the inception of the program and were observed for burglaries per three-month period afterward. That point of origin was selected because the available data prior to that date was not amenable to time-series analysis (numerous zero values existed for points of observation).

The first procedure undertaken in investigating dwelling-to-dwelling displacement provided for the construction of a trend-line to ascertain the effect of the program on residences as a whole. An effective program, if the phenomenon of displacement is disregarded, would require a decrease in the total residential burglary rate. Displacement would be most apparent with a stabilization of this overall rate. However, an increase would neither

obviate efficacy nor displacement.

Two components, Campbell and Stanley note, are involved in the testing of intervention effects for time-series designs (6). The first, intercept, refers to the value of the dependent variable at the precise moment that the program was introduced. This value indicates the degree of discontinuity of the pre- and post-intervention series. The second component, slope, involves a comparison of the direction and rates of change of the two trends.

The hitherto commonly used procedure of gauging intervention effects through comparing group means is inadequate, as it would neither monitor intercept nor slope (9). The continuation of a linear trend in either an upward or downward direction could be construed as change by a difference-of-means test, although no change in level or slope occurred. Similarly, such a test would not be sensitive to a trend-line experiencing an abrupt breakage at the point of intervention and continuing in the opposite direction, where the two least-squares lines form a triangular pattern with the abscissa.

Intercept (immediacy of effect), duration and consistency of effect were explored through the comparison of projected expected values with observed values. Predicted values were obtained from the regression equation based on the

pre-program observations of the dependent variable (breaking and entering rates) (18). Each observed value was compared to the corresponding predicted value. These predicted values, however, are only estimates of the mean of the dependent variable and the actual value may deviate from its mean (17). To rectify the problem of these random fluctuations, prediction intervals were constructed around the estimated value. Neter and Wasserman have described the appropriate method of computation of these intervals for small sample cases (18). The conventional 95% confidence interval was selected for this and subsequent applications.

A comparison of the pre- and post- intervention slopes was the second method used for determining program effects. This procedure has the advantage of examining the trends in their entirety, complementing the more focused method of prediction. The following formula for the computation of the difference between two slopes has been provided by Burr (4):

$$t_{n_1 + n_2 - 4} = \frac{b_1 - b_2}{\sqrt{\frac{(n_1 - 2)s_1^2 + (n_2 - 2)s_2^2}{n_1 + n_2 - 4} \left( \frac{1}{\sum (x_{1i} - \bar{x}_1)^2} + \frac{1}{\sum (x_{2i} - \bar{x}_2)^2} \right)}}$$

where the subscript of "t" (t distribution) represents the degrees of freedom, "n" refers to sample size, "b" to the

dependent variable trend slopes, "s" to the sample standard deviation and "x" to the "independent variable" (time).

The initial, seasonally-adjusted arithmetic values were transformed to logarithmic values through the plotting of the original values on semi-logarithmic graph paper. These transformations were undertaken due to the interest in determining relative rather than absolute changes in the trends (16). These rates of change were also computed through a formula provided by Neter and Wasserman (18).

After the overall effects of the program on residences were ascertained, unprotected dwellings, after the onset of the program, were compared with protected premises. A difference-of-means test, using Student's t distribution, was employed here.(3).

The equivalence of participants and non-participants, in terms of general vulnerability (based on previous victimizations), was then assessed. Eventual participants were compared with eventual non-participants before the onset of the program. This comparison of the two groups indicates the extent of their initial equivalence and shows whether any ostensible program effects are genuine. The comparison was undertaken, here again, through a t test.

A decrease in the burglary rate of program participants would generally be expected to be a requisite for program

effectiveness and displacement. Due to the fact that participants enrolled into the program at different times, three groups can be identified here: 1) all units existing before the onset of the program, 2) those units observed after the program's onset, but before participation and 3) those observed after participation. A comparison of the first two groups and the second with the third group illustrates program effects. This comparison of groups from the same cohort is particularly useful owing to the expected non-equivalence of participants and non-participants (due to self-selection of the intervention). The comparisons were necessarily performed through description as the data was insufficient for inferential analysis.

The final phase, constituting a corroborative measure, involved the ascertainment of whether changes in burglary rates were experienced by actual non-participants (or unprotected dwellings) as a result of the program. Prior to the program, this group comprised all residences (both those eventually participating and those never to participate). After the institution of O-I, this group consisted of, at each point of observation, the sum total of dwellings in the non-participant cohort existing at that time and the members of the participant cohort who had not yet joined the program at that point in time. The procedure to deter-

mine program effects on the unprotected units involved the aforementioned techniques of comparing expected with observed values and the comparison of slopes.

The second form of displacement investigated concerns a qualitative alteration of the target. Target displacement has been studied by Chaiken, Lawless and Stevenson (7) (p. 34). Due to the fact that the O-I program was almost exclusively employed in residences, it was postulated that a displacement effect may be experienced by non-residential units, instead of or, in addition to, residential displacements. The modified control series design was also used here.

The procedure was essentially the same as that used in studying spatial effects. An assessment of changes in the overall burglary rate (residences and businesses), following the program, was undertaken using the two methods described above. Residences and businesses were then observed for intervention effects using the two techniques elaborated above. Ideally, if displacement effects have occurred, one would expect residences to demonstrate a decline in burglary rates, with a corresponding increase experienced by businesses. Residential and commercial burglary rates were compared for the periods preceeding and following the institution of the program. This was done

to ascertain the extent of equivalence, in terms of initial vulnerability, of the two groups prior to the program and in order to determine whether these differences were more pronounced after the onset of the program. Student's t test was used for these comparisons.

Finally, an examination of tactical displacement, in response to the O-I program, was undertaken. This form of displacement has not been studied systematically in the past. "Tactics" refer to the modus operandi by which the offender circumvents the crime-inhibiting mechanisms developed by security and law enforcement agencies or the public. While the marking of property does not serve as a direct impediment to its theft, proponents of the program aver that the difficulty in recirculating such items and the ease of their identification deters the offender, who considers such property both unprofitable and risky to possess. In addition to relocating his activity spatially or to an alternative target, the burglar can alter his tactics by simply avoiding marked merchandise. A displacement effect can be postulated if items taken in burglaries occurring after the program's onset are being progressively less frequently selected from among those commonly marked in the program, while non-markable items are progressively more frequently

being taken.

This form of displacement could occur in two conceivable ways. First, a burglar, having entered a home and having realized that numerous articles are protected, may select unmarked property. Secondly, an offender, aware that such a program is in general existence, may shift his attention to other articles at the outset. Hence, the program may alter his specific objectives (11). Tactical displacements can thus occur regardless of the victimized units' participation in the program. As a result, all residential burglaries from 1970 through 1976 were examined for merchandise taken. Due to the low number of these burglaries, the data was presented per annum. The program, having commenced in the third month of 1975, would be expected to demonstrate some effects in that year and more pronounced effects in 1976, if displacement is to be posited.

References

1. ANONYMOUS (1973) Atlanta Impact Program: Master Plan Update. Atlanta, Ga: Criminal Justice Planning Division, Atlanta Regional Commission.
2. ANONYMOUS (1974) Crime Incidence and Displacement Model. Santa Barbara, Cal.: Planning and Management Consulting Corporation.
3. BLALOCK, H.M. (1972) Social Statistics. New York: McGraw-Hill.
4. BURR, I.W. (1970) Applied Statistical Methods. New York: Academic Press.
5. CAMPBELL, D.T. (1969) Reforms as Experiments. The American Psychologist, 24, 409-429.
6. CAMPBELL, D.T. and J.C. Stanley (1963) Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally.
7. CHAIKEN, J.M., M.W. Lawless and K.A. Stevenson (1974) The Impact of Police Activity on Crime: Robberies on the New York City Subway System. New York: The New York City Rand Institute.
8. ENGSTAD, P.A. (1975) Environmental Opportunities and the Ecology of Crime in R.A. Silverman and J.J. Teevan, Crime in Canadian Society. Toronto: Butterworth.
9. GLASS, G.V., V.L. Willson and J.M. Gottman (1975) Design and Analysis of Time-Series Experiments. Boulder: Colorado Associated University Press.
10. HALL, G. (September 13-14, 1971) Washington, D.C.: Urban and Suburban Crime Interaction. Paper presented to the Metropolitan Washington, D.C. Crime Conference, New Carrollton, Maryland.
11. HELLER, N.B., W.W. Stenzel, A.D. Gill, R.A. Kolde and S.R. Schirerman (1975) Phase 1--Evaluation of Operation Identification. St. Louis, Missouri: The Institute for Public Program Analysis.

12. KINZER, J.G. (1974) An Unresolved Issue: Crime Displacement. The Police Chief, 41, 66-67.
13. LATEEF, A.B. (1974) Helicopter Patrol in Law Enforcement--An Evaluation. Journal of Police Science and Administration, 2, 62-65.
14. MACMAHON, B. and T.F. Pugh (1970) Epidemiology: Principles and Methods. Boston: Little, Brown.
15. MALTZ, M. (1972) Evaluation of Crime Control Programs. Washington, D.C.: U.S. Government Printing Office.
16. MILLS, F.C. (1955) Statistical Methods. New York: Holt, Rinehart and Winston.
17. MOOD, A.M. and F.A. Graybill (1974) Introduction to the Theory of Statistics. New York: McGraw-Hill.
18. NETER, J.A. and W. Wasserman (1966) Fundamental Statistics for Business and Economics. Boston: Allyn and Bacon.
19. PRESS, S.J. (1971) Some Effects of an Increase in Police Manpower in the 20th Precinct of New York City. New York: The New York City Rand Institute.
20. REPPETTO, T.A. (1974) Residential Crime. Cambridge, Mass.: Ballinger.
21. SHAW, C.R. and H. McKay (1942) Juvenile Delinquency and Urban Areas. Chicago: University of Chicago Press.
22. TYRPAK, S. (1975) Newark High Impact Anti-Crime Program: Street Lighting Project Interim Evaluation Report. Newark, N.J.: Office of Criminal Justice Planning.
23. WALDT, L.G. (1975) Residential Burglary Prevention Program--Final Report. Seattle: King County Department of Public Safety.

Chapter 5Results

This chapter contains the results for the spatial, target and tactical components of the displacement study. The presentation of the results is followed by an analysis of possible sources of invalidity that may have jeopardized the findings.

The initial component of the study involved spatial displacement. The total residential burglary rate was observed first. Table 1(A) indicates that before the intervention period, the seasonally-adjusted rates for total residences fluctuated between 1.68 and 4.03 burglaries per 1,000 occupied dwellings, per three-month period studied. An upward trend can be observed (Figure 2) with an average rate of increase of 11.6%. Following the program's institution, the adjusted burglary rates varied from 3.73 to 6.54 burglaries per 1,000 dwellings. Figure 2 shows a reduced rate of increase of the second trend--this rate was found to be 8.8%. No significant changes in the total residential burglary rate were found after the introduction of O-I. Assuming that the pre-program trend would continue in the absence of the program, no significant deviations were found for observed rates, from the projected points. Similarly, a comparison of the slopes of the two trends

Table 1(A) - Breaking and Entering Offences for Total Residences and the Participant and Non-Participant Cohorts (March 1973 - August 1976).

Time Period*	<u>Total Residences</u>				<u>Eventual Participants</u>			<u>Eventual Non-Participants</u>		
	<u>B&amp;E's</u> **	<u>Total Units</u>	<u>Rate</u> ***	<u>S.A.R.</u> ****	<u>B&amp;E's</u>	<u>Total Units</u>	<u>Rate</u>	<u>B&amp;E's</u>	<u>Total Units</u>	<u>Rate</u>
1	1	889	1.12	1.68	0	131	0	1	758	1.32
2	2	906	2.21	2.31	0	134	0	2	772	2.59
3	3	922	3.25	2.67	0	136	0	3	786	3.82
4	4	961	4.16	3.27	0	142	0	4	819	4.88
5	1	978	1.02	3.97	0	145	0	1	833	1.20
6	7	990	7.07	4.03	1	148	6.76	6	842	7.12
7	4	1000	4.00	3.99	0	150	0	4	850	4.71
8	4	1027	3.89	3.34	1	155	6.45	3	872	3.44
COMMENCEMENT OF THE PROGRAM										
9	1	1040	.96	3.73	0	151	0	1	882	1.13
10	2	1049	1.91	5.20	0	147	0	2	889	2.25
11	13	1058	12.29	5.76	3	129	23.26	10	896	11.16
12	8	1078	7.42	6.54	1	44	22.73	7	911	7.68
13	2	1087	1.84	6.48	0	21	0	2	917	2.18
14	8	1093	7.32	5.37	0	0	0	8	922	8.68

\*Three-month intervals starting with March 1973.

\*\*Break and Entries.

\*\*\*Rates per 1,000 occupied units.

\*\*\*\*Seasonally-adjusted rates.

(Continued)

Table 1(B) - Continued from Table 1(A).

---

<u>Time Period*</u>	<u>Actual Participants</u>			<u>Actual Non-Participants</u>			
	<u>B&amp;E's**</u>	<u>Total Units</u>	<u>Rate***</u>	<u>B&amp;E's</u>	<u>Total Units</u>	<u>Rate</u>	<u>S.A.R.****</u>
9	0	7	0	1	1033	.97	3.78
10	0	13	0	2	1036	1.93	5.43
11	0	33	0	13	1025	12.68	6.14
12	0	123	0	8	955	8.38	7.12
13	0	149	0	2	938	2.13	7.35
14	0	171	0	8	922	8.68	6.37

---

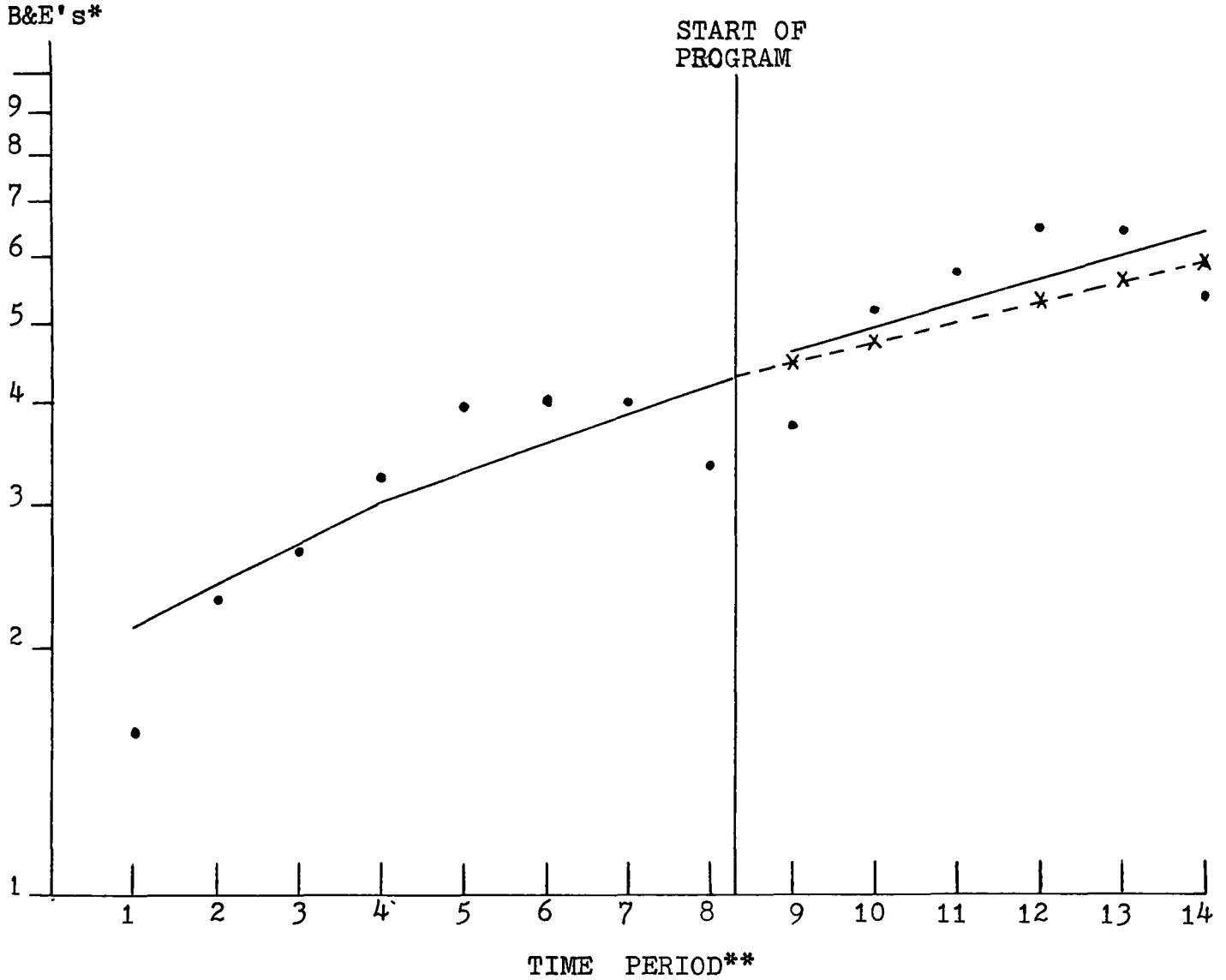
\*Three month intervals starting with March 1975.

\*\*Break and Entries.

\*\*\*Rates per 1,000 occupied units.

\*\*\*\*Seasonally-adjusted rates.

Figure 2. Breaking and Entering Rates\*for Total Residences Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.



- . . . Observed Points
- x x x Projected Points
- Observed Trend
- - - Projected Trend

Trend-Line Equations:

1st Trend -  $\text{Log } Y = .2736 + .0464X$   
 2nd Trend -  $\text{Log } Y = .6209 + .0324X$

\*\*X is in three-month periods and is 0 for the time period December 1972 to February 1973.

yielded no significant difference ( $t = .2662$ ;  $p > .05$ , 10 df).

A comparison of actual program participants and actual non-participants (including eventual participants--before participation) revealed distinct differences in the victimization of the two groups (Table 1(B)). It can be observed that, while for the 18-month period following the program's institution no participant households were burglarized, 44 burglaries occurred among non-participants, providing a mean of 5.79 incidents per 1,000 dwellings for each three-month period following the program. This constituted a significant difference ( $t = 2.82$ ;  $p > .05$ , 10 df).

To assert that the above difference is indicative of the efficacy of the burglary program and/or of displacement may be spurious. Table 1(A) shows that differences did exist, in eventual participant and eventual non-participant victimizations, prior to the program. Whereas only two incidents of burglary were experienced by participants before the program, with a mean rate per 1,000 dwellings of 1.65 burglaries for the three-month periods studied, non-participants experienced 24 burglaries before the program's inception, with a mean rate of 3.64 incidents for the same periods. However, the differences were not significant ( $t = 1.52$ ;  $p > .05$ , 14 df). Despite this lack of significance (significance does exist at  $p = .1$ ), the distinction is suggestive

of the fact that those enrolling in the program tended, initially, to be less vulnerable to burglary. This may be due to a generally greater prudence exercised on their part.

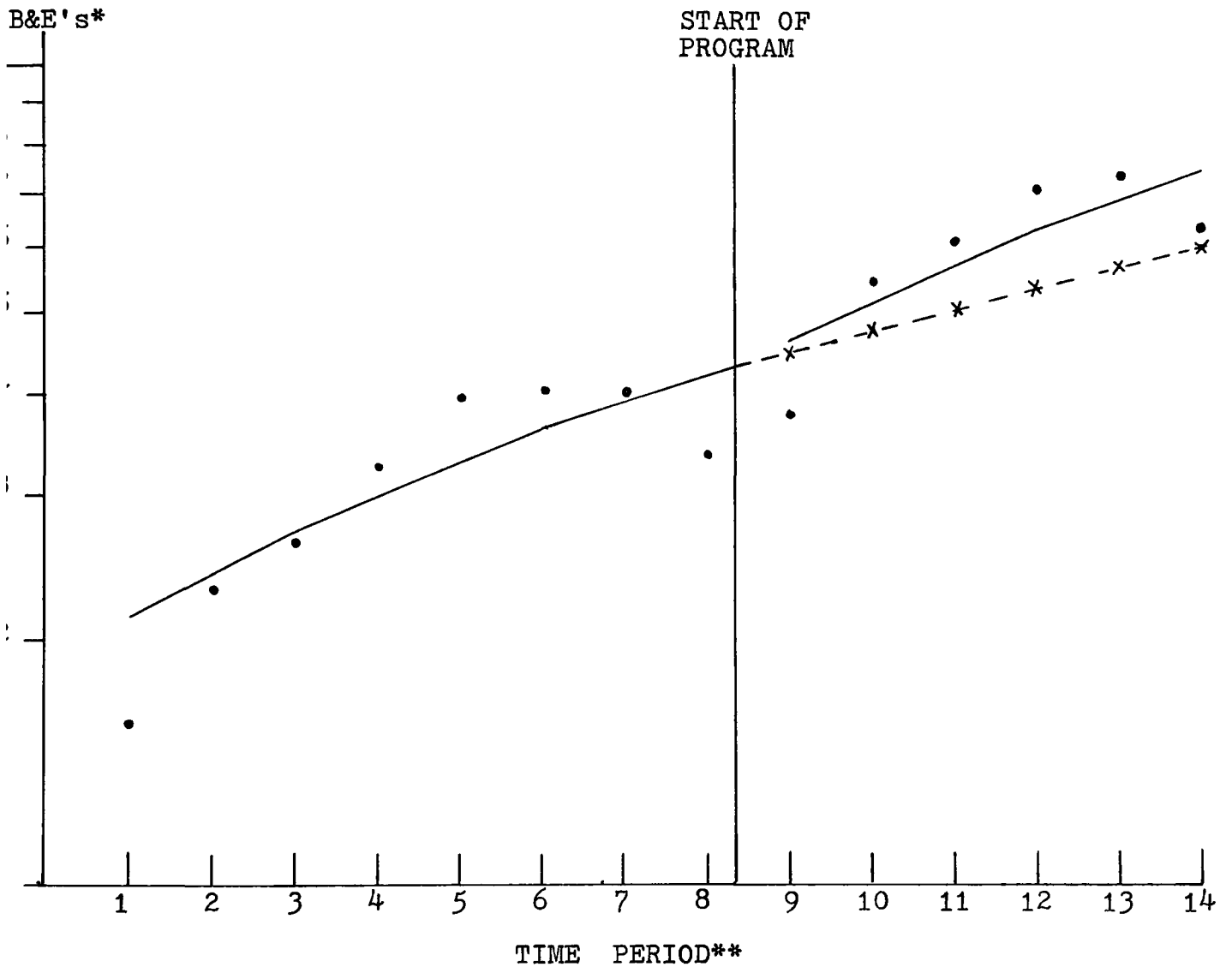
The non-equivalence of participants and non-participants from the outset makes it more preferable to gauge program effects through the observation of only one cohort. First, eventual participants, before the program's onset, were compared with eventual participants after the program's onset (Table 1(A)). As basic equivalence is assumed to exist between the two groups, differences could be attributed to the program. Before the onset of the program, members of the participant cohort were burglarized twice for a mean rate of 1.65 burglaries, per 1,000 dwellings, for the periods studied. After onset, those who had still not participated in the program were victimized on four occasions, for a mean rate of 7.67 incidents. This second group would be expected to demonstrate a higher burglary rate due to the fact that they had become more desirable targets, relative to those already participating, after the program's implementation. The differences found, therefore, may not be attributable to chance.

Secondly, intervention effects were studied through comparing eventual participants before and after actual participation, after the onset of the program. The two

groups differ from each other in the point of time at which they participate in the program and this difference could extend to general vulnerability, because of variability in prudence. Assuming no difference in initial vulnerability, the group prior to participation would be expected to experience a higher victimization rate than those already enrolled in the program, if intervention effects are to be postulated. It was found, in fact, that the former group experienced four incidents of burglary, whereas the latter group was burglary-free.

Finally, unprotected dwellings were compared for the periods preceeding and following the program's onset. The groups observed were total residences before the program's onset and non-participants (including eventual program participants, before their participation) during the intervention period. The pre-program total residential rates have been described above. Victimization rates of unprotected dwellings, for the intervention period, fluctuated between 3.78 and 7.35 burglaries per 1,000 dwellings (Table 1(B)). Figure 3 shows a sharper upward trend for this group, as opposed to the pre-program unprotected group. The rate of increase is 11.9% as compared to 11.6% for the latter. The direction of this change is in accordance with the displacement hypothesis. This change was not found to be sig-

Figure 3. Breaking and Entering Rates\*for Unprotected Dwellings Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.



. . . Observed Points  
 x x x Projected Points  
 ——— Observed Trend  
 - - - Projected Trend

Trend-Line Equations:

1st Trend -  $\text{Log } Y = .2736 + .0464X$   
 2nd Trend -  $\text{Log } Y = .6114 + .0455X$

\*\*X is in three-month intervals and is 0 for the time period December 1972 - February 1973.

nificant. None of the six observed burglary rates for the non-participant group differed significantly from the projected values. A comparison of the slopes of the two trends also indicated no significant difference ( $t = .8834$ ;  $p > .05$ , 10 df).

Efficacy of the program and displacement may be posited for several reasons. The rate of increase of total residential burglaries declined. Actual participants were significantly less often victimized than actual non-participants, even though no significant differences existed between eventual participants and eventual non-participants prior to the program. Also, the growth of the burglary rate for unprotected dwellings increased slightly after the institution of the program. Meanwhile, participants experienced a reduction in victimizations after entry into the program. Furthermore, the eventual participant group was burglarized more frequently after, as opposed to before, the program's onset. This may indicate that, once the program was underway, those not yet participating became more vulnerable than they had been prior to the program's inception.

Target displacement was subsequently studied. The overall burglary rates for the region (residences and businesses) were observed first. Prior to the program, the

rates fluctuated between 4.79 and 7.29 burglaries per 1,000 premises (Table 2). The trend assumed a slightly upward direction as Figure 4 indicates, the rate of increase being 6.1% per three-month period. After the onset of the program, the adjusted rates varied from 7.04 to 9.94 burglaries per 1,000 premises. The average rate of increase rose to 6.4% (Figure 4). None of the observed values for the intervention period departed significantly from the points projected from the pre-program trend. A comparison of the slopes of the two trends also did not reveal a significant increase in the growth rate of overall burglaries ( $t = .7532$ ;  $p > .05$ , 10 df).

Victimization rates for businesses, before the O-I program was introduced, fluctuated between 10.72 and 14.53 burglaries per 1,000 premises (Table 2). The trend assumes a slight upward direction (Figure 5), with an average rate of increase of 3.9%. During the intervention period, business burglary rates varied between 13.48 and 16.59 incidents per 1,000 premises. The growth rate of this trend was 4.2%. Comparisons of observed and expected rates yielded no significant differences at any of the six intervals observed after the program's inception. Similarly, a comparison of slopes indicated that the increased rate of growth of the second trend was not significant ( $t = .9323$ ;  $p > .05$ , 10 df).

Table 2 - Breaking and Entering Offences for Total Premises, Residences and Businesses  
(March 1973 - August 1976).

Time Period*	<u>Total</u>				<u>Residences</u>				<u>Businesses</u>			
	<u>B&amp;E's</u> **	<u>Total Units</u>	<u>Rate</u> ***	<u>S.A.R.</u> ****	<u>B&amp;E's</u>	<u>Total Units</u>	<u>Rate</u>	<u>S.A.R.</u>	<u>B&amp;E's</u>	<u>Total Units</u>	<u>Rate</u>	<u>S.A.R.</u>
1	11	1304	8.44	4.79	1	889	1.12	1.68	10	415	24.10	11.48
2	4	1331	3.01	5.80	2	906	2.21	2.31	2	425	4.71	13.26
3	7	1355	5.16	5.73	3	922	3.25	2.67	4	433	9.24	12.21
4	12	1417	8.46	5.67	4	961	4.16	3.27	8	456	17.54	10.72
5	6	1449	4.14	6.42	1	978	1.02	3.97	5	471	10.62	11.53
6	10	1472	6.80	6.85	7	990	7.07	4.03	3	482	6.22	12.62
7	11	1491	7.38	7.29	4	1000	4.00	3.99	7	491	14.26	13.86
8	15	1545	9.72	7.10	4	1027	3.89	3.34	11	518	21.24	14.53
COMMENCEMENT OF THE PROGRAM												
9	10	1576	6.35	7.04	1	1040	.96	3.73	9	536	16.79	13.55
10	5	1597	3.13	8.09	2	1049	1.91	5.20	3	548	5.47	13.61
11	17	1618	10.51	8.47	13	1058	12.29	5.76	4	560	7.14	13.48
12	25	1668	15.01	9.33	8	1078	7.42	6.54	17	590	28.81	14.32
13	7	1698	4.12	9.94	2	1087	1.84	6.48	5	611	8.18	16.04
14	21	1718	12.22	9.49	8	1093	7.32	5.37	13	625	20.80	16.59

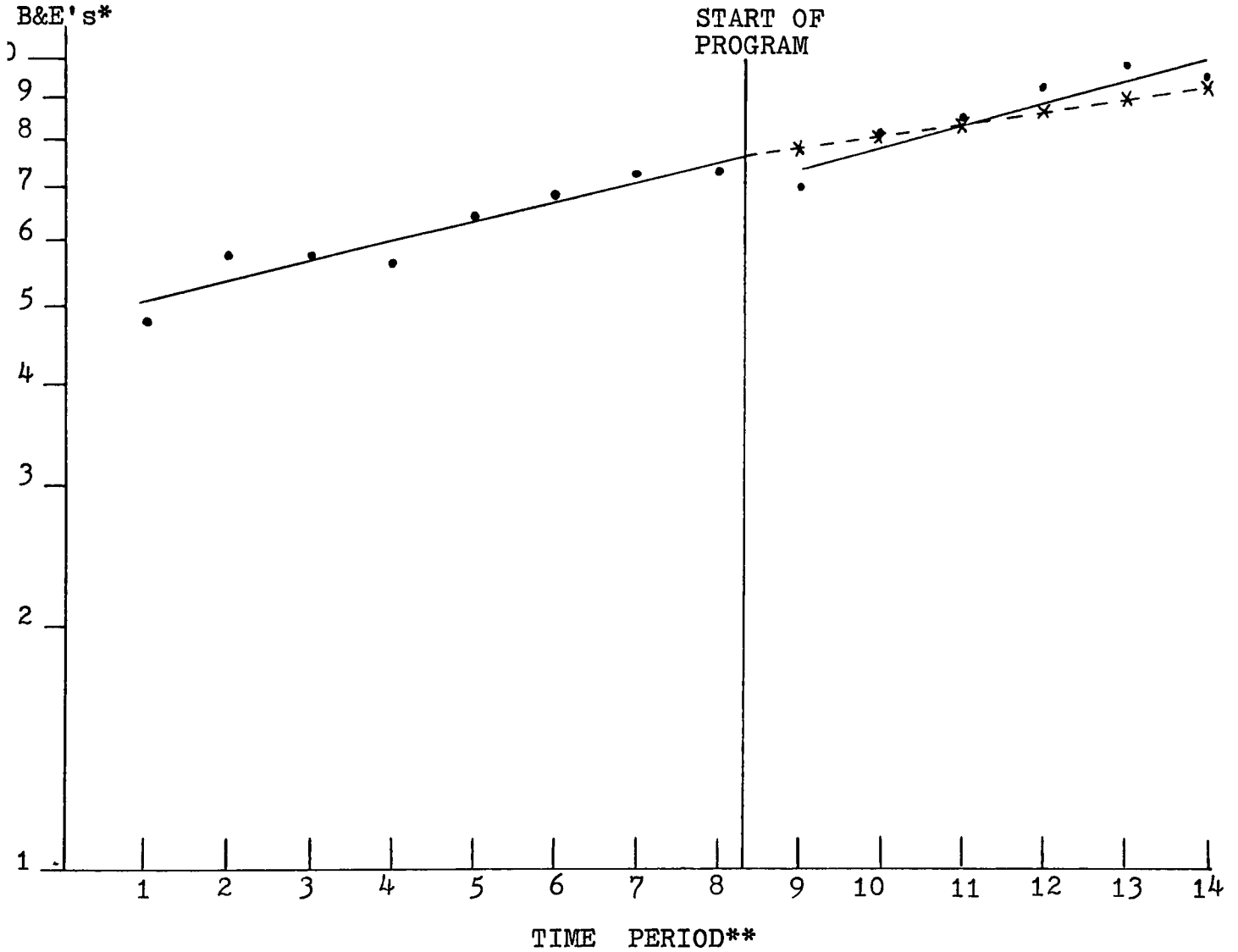
\*Three-month intervals starting with March 1973.

\*\*Break and Entries.

\*\*\*Rates per 1,000 occupied units.

\*\*\*\*Seasonally-adjusted rates.

Figure 4. Breaking and Entering Rates\*for Total Premises (Residences and Businesses) Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.



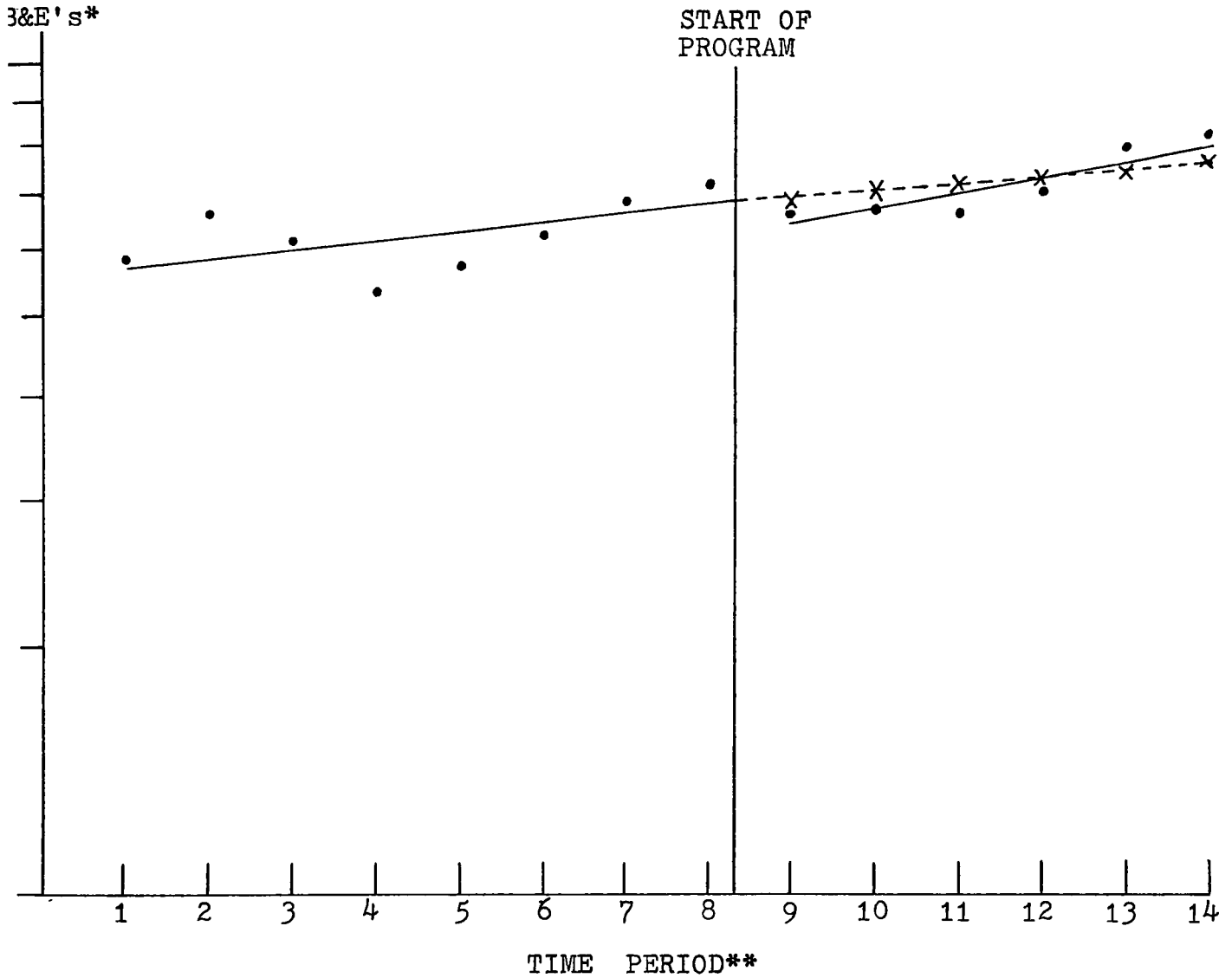
. . . Observed Points  
 x x x Projected Points  
 ——— Observed Trend  
 - - - Projected Trend

Trend-Line Equations:

1st Trend -  $\text{Log } Y = .6830 + .0236X$   
 2nd Trend -  $\text{Log } Y = .8421 + .0274X$

\*\*X is in three-month intervals and is 0 for the time period December 1972 - February 1973.

Figure 5. Breaking and Entering Rates\*for Non-Residential Premises Before and After O-I's Implementation (March 1973 - August 1976) and Expected Rates for After Period.



. . . Observed Points  
 x x x Projected Points  
 ——— Observed Trend  
 - - - Projected Trend

Trend-Line Equations:

1st Trend -  $\text{Log } Y = 1.0483 + .0106X$   
 2nd Trend -  $\text{Log } Y = 1.0948 + .0194X$

\*\*X is in three-month intervals and is 0 for the time period December 1972 - February 1973.

Prior to the program, businesses were significantly more vulnerable to burglary than residences ( $t = 18.84$ ;  $p < .05$ , 7 df). Following the institution of the program, these differences in vulnerability were still significant ( $t = 16.28$ ;  $p < .05$ , 5 df), although slightly reduced. This reduction of differences in the vulnerability of residences and businesses appears to be due to a trend independent of the program. Burglary rates for residences tended to increase at a faster rate than those for businesses, both before and after the program's onset. The study of displacement does not involve a concern with the general vulnerability of the two groups, but only with changes in vulnerability attributable to the intervention. Therefore, although the rate of increase of residential burglaries considerably exceeds that of businesses, it is the impact of the program on these respective rates of growth which is of interest here.

Although the changes in the rates for residences and businesses were not significant, the fact that they occurred in the expected direction should be taken into consideration. As mentioned above, residences experienced a reduction in the rate of increase of burglary after the program's onset (11.6% to 8.8%), while businesses experienced an increase in the growth rate of burglary following the program's im-

plementation (3.9% to 4.2%). The rate of growth for total burglaries was increasing, at the same time, from 6.1% to 6.4%. Three interpretations can be forwarded with respect to these occurrences.

First, a displacement effect may have occurred from residential to non-residential premises. An explanation of displacement is inadequate, however, as increases in the growth rate of total burglaries occurred. A factor in addition to displacement must have produced the rise in the growth rate of non-residential burglaries. This may be attributed to a sudden spurt of non-residential victimizations which coincided with, but was independent of, the introduction of the program. This is described as a "multiplier" effect (2).

Second, a multiplier effect may itself have been responsible for the increased growth rate of burglaries for both businesses and total premises. The decline of the residential burglary growth rate may be attributed to the primary preventive effects of the program (improved police-community relations, increased cohesiveness of the community, etc.).

Finally, the possibly ameliorated police-community relations brought about by the program, may have increased the reporting rate of residential victims. The decline in

the rate of increase of residential burglaries may thus have been greater than is apparent from the official data and the overall burglary rate may, in fact, have been stabilized in its growth. In that event, a genuine displacement effect may be said to have occurred.

The study of items taken in the residential burglaries was subjected to descriptive analysis. Studied here was the period extending from 1970 to 1976. In 1970, 37.5% of residential burglaries involved the theft of markable merchandise (Table 3). In the following year, markable items were taken in 55.6% of the cases. In 1972, no markable items were involved, however, only four burglaries were reported in that year. The years 1973 and 1974 were fairly constant with 57.1% and 56.3% of burglaries, respectively, involving markable items. In 1975, the year in which the program was instituted, an increase to 61.9% occurred, indicating that the program was not demonstrating effects in its initial nine months of operation. However, in 1976, a 50% decline occurred in the proportion of cases in which markable items were taken. Conversely, cases involving the theft of non-markable items prior to 1975, fluctuated between 14.3%, in 1973, and 100% in 1972 (although, as mentioned, only four burglaries were recorded for that year).

Table 3 - Type of Items Taken during Residential Break and Entries (1970 - 1976).

---

<u>Year</u>	<u>Total B&amp;E's*</u>	<u>Markable** Items</u>	<u>% of Total</u>	<u>Non- Markable*** Items</u>	<u>% of Total</u>	<u>**** None</u>	<u>% of Total</u>
1970	8	3	37.5	5	62.5	0	0
1971	9	5	55.6	3	33.3	1	11.1
1972	4	0	0	4	100.0	0	0
1973	7	4	57.1	1	14.3	2	28.6
1974	16	9	56.3	4	25.0	3	18.7
1975	21	13	61.9	4	19.0	4	19.0
1976	23	7	30.4	13	56.6	3	13.0

---

\*Break and Entries.

\*\*Cases in which markable items were taken.

\*\*\*Cases in which non-markable items were taken.

(If both markable and non-markable items were taken in a burglary, the case was registered under the "markable" column, as it was the number of burglaries involving markable items that was of interest.)

\*\*\*\*Cases in which no items were taken or where these were unknown.

During 1975, the first year of the program's operation, the theft of non-markable items reached its second lowest point (19%). However, as cases involving the theft of markable items declined in the second year of the program (1976), those involving non-markable item theft increased to 56.6%. These occurrences can be attributed to several factors.

Random statistical and/or regression effects may provide an explanation for the observed figures. Table 3 shows that markable items taken were not at their lowest point in 1976. In 1970, only 7.1% more cases involved markable items and, in 1972, no cases involved such items (although the sample was extremely small). The percentage of burglaries involving markable items increased from 1973 to 1975 and the 1976 period could be considered to be a normal fluctuation in the direction of the mean. Similarly, even if one discounts 1972 due to the low number of burglaries in that year, it can be observed that cases involving non-markable item theft, in 1976, did not constitute an all-time high as, in 1970, 62.5% of cases involved such theft. Consequently, the sudden increase in 1976 could be attributed to a return toward the mean after several low years.

A multiplier effect may have occurred in 1975, the first year of the program's existence. In response to the growing membership of the O-I program, burglars may have

specifically sought markable merchandise, knowing that these would be marked in the near future and may have avoided, temporarily, non-markable items. This could account for an increase of cases in which markable merchandise was taken and the decrease of cases in which non-markable merchandise was taken, in the initial year of O-I's implementation. It could also account for the sudden change in the following year as burglars' demand for markable items may have been satiated and their interest in non-markable goods renewed. The increase in cases involving markable merchandise from 1974 to 1975 was only 5.6%, however, and the decrease for non-markable merchandise only 6%, thus providing little support for this explanation.

Finally, a displacement effect can be postulated as the change from 1975 to 1976 occurred in the expected direction. The failure of the program to demonstrate effects in the first nine months of the program could be attributed to the scarcity of O-I enrollees for that period. The increase of cases involving markable items and the decrease of those involving non-markable items from 1974 to 1975 could, then, have been due to random effects.

Also, a multiplier effect may have occurred in combination with a displacement effect. The first would explain the change in 1975 and the latter the change in 1976. As

mentioned, however, the multiplier effect may also explain the change in 1976. The causal interpretation of the figures is therefore rendered difficult.

A list of factors potentially jeopardizing internal and external validity of experimental designs has been provided by Campbell and Stanley (1) and has been supplemented by Glass, Willson and Gottman (3). The majority of these factors are applicable here.

Of all threats to the internal validity of time-series designs, history has been considered among the most prominent. This factor refers to specific events, other than the experimental variable, occurring between measurements. Historical factors become progressively more influential as a study encompasses a longer period of time. The dangers of historical invalidity may become more pronounced in ex post facto time-series studies. This is due to the fact that interventions into social problems are frequently multifaceted; therefore, the determination of the effects of one specific intervention may be difficult (1).

In the current study of spatial and target displacement, the use of non-equivalent comparison groups (non-participants and businesses, respectively) introduces the influence of socioeconomic, demographic and a multitude of other changes

that may have occurred within the three and one-half year span of the study. Also, as has been indicated, a police-community relations effort, coinciding with the implementation of O-I, and the introduction of neighbourhood team policing after the institution of O-I may have, in themselves, been responsible for the decline in the growth of the residential burglary rate. These two events may have exercised a primary preventive effect in the concerned zone which may have been influential in only residential areas.

The study of tactical displacement may have been confounded by the changing value and portability of household items. If markable items were becoming less desirable and non-markable items more desirable, during the course of the program, for reasons other than O-I, then this could account for an apparent displacement effect.

Multiplier effects would have obviated an explanation of either target or tactical displacement. In the case of the former, the increased rate of growth of non-residential burglaries could be the result of such an effect. With respect to the latter, the increased percentage of residential burglaries involving markable items in 1975 and the sudden reversal of the figures in 1976, could be attributed to this effect.

Another potential source of invalidity is instrumentation, which refers to changes occurring in the measuring instrument or scorers (1). Instrumentation may manifest itself in an altered propensity to report offences by the general population. The amelioration of police-community relations, through the employment of preventive strategies, may result in a perception of increased police efficacy which, in turn, may increase the rate of reporting (5). With reference to the present study, this potential source of invalidity (if operative), paradoxically, lends greater credence to the displacement hypothesis. The fact that program participants did not report any burglaries confers confidence on the effectiveness of O-I. Also, as mentioned, a claim of target displacement is more tenable if one assumes that residential victims had a higher reporting rate than victims of commercial burglaries. The reduction in the rate of increase of residential burglaries may have been underestimated due to this artifact.

In the study of tactical effects of O-I, the figures for the type of merchandise stolen may include distortions, due to the fact that victims of burglary are frequently not aware of the items taken. This problem may be exacerbated by claims of loss of non-existent items, for insurance purposes. These errors may not be randomly distributed for

markable and non-markable items.

Another threat to internal validity is statistical regression (1). The selection of extreme cases for the experimental exposure may produce pseudo-effects, as these cases may approach the mean on subsequent observations independently of the intervention. Regression effects, Campbell and Stanley note, are usually controlled in time-series analysis as their impact is an inverse function of elapsed time (1). Such effects may, however, provide an alternative explanation for two apparent indications of O-I's efficacy.

It may be recalled that four members of the participant group were burglarized before their participation (after the program's onset), while no actual participants were burglarized. This situation may be attributed to a return of these four members to normalcy. Their participation in the program may, in fact, be considered to be a direct consequence of these victimizations. As such, these four units may otherwise never have joined the program and thus may initially have been more vulnerable to burglary than the rest of the cohort.

A regression artifact may also, as has been indicated, have occurred in the study of tactical displacement. The dramatic decline of burglaries involving markable items, in 1976, may have constituted a normal levelling-off from an all-time

high in 1975. Similarly, the sharp increase of burglaries involving non-markable items may have represented a movement in the direction of the mean after several low years. Statistical regression may thus be entirely responsible for the 1976 changes and further observations are required to remove the possible influence of such an effect.

Somewhat akin to statistical regression is the factor of reactive intervention (3). A program may be a reaction to previous or prospective changes in the concerned region, introducing the possibility that post-intervention changes may be due to the original factors which resulted in the intervention.

This may provide an alternative explanation to target displacement. The O-I program may have been introduced in reaction to a concern over mounting overall (both residential and non-residential) burglary rates, with an anticipated continuation of this trend. As businesses did not participate (actually, only one joined), the rate of increase of commercial burglaries has continued to rise. On the other hand, the more extensive residential participation has served to reduce the rate of increase of residential burglaries. According to this explanation, the program could be considered efficacious for residences; however, increasing rates of growth of non-residential burglaries could not be

attributed to displacement.

Experimental mortality, the differential loss of units from the comparison groups, is another potential source of internal invalidity (1). There did not appear to be an undue differentiation in either entrance into or departure from the groups to consider this factor a salient threat to validity. The use of retrospective cohorts removes the possibility of experimental unit mortality. As mentioned, however, the assumption was made that members of each comparison group (in the study of spatial displacement) came into existence equally distributed throughout the year, as data pertaining to housing construction was only available on an annual basis. Therefore, burglary rates may have been subjected to slight error if members of one group over-representatively came into existence at one point of any given year and members of the other group over-representatively came into existence at some other point of the year.

Where self-exposure to an experimental intervention exists, selection may jeopardize validity (1). Prior differences of the comparison groups may be mistaken for intervention effects. In both the spatial and target displacement aspects of the study, such selection biases have been monitored through pre- and post- intervention comparisons.

Selection-history interactions are frequent by-products

of police preventive programs (1). This factor refers to the differential exposure of the comparison groups to extraneous events. Individuals enrolling in O-I, for example, frequently adopt additional security measures as a result of their contact with program administrators (4). The apparent effectiveness of the program for participants and residences as a whole may be attributed to these other protective measures, or their interaction with O-I, rather than to O-I alone.

Finally, instability or unaccountable variation in the time-series may provide a threat to internal validity (3). The two principal inferential statistical techniques used controlled such variations. The raw data in the time-series was adjusted by the ratio-to-moving-average method, which both deseasonalized and removed inherent random effects from the series. In the projection of expected values for the intervention period, prediction intervals were constructed to control for random fluctuations. The other principal statistical technique used was the t test upon which random variations would only exert a minimal influence. The factor of instability may have been more influential in the study of tactical displacement, due to the low figures existing for numerous intervals and, also, to the few periods of observation existing after the program's commencement.

External validity may be compromised when a study is undertaken in a highly specific experimental setting, if subjects are exposed to multiple treatments, or if atypical interactions take place between selection biases and the experimental variable (1).

The latter possibility may be relevant to this study. In all three components of this study (spatial, target and tactical), initial differences between the groups (participants vs. non-participants, residences vs. businesses and markable vs. non-markable items) may have, when interacting with the effects of the program, produced results which may not reoccur.

In the target component, for example, it was found that businesses were initially more prone to victimization than were residences. If this difference extends to general vulnerability (that is, if previous victimizations are accurate indicators of vulnerability), then one might assume that businesses are either more facile to enter or possess more pervasively desired goods. As such, businesses may be victimized by a higher proportion of opportunistic or amateurish offenders; with residences, perhaps, being victimized by a higher proportion of professionals. A preponderance of skilled offenders could mitigate a displacement effect from residences to businesses, unless all criminal oppor-

tunity was eliminated by O-I, a highly unlikely situation. On the other hand, were residences more vulnerable than businesses at the outset, the implementation of a preventive program might shift the odds in favor of business victimizations for opportunistic offenders, possibly producing extensive displacements.

Indications of displacement in this study may, thus, not justify generalizations to other settings. This problem warrants further investigation into the development of more accurate indicators of vulnerability.

References

1. CAMPBELL, D.T. and J.C. Stanley (1963) Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally.
2. CHAIKEN, J.M., M.W. Lawless and K.A. Stevenson (1974) The Impact of Police Activity on Crime: Robberies on the New York City Subway System. New York: The New York City Rand Institute.
3. GLASS, G.V., V.L. Willson and J.M. Gottman (1975) Design and Analysis of Time-Series Experiments. Boulder: Colorado Associated University Press.
4. HELLER, N.B., W.W. Stenzel, A.D. Gill, R.A. Kolde and S.R. Schirmerman (1975) Phase 1--Evaluation of Operation Identification. St Louis: The Institute for Public Program Analysis.
5. PRESIDENT'S COMMISSION ON LAW ENFORCEMENT AND ADMINISTRATION OF JUSTICE (1967) The Challenge of Crime in a Free Society. Washington, D.C.: U.S. Government Printing Office.

Chapter 6  
Summary and Conclusions

This study examined the possibility of displacement as a reaction to preventive programs; specifically, the O-I program in Nepean Township. A survey of the literature indicated five possible forms of displacement. For the purposes of this study, attention was given only three--spatial, target and tactical displacement.

In the study of spatial displacement, it was found that no change in the rate of increase of the total residential burglary rate occurred. This can be interpreted as a failure of the program to show an effect on residences as a whole. No change was found in the vulnerability of unprotected dwellings as a result of the implementation of the program. (It should be pointed out that the unprotected dwellings constituted all dwellings prior to the program's implementation and those dwellings not participating in the program, after its implementation, at any given point in time).

Unprotected dwellings, however, when observed after the program's implementation, were significantly more vulnerable than were protected dwellings; in fact, protected dwellings were found to be burglary-free. The greater vulnerability of unprotected dwellings can perhaps be attributed to O-I's effects as no significant difference was

found between the participant and non-participant groups prior to the program.

In the interpretation of these latter findings caution must be exercised due to the fact that the two groups compared before the program was implemented were not identical in composition to the two groups compared after implementation. Before implementation, the comparison involved eventual participants and eventual non-participants; after implementation, it involved actual participants and actual non-participants. The actual participant group contained only those members of the participant cohort that were, at each point of observation, already enrolled in the program. For this group, those enrolling early after the program's inception were observed over more points of time than those enrolling later. The actual non-participant group contained not only members of the non-participant cohort but, also, those eventually participating although not yet doing so. Late participants thus remain in this group for more points of observation. If early participants were initially more prudent, then the significant difference can be attributed to this variability in prudence, rather than to the program.

When the eventual participant group is considered, after the implementation of the program, the actual participants were less vulnerable than those who had not already enrolled

in the program. This observation, however, does not stem from a test of significance as the data was sufficient to warrant only descriptive analysis. In consequence, it can not be construed as evidence of O-I's efficacy.

In the study of target displacement, no significant change was found for total burglaries, residential or commercial burglaries, after the institution of O-I. Businesses were found to be significantly more vulnerable than residences prior to the program. This difference in vulnerability remained significant following the program's onset, although the difference was slightly reduced. The reduction in the difference could, perhaps, be attributed to differences in the secular trends--the growth rate of residential burglaries being greater prior to, as well as after, the program.

The descriptive analysis of the tactical displacement aspect of the study showed that during the first year of the program's existence, the theft of articles commonly marked by program participants increased. In the second year of the program's operation, a sharp decline in the theft of markable items occurred with a corresponding increase of non-markable items. The findings for the second year are in concurrence with the displacement hypothesis, however, the possibility of a random effect precluded this conclusion.

The findings in this study thus provide some evidence for spatial displacement. The evidence for target effects does not appear to indicate displacement and tactical displacement has been discounted because statistically significant findings were not utilized. However, in the case of all three, changes occurred in the expected direction. The rate of increase of burglaries for participants declined, the rate for non-participants increased. The rate of increase for residences declined, the rate for businesses increased. The theft of markable goods showed a noticeable decline and the theft of non-markable goods a noticeable increase, during the second year of O-I's operation.

The results of this study can not be taken as evidence either in support of or in contradiction to the displacement hypothesis. A number of factors prevented a more precise assessment of all aspects of displacement. Principally responsible here were the low victimization rates, prior to as well as after the program's onset, and the low participation rates, which have plagued the evaluation of numerous other O-I programs as well (3).

Proper evaluation of the deterrence-potential of O-I requires further enrollment in and continuation of the program. In this evaluation, the possibility of crime displacement should not be overlooked. Thus far, only geog-

raphic displacement has received any serious attention. Studies should not only focus on other forms of displacement but, also, should explore the interrelatedness of the various forms, including the order of priority in which they appear.

Future studies of displacement could incorporate aspects of the various methodologies currently used. Time-series data could be employed to enable vulnerability analysis prior to the program and to control for random effects and regression artifacts (2). With the development of indicators of vulnerability (other than mere reliance on previous victimizations), regression discontinuity analysis can be used in order to form equivalent comparison groups (1). Historical factors (other programs, socioeconomic, demographic, ecological and statutory changes) can then be gauged through the use of these comparison groups and/or through the use of comparison zones (4), (5), (8). Intervention effects can be monitored either through the observation of the comparison groups and zones or, as done in this study, through the projection of expected rates and/or the comparison of trends. The possibility of altered reporting of offences, resulting from the introduction of a preventive program, may warrant the use of a victimization survey (7).

In explaining the results of the target and tactical displacement aspects of the study, confusion could arise in

distinguishing between a multiplier and a displacement effect. A multiplier effect refers to the frequent perpetration of a certain form of criminal conduct which precedes, or may produce, the introduction of preventive measures. The implementation of the preventive measure may be followed by an alteration of the concerned behavior. This may be interpreted as indicative of program effectiveness and, also, of displacement. In reality, if a multiplier effect occurred, the affected population may cease participation in the concerned behavior due simply to the fact that they no longer require the products accrued from such behavior or, at least, the value of these products relative to others is reduced. A second error may involve the interpretation as effectiveness or displacement, spurious effects occurring when a program is introduced at a time in which the behavior it is designed to prevent is at a peak (statistical regression). This may also be a by-product of a multiplier effect.

To differentiate between the two effects, the motivation of offenders in the area can be probed to determine which of the effects occurred (6). This exploration of the offender's frame of reference would then serve to complement other components of a displacement study.

Displacement studies have theoretical and operational implications. Evidence of displacement would provide support

for the aforementioned crime stability hypothesis. On the pragmatic level, this would indicate that preventive measures, in general, may be futile; or, at least, that focused, localized prevention programs have severe limitations.

Conversely, an absence of the displacement phenomenon could constitute a refutation of the crime stability hypothesis. Operationally, this would imply that highly specific preventive programs can potentially be effective.

The lack of evidence for displacement need not, however, contradict the stability hypothesis. This hypothesis, it may be recalled, refers to the idea that, while crime rates fluctuate, these fluctuations occur within certain hypothetical limits. Successful prevention, therefore, may be contingent upon the distance of crime rates from the hypothesized lower limits. An effective preventive measure may indicate that the prevailing level of criminality has not approached these lower limits. If this is the case, the ascertainment of these extreme limits would be a sine qua non for the institution of preventive programs.

This study dealt with only one mode of prevention--mechanical. It would appear that, where preventive measures can potentially be efficacious, an optimization of such measures could be attained through a systems approach, involving a reconciliation of the corrective and mechanical forms.

References

1. CAMPBELL, D.T. (1969) Reforms as Experiments. The American Psychologist, 24, 409-429.
2. GLASS, G.V., V.L. Willson and J.M. Gottman (1975) Design and Analysis of Time-Series Experiments. Boulder: Colorado Associated University Press.
3. HELLER, N.B., W.W. Stenzel, A.D. Gill, R.A. Kolde and S.R. Schirmerman (1975) Phase 1--Evaluation of Operation Identification. St. Louis: The Institute for Public Program Analysis.
4. MALTZ, M. (1972) Evaluation of Crime Control Programs. Washington, D.C.: U.S. Government Printing Office.
5. PRESS, S.J. (1971) Some Effects of an Increase in Police Manpower in the 20th Precinct of New York City. New York: The New York City Rand Institute.
6. REPPETTO, T.A. (1974) Residential Crime. Cambridge, Mass.: Ballinger.
7. SCHNEIDER, A.L. (1975) Use of Victimization Surveys for Evaluation and Planning, An Overview of the Portland, Oregon Studies: 1974. Paper presented at the 1975 LEAA Victimization Survey Seminar. Washington, D.C.: June 24, 1975.
8. WALDT, L.G. (1975) Residential Burglary Prevention Program--Final Report. Seattle: King County Department of Public Safety.

## Bibliography

- ANDENAES, J. (1966) The General Preventive Effects of Punishment. University of Pennsylvania Law Review, 114, 949-983.
- ANDENAES, J. (1975) General Prevention Revisited: Research and Policy Implications. The Journal of Criminal Law and Criminology, 66, 338-365.
- ANONYMOUS (1972) A Simple Way to Stop Burglars. RCMP Gazette, 34, 21.
- ANONYMOUS (1972) Burglary--Louisville Region. A Report of the Louisville and Jefferson County Crime Commission and Louisville Regional Crime Council. Louisville, Ky..
- ANONYMOUS (1973) Atlanta Impact Program: Master Plan Update. Atlanta, Georgia: Atlanta Regional Commission, Criminal Justice Planning Division.
- ANONYMOUS (1973) Operation Identification--Denver High Impact Anti-Crime Program: Final Evaluation Report. City and County of Denver, Colorado.
- ANONYMOUS (1974) Crime Incidence and Displacement Model. Santa Barbara, Cal.: Planning and Management Consulting Corporation.
- ANONYMOUS (1974) History of the Nepean Police Force. Nepean, Ont.: The Nepean Police Department.
- ANONYMOUS (1970-75) Nepean Township Police Force Annual Reports.
- BABST, D.V., M. Koval and M.G. Neittercutt (1972) Relationship to Time Served for Different Classifications of Burglars Based on Males Paroled in Fifty Jurisdictions in 1968 and 1969. Journal of Research in Crime and Delinquency, 9, 99-116.
- BIDERMAN, A.D. (1973) Victimology and Victim Surveys in I. Drapkin and E. Viano, Victimology: A New Focus. Lexington, Mass.: D.C. Heath, 153-169.
- BLALOCK, H.M. (1972) Social Statistics. New York: McGraw-Hill.

- BLOCK, M.K. and G.J. Long (1973) Subjective Probability of Victimization and Crime Levels: An Econometric Approach. Criminology, 11, 87-93.
- BOGGS, S.L. (1966) Urban Crime Patterns. American Sociological Review, 30, 899-908.
- BRANTINGHAM, P.J. and P.L. Brantingham (1974) Housing Patterns and Burglary in a Medium-Sized American City. Tallahassee, Fla.: School of Criminology, Florida State University.
- BRANTINGHAM, P.J. and P.L. Brantingham (1975) The Spatial Patterning of Burglary. The Howard Journal of Penology and Crime Prevention, 14, 11-23.
- BRANTINGHAM, P.L. and P.J. Brantingham (1975) Residential Burglary and Urban Form. Criminology, 12, 273-284.
- BURNHAM, D. (December 24, 1969) Bronx Police Aim at Indoor Crime. The New York Times. The New York Times Company.
- BURR, I.W. (1970) Applied Statistical Methods. New York: Academic Press.
- CAMPBELL, D.T. (1969) Reforms as Experiments. The American Psychologist, 24, 409-429.
- CAMPBELL, D.T. and J.C. Stanley (1963) Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally.
- CANADIAN COMMITTEE ON CORRECTIONS (1969) Toward Unity: Criminal Justice and Corrections. Ottawa: Information Canada.
- CAVAN, R.C. and T.N. Ferdinand (1975) Juvenile Delinquency. Philadelphia: J.B. Lippincott.
- CHAIKEN, J.M., M.W. Lawless and K.A. Stevenson (1974) The Impact of Police Activity on Crime: Robberies on the New York City Subway System. New York: The New York City Rand Institute.
- CHAMBLISS, W.J. (1969) Crime and the Legal Process. New York: McGraw-Hill.

- CHAMBLISS, W.J. and R.B. Seidman (1971) Law, Order and Power. Reading, Mass.: Addison-Wesley.
- CHIMBOS, P. (1973) A Study of Breaking and Entering in "Northern City", Ontario. Canadian Journal of Criminology and Corrections, 15, 316-325.
- CHO, H.Y. (1974) Public Policy and Urban Crime. Cambridge, Mass.: Ballinger.
- CLASTER, D. (1967) Comparison of Risk Perception Between Delinquents and Non-Delinquents. Journal of Criminal Law, Criminology and Police Science, 58, 80-86.
- CLINARD, M.B. (1963) Sociology of Deviant Behavior. New York: Holt, Rinehart and Winston.
- CLOWARD, R.A. and L.E. Ohlin (1960) Delinquency and Opportunity. New York: The Free Press.
- COHEN, A.K. (1966) Deviance and Control. Englewood Cliffs, New Jersey: Prentice-Hall.
- CONKLIN, J.E. and E. Bittner (1973) Burglary in a Suburb. Criminology, 11, 206-232.
- COSER, L.A. (1956) The Functions of Social Conflict. New York: The Free Press.
- COSER, L.A. (1962) Some Functions of Deviant Behavior and Normative Flexibility. American Journal of Sociology, 68, 172-182.
- COSER, L.A. (1971) Masters of Sociological Thought. New York: Harcourt Brace Jovanovich.
- CRAWFORD, J.H. (1974) Number that Thieves Avoid. The Police Chief, 41, 26.
- CRESSEY, D.R. (1972) Criminal Organization: Its Elementary Forms. New York: Harper & Row.
- DAHRENDORF, R. (1964) Towards a Theory of Social Conflict in A. and E. Etzioni, Social Change. New York: Basic Books.
- DAVIES, C. (1970) Four Hundred Burglary Suspects. The Howard Journal of Penology and Crime Prevention, 13, 34-46.

- DAVIS, K.C. (1969) Discretionary Justice: A Preliminary Inquiry. Baton Rouge, La.: Louisiana State University.
- DECKER, J.F. (1972) Curbside Deterrence? An Analysis of the Effect of a Slug-Rejector Device, Coin-View Window and Warning Labels on Slug Usage in New York City Parking Meters. Criminology, 10, 127-142.
- DENTLER, R.A. and K.T. Erikson (1959) The Functions of Deviance in Groups. Social Problems, 7, 98-107.
- DURKHEIM, E. (1950) The Rules of Sociological Method. New York: The Free Press.
- DURKHEIM, E. (1956) The Division of Labor in Society. New York: The Free Press.
- ENGSTAD, P.A. (1975) Environmental Opportunities and the Ecology of Crime in R.A. Silverman and J.J. Teevan, Crime in Canadian Society. Toronto: Butterworth.
- ERIKSON, K.T. (1962) Notes on the Sociology of Deviance. Social Problems, 9, 307-314.
- ERIKSON, K.T. (1966) Wayward Puritans. New York: Wiley.
- FATTAH, E.A. (1972) A Study of the Deterrent Effect of Capital Punishment With Special Reference to the Canadian Situation. Ottawa: Information Canada.
- FERDINAND, T.N. (1967) The Criminal Patterns in Boston Since 1849. The American Journal of Sociology, 73, 84-99.
- FOONER, M. (September 2, 1966) Victim-Induced Criminality. Science, 153, 1080-1083.
- FRANKLIN, C.W. and A.P. Franklin (1976) Victimology Revisited: A Critique and Suggestions for Future Direction. Criminology, 14, 125-136.
- FREUD, A. (1946) The Ego and the Mechanisms of Defense. New York: International Universities Press.
- GARFINKEL, H. (1956) Conditions of Successful Degradation Ceremonies. American Journal of Sociology, 61, 420-424.
- GIBBONS, D.C. (1970) Delinquent Behavior. Englewood Cliffs, N.J.: Prentice-Hall.

- GIBBONS, D.C. and D.L. Garrity (1962) Definition and Analysis of Certain Criminal Types. The Journal of Criminal Law, Criminology and Police Science, 53, 27-35.
- GIBBS, J.P. (1975) Crime, Punishment and Deterrence. New York: Elsevier.
- GIRARD, P.J. (1960) Burglary Trends and Protection. The Journal of Criminal Law, Criminology and Police Science, 50, 511-518.
- GLASS, G.V., V.L. Willson and J.M. Gottman (1975) Design and Analysis of Time-Series Experiments. Boulder: Colorado Associated University Press.
- GOFFMAN, E. (1961) Asylums: Essays on the Social Situation of Mental Patients and Other Inmates. Garden City, N.Y.: Doubleday.
- GOLD, M. and D. Mann (1972) Delinquency as Defense. American Journal of Orthopsychiatry, 2, 463-479.
- GRENOUGH, J.L. (1974) Crime Prevention: A New Approach-- Environmental Psychology and Criminal Behavior. Journal of Police Science and Administration, 2, 339-343.
- HALL, G. (September 13-14, 1971) Washington, D.C.: Urban and Suburban Crime Interaction. Paper presented to the Metropolitan Washington, D.C. Crime Conference. New Carrollton, Md..
- HELLER, N.B., W.W. Stenzel, A.D. Gill, R.A. Kolde and S.R. Schirmerman (1975) Phase 1--Evaluation of Operation Identification. St. Louis, Missouri: The Institute for Public Program Analysis.
- JONES, E.T. (1973) Evaluating Everyday Policies: Police Activity and Crime Incidence. Urban Affairs Quarterly, 8, 267-279.
- JONES, E.T. (1974) The Impact of Crime Rate Changes on Police Protection Expenditures in American Cities. Criminology, 11, 516-524.
- KELLING, G.L., T. Pate, D. Dieckman and C.E. Brown (1974) The Kansas City Preventive Patrol Experiment: A Technical Report. Kansas City: The Police Foundation.

- KELLY, W. and N. Kelly (1976) Policing in Canada. Toronto: MacMillan.
- KINZER, J.G. (1974) An Unresolved Issue: Crime Displacement. The Police Chief, 41, 66-67.
- KITSUSE, J.L. (1962) Societal Reactions to Deviant Behavior: Problems of Theory and Method. Social Problems, 9, 248-260.
- LAFAVE, W.R. (1965) Arrest: The Decision to Take a Suspect into Custody. Boston: Little, Brown & Co.
- LATEEF, A.B. (1974) Helicopter Patrol in Law Enforcement--An Evaluation. Journal of Police Science and Administration, 2, 62-65.
- LAW REFORM COMMISSION OF CANADA (1974) The Principles of Sentencing and Dispositions. Ottawa: Information Canada.
- LEE, E.L. (1972) Operation Identification. The Police Chief, 39, 50-52.
- LEJINS, P. (1967) The Field of Prevention in W.E. Amos and C.F. Wellford, Delinquency Prevention: Theory and Practice. Englewood Cliffs, N.J.: Prentice-Hall.
- LEMERT, E.M. (1951) Social Pathology. New York: McGraw-Hill.
- LEMERT, E.M. (1953) An Isolation Closure Theory of Naive Check Forgery. Journal of Criminal Law and Criminology, 44, 298.
- LETTER, M.D. (1972) A Profile of Portland Target Crimes, 1972. Portland, Oregon: City-County Office of Justice Co-ordination and Planning.
- LEVINE, J.P. (1975) The Ineffectiveness of Adding Police to Prevent Crime. Public Policy, 23, 523-545.
- LIPTON, D., R. Martinson and J. Wilks (1975) The Effectiveness of Correctional Treatment. New York: Praeger.
- LUEDTKE, G. and Associates (1970) Crime and the Physical City: Neighbourhood Design Techniques for Crime Reduction. Washington, D.C.: National Institute of Law Enforcement and Criminal Justice.

- MACMAHON, B. and T.F. Pugh (1970) Epidemiology: Principles and Methods. Boston: Little, Brown & Co..
- MALLESON, N. (1959) Panic and Phobia: A Possible Method of Treatment. Lancet, 1, 225-227.
- MALTZ, M. (1972) Evaluation of Crime Control Programs. Washington, D.C.: U.S. Government Printing Office.
- MANSFIELD, R., L.C. Gould and J.Z. Namenwirth (1974) A Socioeconomic Model for the Prediction of Societal Rates of Property Theft. Social Forces, 32, 462-472.
- MATTICK, H.W. (1966) Unexamined Death: An Analysis of Capital Punishment. University of Chicago: Center for Studies in Criminal Justice.
- MATTICK, H.W., C.K. Olander, D.G. Baker and H.E. Schlegel (1974) An Evaluation of Operation Identification as Implemented in Illinois. Chicago: University of Illinois.
- MCKISSACK, I.J. (1973) The Peak Age for Property Crimes. The British Journal of Criminology, 13, 253-261.
- MILLS, F.C. (1955) Statistical Methods. New York: Holt, Rinehart and Winston.
- MOOD, A.M. and F.A. Graybill (1974) Introduction to the Theory of Statistics. New York: McGraw-Hill.
- NEPEAN PLANNING DEPARTMENT (1976) Special Studies. Township of Nepean, Ontario.
- NETER, J.A. and W. Wasserman (1966) Fundamental Statistics for Business and Economics. Boston: Allyn and Bacon.
- PENN, H.S. and Q.J. Hegner (1971) Criminal Histories of Burglary and Drug Offenders in Selected California Counties. Sacramento, Cal.: Bureau of Criminal Statistics.
- PENN, H.S. and Q.J. Hegner (1972) The Burglar in California: A Profile. Sacramento, Cal.: Bureau of Criminal Statistics.
- PODLESNY, J.A. (1973) Some Characteristics of Burglars, Larcenists, Assaultists and Drug Offenders in Wyoming. Washington, D.C.: U.S. Government Printing Office.

- PRESIDENT'S COMMISSION ON LAW ENFORCEMENT AND ADMINISTRATION OF JUSTICE (1967) Task Force Report: The Police. Washington, D.C.: U.S. Government Printing Office.
- PRESIDENT'S COMMISSION ON LAW ENFORCEMENT AND ADMINISTRATION OF JUSTICE (1967) The Challenge of Crime in a Free Society. Washington, D.C.: U.S. Government Printing Office.
- PRESS, S.J. (1971) Some Effects of an Increase in Police Manpower in the 20th Precinct of New York City. New York: The New York City Rand Institute.
- QUARANTELLI, E.L. and R.R. Dynes (1973) Organizations as Victims in American Mass Racial Disturbances: A Re-examination in I. Drapkin and E. Viano, Victimology: A New Focus. Lexington, Mass.: D.C. Heath, 121-142.
- RAAB, S. (December 2, 1974) Crime Rate Down in Perilous Areas, Up in Rest of City, The New York Times, 1&38.
- RADZINOWICZ, L. (1965) Ideology and Crime. New York: Columbia University Press.
- REPPETTO, T.A. (1973) Crime Control Management and the Police. Sloan Management Review, 14, 45-54.
- REPPETTO, T.A. (1974) Residential Crime. Cambridge, Mass.: Ballinger.
- REPPETTO, T.A. (1976) Crime Prevention and the Displacement Phenomenon. Crime and Delinquency, 22, 166-177.
- RICCIO, L.J. (1974) Direct Deterrence--An Analysis of the Effectiveness of Police Patrol and Other Crime Prevention Technologies. Journal of Criminal Justice, 2, 207-217.
- ROEBUCK, J.B. (1962) The Negro Addict as an Offender Type. The Journal of Criminal Law, Criminology and Police Science, 53, 36-43.
- ROEBUCK, J.B. (1967) Criminal Typology. Springfield, Ill.: Charles C. Thomas.
- RYKERT, W. (1971) Reduction of Criminal Opportunity. Pittsburgh, Pa.: National Crime Deterrence Council.
- SCARR, H.A. (1973) Patterns of Burglary. Washington, D.C.: U.S. Government Printing Office.

- SCHIMERMAN, S.R. (1974) Operation Identification: Project Evaluation Report. St. Louis, Missouri: Missouri Law Enforcement Assistance Council.
- SCHNEIDER, A.L. (1975) Use of Victimization Surveys for Evaluation and Planning: An Overview of the Portland, Oregon Studies: 1974. Paper presented at the 1975 LEAA Victimization Survey Seminar. Washington, D.C.: June 24, 1975.
- SCHUESSLER, K.F. (1952) The Deterrent Influence of the Death Penalty. Annals of the American Academy of Political and Social Science, 284, 54-62.
- SCHUR, E.M. (1971) Labeling Deviant Behavior: Its Sociological Implications. New York: Harper & Row.
- SCHUR, E.M. (1973) Radical Non-Intervention: Rethinking the Delinquency Problem. Englewood, Cliffs, N.J.: Prentice-Hall.
- SHANAHAN, D.J. (1975) Patrol Administration. Boston: Holbrook Press.
- SHAW, C.R. and H. McKay (1942) Juvenile Delinquency and Urban Areas. Chicago: University of Chicago Press.
- SHOVER, N. (1972) Structure and Careers in Burglary. The Journal of Criminal Law, Criminology and Police Science, 63, 540-549.
- SIMMEL, G. (1956) Conflict and the Web of Group Relations, translated by K.H. Wolff and R. Bendix. New York: The Free Press.
- SKOLNICK, J.H. (1966) Justice Without Trial. New York: John Wiley & Sons.
- SUTHERLAND, E.H. (1937) The Professional Thief. Chicago: University of Chicago Press.
- SUTHERLAND, E.H. (1960) Principles of Criminology. Philadelphia: J.B. Lippincott.
- SYKES, G.M. (1958) The Society of Captives. Princeton, N.J.: Princeton University Press.
- TANNENBAUM, F. (1938) Crime and the Community. Boston: Ginn.

- TAYLOR, I., P. Walton and J. Young (1973) The New Criminology: For a Social Theory of Deviance. London: Routledge and Kegan Paul.
- THOMAS, C.W. and J.S. Williams (1974) Deterrence of Crime: A Reformulation of Chambliss' Typology of Deterrence. Williamsburg, Va.: Metropolitan Criminal Justice Center.
- TITTLE, C.R. and C.H. Logan (1973) Sanctions and Deviance: Evidence and Remaining Questions. Law and Society Review, 7, 371-392.
- TITTLE, C.R. and A.R. Rowe (1974) Certainty of Arrest and Crime Rates: A Further Test of the Deterrence Hypothesis. Social Forces, 52, 455-462.
- TURNER, S. (1969) Delinquency and Distance in T. Sellin and M.E. Wolfgang, Delinquency: Selected Studies. New York: John Wiley & Sons.
- TYRPAK, S. (1975) Newark High Impact Anti-Crime Program: Street Lighting Project Interim Evaluation Report. Newark, N.J.: Office of Criminal Justice Planning.
- U.S. DEPARTMENT OF JUSTICE (1974) Crimes and Victims: A Report on the Dayton-San Jose Pilot Survey of Victimization. Washington, D.C.: LEAA, National Criminal Justice Information and Statistics Service.
- VELDE, R.W. (1971) The Mobility of Offenders. Paper presented to the Metropolitan Washington, D.C. Crime Conference. New Carrollton, Md.: September 13, 1971.
- VON HENTIG, H. (1967) The Criminal and his Victim. New York: Archon.
- WALDO, G. and T. Chiricos (1972) Perceived Penal Sanctions and Self-Reported Criminality: A Neglected Approach to Deterrence Research. Social Problems, 19, 522-540.
- WALDT, L.G. (1975) Residential Burglary Prevention Program--Final Report. Seattle: King County Department of Public Safety.
- WALLER, I. and N. Okihiro (1974) Burglary and the Public: A Methodology and Some Early Findings. Toronto: University of Toronto.

- WALSH, M. and D. Chappell (1974) Operational Parameters in the Stolen Property System. Journal of Criminal Justice, 2, 113-129.
- WARREN, M.A. (1971) Preventing Burglaries. FBI Law Enforcement Bulletin, 40, 6-10, 25-26.
- WILSON, J.Q. (1968) The Police and the Delinquent in Two Cities in S. Wheeler, Controlling Delinquents. New York: John Wiley & Sons.
- WRIGHT, D.B. (1959) Duties of a Prosecutor. Connecticut Bar Journal, 33, 293.
- WRONG, D.H. (1961) The Oversocialized Conception of Man in Modern Sociology. American Sociological Review, 26, 183-193.
- ZILBOORG, G. (1954) The Psychology of the Criminal Act and its Punishment. New York: Harcourt and Brace.
- ZIMRING, F.E. (1971) Perspectives on Deterrence. Center for Studies on Crime and Delinquency, National Institute of Mental Health. Washington, D.C.: U.S. Government Printing Office.

## Abstract

The phenomenon of crime displacement as related to Operation-Identification, a police-initiated preventive program, was explored in three of its manifestations-- spatial, target and tactical. According to this hypothesis, criminal activity merely shifts in some dimension in response to preventive efforts. Statistically significant evidence was found for spatial displacement, the relocation of criminal activity from program participants to non-participants. Such support was not obtained in the study of target displacement, the shifting of criminal activity from residences to businesses; nor for tactical displacement, the shifting of markable to non-markable objects stolen. However, although the specified level of statistical significance was not obtained, changes did occur in the expected direction for these latter two components of the study.