Utilization of Criminal Justice Statistics Project

ANALYTIC REPORT 18

CRIME-SPECIFIC ANALYSIS: AN EMPIRICAL EXAMINATION OF BURGLARY OFFENSE AND OFFENDER CHARACTERISTICS

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FOREWORD

The Utilization of Criminal Justice Statistics Project was funded initially in 1972 by the National Criminal Justice Information and Statistics Service of the Law Enforcement Assistance Administration. One primary aim of the project is the production of annual editions of the Sourcebook of Criminal Justice Statistics, a compilation of available nationwide criminal justice statistical data. A second aim has been and continues to be an examination of the utility that a variety of criminal justice statistical data bases have for addressing questions of practical and theoretical interest in the field.

One product of that examination is a series of analytic reports, of which this volume is one. These reports, written by research staff members of the Utilization of Criminal Justice Statistics Project, all have a common theme: the discussion of a central criminal justice topic using an exemplary or innovative criminal justice data base. Each report in the series not only discusses substantive findings in regard to particular issues, but also considers the qualities and limitations of the data, as well as techniques and problems of analysis, in relation to the substantive findings.

At a time when criminal justice statistics development is extensive, and often expensive, these analytic reports focus attention on

one often overlooked function of criminal justice statistics -- the analysis of current issues and questions based on available data. In fact, the "Utilization" issue is perhaps as important as any in the area of criminal justice statistics. It often happens that data are collected -- usually at great expense -- without subsequent efforts to utilize such data to address the pressing problems that confront criminal justice. This series of Analytic Reports explores the problems and prospects inherent in the application of various sources of criminal justice statistical data to issues of interest and concern to agency personnel, planners, researchers, and the public alike.

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PREFACE

This is the third of three reports focusing upon various characteristics and patterns associated with the crime of burglary. The overall objectives of the series are basically threefold: first, to examine the characteristics of reported burglary incidents and their interrelationship; second, to explore both the social and legal characteristics of those individuals apprehended for the crime of burglary; and third, to specify the extent to which various offense and offender characteristics are related. The first report provided an extended discussion of the data base utilized throughout the analysis and reviewed relevant research findings pertaining to burglary incidents. Noting the limitations of much research dealing with the crime of burglary, that monograph undertook a detailed analysis of various incident characteristics including such factors as the type of structure burglarized, the amount of property stolen, methods used to gain entry, and the like. This analytic trend was continued in the second monograph which examined such factors as the age, race, sex, and previous criminal history of those arrested for the commission of burglary offenses. Analysis also focused upon initial police decisions to hold or dismiss cases prior to trial.

Findings reported in these two reports lent support to previous research focusing on the crime of burglary. That is, relationships among incident characteristics were discovered to be quite similar to those found in other studies, whether utilizing official data or victim survey

techniques. Distinct relationships were evident for both offense and offender characteristics, indicating that many of the correlates of burglary are not randomly distributed but rather show evidence of being patterned events.

Although research on violent and personal crime has demonstrated the existence of patterned relationships among offense and offender characteristics in the violent crimes of homicide, rape, and robbery, with few exceptions different types of burglary offenders have not been correlated with distinct types of burglary incidents. Certain offense/offender relationships have been found, but overall patterns were not distinctive. This report examines the empirical link between offense and offender characteristics in an attempt to determine whether and to what extent certain types of burglary offenses were committed by certain types of offenders.

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CRIME-SPECIFIC ANALYSIS: AN EMPIRICAL EXAMINATION OF BURGLARY OFFENSE AND OFFENDER CHARACTERISTICS

A primary objective of this report is to examine the relationship between burglary incidents and those individuals apprehended for their commission. In other words, are certain kinds of burglaries committed by certain kinds of burglars? The research question and subsequent findings represent the culmination of an analytic trend begun in two earlier reports (Pope, 1976a, 1976b), where it was shown, for example, that arrested juvenile offenders (those 17 years of age or younger) tended to commit burglaries within 1 mile of their residences and in the company of others, and that arrested female and black/other offenders also exhibited distinctive traits; females were frequently involved in group burglaries and were most likely to commit offenses in areas other than those in which they resided.

A number of burglary incident characteristics were also found to be related. For example, residential burglaries were more likely than non-residential burglaries to involve financial loss and to occur during the daylight hours and on weekends. These findings illustrate that the characteristics of burglary offenders as well as burglary incidents exhibit certain patterns.

Our knowledge of burglary is incomplete, however, without knowing how or whether these patterns intersect. That is, by knowing something about burglary incidents, do we also know something about those offenders who were

involved in the incidents and vice versa?

Before proceeding with our analysis of patterned relationships in the commission of burglary, a few preliminary remarks are in order. As noted above, this monograph is a continuation of two previous works focusing on incident and offender characteristics in burglary. While the data base is briefly described in this report, a more detailed discussion can be found in the two earlier monographs. Further, the procedures utilized to analyze the data herein are at times quite complex and mathematically sophisticated. We have attempted to limit the complexity of the presentation by minimizing the technical discussion and briefly summarizing the procedures. Emphasis is focused on the conceptual rather than technical aspects of this undertaking. To ease the reader's burden, a summary of the major findings of the three reports begins on page 57.

Interrelationship Among Crime Characteristics

As Wolfgang observed in his classic study of homicide,

> Most previous research has examined either the victim or the offender. In the present work, analysis has been made of both victims and offenders, separately, as distinct units, but also as mutually interacting participants...It is one type of analysis to consider victims as a social group and offenders as another social group, it is quite a different and more refined type of analysis to consider specific victim-offender relationships, and to find race, sex, age, and other patterns among them (1958:319).

By examining these victim-offender patterns, Wolfgang contributed both substantive and theoretical knowledge regarding homicide and other violent crimes. Although homicide was generally found to be an unplanned act, a number of empirical uniformities were noted. In two-thirds of the cases analyzed, alcohol was present in the victim, the offender, or both (Wolfgang, 1958:322). Wives were substantially more likely to be slain by their husbands than vice versa (Wolfgang, 1958:325). Approximately one-fourth of all homicides were found to be victim precipitated in that the victim had some hand in his own death (-- for example, by initiating an altercation) (Wolfgang, 1958:325). Further, certain characteristics were found to be associated with victim precipitated homicides, leading Wolfgang to conclude:

> The roles and the characteristics of the victim and the offender are reversed, and the victim

> assumes the role of determinant. This study has been one of the first to provide significant empirical data to support von Hentig's assertions about the contribution of the victim to the genesis of his own victimization (1958:326).

The characteristics of those individuals predominantly involved in the killing of others (e.g.,) black males between the ages of 20 (and) 24 -- laid the foundation for Wolfgang's theory regarding the existence of a subculture of violence. Those persons were hypothesized to share certain values and norms that conflict with those of the larger culture, so that those forces leading toward an eventual homicide expected and normal reactions by members of the subculture. For example, whereas persons internalizing the norms of the larger culture may simply shrug off an insult, subcultural members would be more likely to respond with physical aggression. In an examination of rape events in Philadelphia, Amir also found the existence of significant patterns in the victim-offender relationship. Again, rape offenders exhibited distinct characteristics in relation to those incidents in which they were involved. These findings (lent) further support to the subculture of violence theory. As Amir stated, "Of course, it is always people who commit rape, but the rate of rape is conditioned by the cultural norms and social organization or disorganization of the group to which they belong" (1971:320).

Without (such) analyses of both incident and offender characteristics, much less would be known regarding homicide and rape events. Further, many erroneous theories concerning such acts -- for example, that blacks disproportionately kill or rape white victims -- would still be accepted

by many as fact. Without the empirical analysis initiated by Wolfgang, knowledge (about) and implications of victim precipitated crime would still be untested conjecture, as would the existence of a subculture of violence. More recently, Normandeau's examination of interrelated patterns in robbery has suggested a refinement of the subculture of violence hypothesis. Normandeau, notes:

> There is no trace among the arrested robbers (Negroes or whites) in our study of a large class of robbers with long previous records of violence. They are not a special class but are primarily thieves who occasionally, though rather rarely, use force to achieve their objectives. The display of violence in this context is on the whole an isolated episode (1969:309).

Therefore, robbery offenders may be better characterized as falling into a subculture of theft rather than of violence.

Aside from the theoretical knowledge garnered from studies such as those noted above, practical implications are also apparent. If violent offenders are somehow conditioned or molded by their subcultural attachments, then treatment or rehabilitation programs focusing on the individual offender are likely to prove futile if environment is not considered. If an individualized treatment program is applied to such offenders, either in an institution or other setting, any rehabilitative effects are likely to be nullified when he must once again adapt to his subcultural environment in order to survive. In an article focusing on classification for treatment purposes, Warren notes of the subcultural identifier:

> The essential characteristics of this type of offender is that the individual, although developing "normally" in most respects, has internalized the value system of a deviant subculture (1971:253).

She then recommends two levels of treatment, one aimed at stopping the antisocial behavior and the other geared toward changing the content of the offender's value system. The latter approach might involve a broadening of the offender's self image by providing a strong identity model representing the values of the larger culture. Regardless of the merits of such an approach, the point is simply that empirical findings may provide the foundation for a program of planned change.

Unfortunately, analysis of the patterning of property offenses has lagged far behind similar research on violent and personal crimes. As noted in earlier monographs, little information currently exists concerning to the characteristics of burglary offenders, especially as they relate to burglary incidents. While Reppetto (1974) constructed typological profiles of offender characteristics, these were based primarily on personal interviews with adjudicated burglars. Further, these typologies were formed on singular defining characteristics and were found to overlap substantially. Scarr's (1973) typologies are even less compelling, being based upon impressions gained from criminal justice functionaries. In neither case are the distinctions made among burglary characteristics empirically grounded. Thus, answers to many questions regarding the nature of burglary are still unclear.

The findings reported below represent an effort to provide some of these answers by undertaking an empirical analysis of the correlates of burglary (offenses and offenders) and their patterning.

Analytic Format

The data utilized to examine the patterning of offense and offender characteristics were derived from a crime-specific burglary program conducted by the California Council on Crime and Justice. Burglary data were compiled in six separate police jurisdictions[1] and covered a 1 year period from April 1972 to May 1973. Information was provided on both incident characteristics (type of target, time of day, method of entry, etc.) and (on offenders) apprehended during the course of the project. Overall, the data contain much more information on both offenses and offenders than that normally appended to police incident report forms, thus providing a solid basis for the present undertaking.[2]

While it might have been possible to discern interrelated patterns by cross-tabulating each offense variable by each offender variable, such a process is often inefficient and wasteful of information. The use of bivariate cross-tabulation, for example, would effectively preclude the simultaneous consideration of numerous variables (that may interact with one another, however, as our earlier analysis has indicated, some variables evidence a highly interrelated structure. Similarly, multiple regression analysis restricts the analyst to a single dependent variable for each solution. In light of (the limitations of many analytic techniques such as those noted above,) a viable alternative for maximizing the amount of information in the data would be to establish dimensions

(subsets of interrelated variables) of both offense and offender characteristics and then classify various cases (entities) on the basis of these dimensions. The rationale behind this procedure is actually quite simple. The process begins by forming separate offense and offender dimensions of mutually colinear variables -- those that are highly correlated. Next, those cases exhibiting similar patterns across these dimensions are grouped together. The end result is an empirical typology of both offenses and offenders which can then be cross-classified to assess the degree to which the various patterns are related.

A hypothetical example may help clarify the process. Consider the relationship between two possible offense and offender types. Offense type A consists of daytime burglaries of residences in which the value of the property stolen was minor and no force was used to gain entry. Type B includes nighttime burglaries of commercial establishments in which entry was gained via the roof and the amount of loss was substantial. Offense type A may be considered a burglary of opportunity, whereas type B shows evidence of sophistication and planning. Individuals subsumed under offender type A may be black males with prior drug arrests who were on parole at the time of their arrest. Offender type B may include white males with a history of prior burglary arrests who work in groups. Offenders classified under type A evidence a drug-survival orientation, while (type B) offenders

exhibit qualities of the semi-professional burglar. The labels attached to each type are, of course, provisional.

Cross-classification of the types would test the accuracy of the labels. For example, if "burglaries of opportunity" are committed by those evidencing characteristics of "drug survival" and few "semi-professional burglars" are found to commit such offenses (being more likely to commit planned burglaries in which profits are relatively lucrative), then the conceptualizations of the types will have survived an important test. If, on the other hand, the types have no predictive validity, then the theory implied in conceptualization of the types is falsified. Of course, in practice, types are first constructed empirically, and conceptualization occurs only after predictive validity has been established (or in the process of determining the utility of the types). If the types prove to be non-predictive, conceptual or theoretical extensions are doomed a·priori.

Methods of Dimensional Analysis

Since the first task in the process outlined above is to establish empirical dimensions of mutually colinear variables on which cases may later be typed, cluster analysis would seem to be an appropriate method for accomplishing this objective.[3] While the general technique of clustering originated in the early thirties, computational difficulties coupled with the lack of digital computers hampered its development. Within the last 20 years, however, a

multitude of divergent clustering procedures have proliferated in such diverse areas as psychology, anthropology and biology. At the present time, therefore, a researcher desiring to apply clustering techniques to his data has a wide variety of methods from which to choose.

The general method of clustering utilized in this study was developed by Tryon and Bailey (1970) under the name of "cumulative communality key cluster analysis." As Tryon and Bailey note, "Cluster analysis is the general logic, formulated as a procedure, by which we objectively group together entities on the basis of their similarities and differences" (1970:1). The method extracts clusters of variables (V-analysis) or objects (O-analysis) that are as general as possible and in which those entities making up a cluster are highly intercorrelated. The process defines clusters that are as independent of each other as possible. By this method, more of the information contained in the data (can be) utilized than in prior crime-specific studies that relied almost exclusively on tabular analysis. Rather than considering only two or three variables at one time, all relevant data were explored and homogeneous groupings of attributes extracted.

Incident Data

Table 1 provides a listing of those incident characteristic variables entered into the clustering routine. These data represent 1,196 incidents for which corresponding offender information was also

Table 1 Distribution of Incident Characteristics for Those Burglaries Cleared by Arrest (N = 1,196)

Incident Characteristics[a]	Case Distribution
Weekday	69% (777)
Weekend	31% (355)
Day	43% (437)
Night	57% (570)
Residential	61% (729)
Non-Residential	39% (467)
Door	61% (678)
Window	39% (439)
No Force	44% (506)
Force	56% (651)
Attempted	5% (62)
Completed	95% (1,134)
No Tool	47% (539)
Tool	53% (606)
No Loss	37% (368)
Loss	63% (622)

Table 1 Distribution of Incident Characteristics for Those Burglaries Cleared by Arrest (N = 1,196) (Continued)

Incident Characteristics	Case Distribution
No Damage	46% (538)
Damage	54% (626)
Money Or Hard Saleable Items	65% (577)
Other	35% (318)
Return Of Victim	51% (606)
Other	49% (587)
Street Lights Within 100 Feet	68% (794)
No Street Lights Within 100 Feet	32% (378)
Point Of Entry Lighted	35% (405)
Point Of Entry Not Lighted	65% (751)
Point Of Entry Visible	65% (757)
Point Of Entry Not Visible	35% (400)
Premises Not Alarmed	84% (1,008)
Premises Alarmed	16% (188)
Alarm Operated	49% (91)
Alarm Did Not Operate	51% (94)

Table 1 Distribution of Incident Characteristics for Those Burglaries Cleared by Arrest (N = 1,196) (Continued)

Incident Characteristics	Case Distribution
Security Inspection	14% (161)
No Security Inspection	86% (1,013)
Northern California	37% (445)
Southern California	63% (751)
Dog Present	8% (59)
Dog Not Present	92% (678)
Identifying Serial Numbers	9% (50)
No Identifying Serial Numbers	91% (672)

[a]The reader is referred to the first report for a detailed discussion of these incident characteristic variables and the procedures utilized to arrive at each dichotomy (Pope, 1976a).

available.[4] In the first report the marginal distributions of all 8,137 burglary incident variables were examined and discussed. Here, we are only concerned with those incidents which were cleared by the arrest of an offender, thus allowing us to examine offense/offender patterns. Table 1 shows each attribute and the percent and number of cases falling into each mutually exclusive category for those incidents cleared by arrest. Overall, the distribution of cases among these variables is quite similar to those observed for the entire data set (See Pope, 1976a). For example, attempted burglaries account for 5 percent of all reported burglaries and 5 percent of those cleared by arrest. Similarly, 44 percent of all reported burglaries and 43 percent of those cleared by arrest occurred during the daylight hours.

However, as the earlier predictive attribute analysis (PAA) for cleared and not cleared cases graphically demonstrated, whether or not a financial loss occurred was substantially related to the probability of the case being cleared (Pope, 1976a). Those burglaries resulting in no financial loss were substantially more likely to be cleared (whether by the arrest of an offender or other means) than those burglaries resulting in a financial loss. While 18 percent of all reported burglary incidents evidenced no financial loss, 37 percent of those incidents cleared by arrest resulted in no financial losses. More residential than non-residential structures were included in those cases cleared by arrest. As Table 1

demonstrates, 61 percent of all residential burglaries were cleared by the arrest of an offender compared with 39 percent of all non-residential structures. Corresponding figures for the total data set were 70 percent and 30 percent, respectively. Other differences regarding those cases cleared by arrest include a greater percentage of burglaries in which no force was used to gain entrance, no tools were utilized, and no property damage resulted.

Table 2 presents the distribution of burglary incidents by census characteristics, for those cases cleared by arrest. As for the total data set, most of the incident data fall into the lower education and income quartiles, including those areas with a higher percentage of black population. Approximately 65 percent of the incidents cleared by arrest fall into the two lower median income categories compared with 35 percent in the two higher categories. Similarly, for median education completed, 7 percent of the incidents are included in the highest education category compared with 36 percent in the lowest education category. Overall, Table 2 reveals a greater percentage of cases distributed in the higher income and educational categories when compared with similar data for the full supply of cases (8,137) (Pope, 197 a).

Results of the Cluster Analysis[5]

V-analysis of these data resulted in three empirically and conceptually distinct offense dimensions consisting of the use of force

Table 2 Distribution of Census Characteristics for Those Burglaries Cleared by Arrest

Census Characteristic	Case Distribution[a]				Total[b]
	Low	Low-Medium	High-Medium	High	
Median Family Income	33.5% (396)	31.6% (374)	23.4% (277)	11.4% (135)	99.9% (1,182)
Percent of Females in the Labor Force	14.8% (175)	35.6% (421)	31.8% (376)	17.8% (210)	100.0% (1,182)
Median Educational Level	35.5% (403)	34.8% (395)	22.6% (256)	7.1% (80)	100.0% (1,134)
Percent of Black Population	16.0% (189)	27.5% (325)	24.9% (294)	31.6% (373)	100.0% (1,181)
Percent of Homes Owner-Occupied	27.3% (315)	28.3% (326)	26.1% (301)	18.2% (210)	99.9% (1,152)

[a] By quartiles.

[b] Totals may not sum to 100 percent due to rounding.

amount of force used

to enter a premise, the census characteristics of the target area, and the type of structure burglarized.[6] Since the incident data used here included only those cases cleared by arrest, the total 8,137 reported burglary incidents were also cluster analyzed.[7] The data were randomly divided into two groups and input into the cluster program. The result indicated three dimensions conceptually similar to those found for incident cases cleared by arrest. Thus, dimensions of burglary incidents were found to be quite constant across all data, whether cleared by arrest or not. Similarly, the same three dimensions were reproduced in both split-half groups, thus, giving added credence to the overall reliability of the cluster solution.

For each case a composite cluster score[8] was computed on each offense dimension -- labeled FORCE, AREA, and STRUCTURE. Scores were then grouped into similar profile patterns thereby forming distinct types. This process -- known as object cluster analysis, (or O-analysis -- resulted in seven distinct, mutually exclusive incident types (I-types) as indicated in Table 3. Thus, I-type 1 includes those cases characterized by no force used to gain entry, relatively disadvantaged social areas, and non-residential targets. In contrast, I-type 6 includes those burglaries occurring in socially advantaged target areas in which force was used to enter residential structures. Offense type 7 contained the highest percentage of cases (32 percent) and offense type 2 the lowest (4 percent). Homogeneity estimates -- which simply measure the tightness of the profiles of the objects in each O-type, were generally quite high indicating that the cases falling in each type exhibited very similar profile patterns. The closer the members in each profile approach the value 1.000, the more alike they are. A zero value would indicate that those objects in each core O-type are completely unalike in their score profiles. In other words, their score profiles are randomly distrib

Table 3 Cluster Analysis Solution for Burglary Incident Characteristics

Incident Type	Number of Burglary Incidents	Percent of Burglary Incidents	Homogeneity Across Attribute Dimensions	Incident Cluster Dimensions		
				Force	Area	Structure
I-Type 1	89	7.95	.9000	Low	Low	High
I-Type 2	48	4.29	.7788	Low	High	Low
I-Type 3	194	17.34	.8728	Low	High	High
I-Type 4	77	6.88	.8373	High	Low	Low
I-Type 5	277	24.75	.8529	High	Low	High
I-Type 6	79	7.06	.8704	High	High	Low
I-Type 7	355	31.72	.8572	High	High	High

Offender variables were next entered into the variable cluster routine. These were:

1. Northern California/Southern California
2. Seventeen years and under/18 years and older
3. RACE White/black-other
4. SEX Male/female
5. ARREST Reasonable cause/other
6. PAL Single offender burglary/group offender burglary
7. TRAVEL One mile or less/greater than 1 mile
8. PDISP Released by the police/held for trial
9. PRIORS No prior record (of any kind)/prior record
10. STATUS Not under supervision/under supervision
11. DRUGS No prior drug record/prior drug record
12. BURGR No prior burglary record/prior burglary record

Here, only one dimension of mutually colinear offender variables was derived.[9] This dimension reflected the overall previous criminal record of apprehended burglary offenders In addition to this dimension, two conceptually important single variables were also included as dimensions. On the basis of previous analysis, (an arrestee's race) and (the number of crime partners involved in the incident) were selected as the two variables most likely to discriminate among cases in the later O-analysis. The three offender dimensions thus consisted of the criminal history of burglary offenders , their race (whether white or black/other), and whether single or multiple offenders were involved

O-analysis of the data resulted in eight distinct criminal types (C-types). C-type 1, for example, included those burglary offenders with no prior record who were white and worked alone, while C-type 8 subsumed black/other offenders with prior records who worked in groups. As noted in Table 4, overall homogeneity coefficients were quite high, indicating that cases within each of the C-types displayed quite similar patterns across the three offender dimensions.

By using the above cluster analytic methods, we were able to reduce a large body of burglary data to a more manageable form, thus simplifying our analytic task. Aside from the large number of variables, most of which were nominally scaled, it was quite difficult to determine dependent and independent variable relationships. That is, for most of the incident characteristics it was not theoretically meaningful to make a differentiation regarding whether the variables were dependent or independent. The temporal order for many of these variables, for example, would be quite difficult to determine. Cluster analysis enabled us to reduce the complexity of the data by creating sets of multi-dimensioned nominal variables and then determining how cases distributed themselves among those categories or sets.

Since the resulting I (incident) and C (criminal) types were derived from a matched data set, it is possible to include each type as a new variable in the analysis. Using these respective types as variables, a bivariate cross-tabulation can be produced that, aside from being

Table 4 Cluster Analysis Solution for Burglary Offender Characteristics

Criminal Type	Number of Burglary Offenders	Percent of Burglary Offenders	Homogeneity Across Attribute Dimensions	Offender Cluster Dimensions		
				Record	Race	Crime Partners
C-Type 1	122	10.20	.9787	Low	Low	Low
C-Type 2	410	34.28	.9863	Low	Low	High
C-Type 3	58	4.85	.9727	Low	High	Low
C-Type 4	190	15.89	.9819	Low	High	High
C-Type 5	116	9.70	.9682	High	Low	Low
C-Type 6	147	12.29	.9651	High	Low	High
C-Type 7	63	5.27	.9620	High	High	Low
C-Type 8	90	7.52	.9676	High	High	High

conceptually clear, includes many of the complex relationships found among many variables in the original data set. By cross-tabulating these offense and offender types it is possible to determine the extent to which characteristics of burglary are related.

Findings

The analytic findings reported in this section begin with an examination of the relationship between the offense and offender types that were derived above.[10] Tabular results presented here show empirically whether and to what extent composite offense characteristics are related to offender characteristics. The remainder of this section is devoted to an analysis of the relationship between the cluster types and other incident characteristic variables such as the amount of financial loss and type of property stolen -- variables which were excluded from the typing process. Singular attribute variables such as age, race, and sex are also examined with respect to the remaining incidents and offender variables. Overall, these findings provide a comprehensive picture of patterned relationships in the burglary enterprise.

Table 5 presents the joint relationship of the seven offense I-Types and the eight offender C-Types. Both row and column percentages are shown in order to assess the degree to which these types are interrelated. Cells of particular interest are those row and column percents that exceed the respective marginal percents (thereby indicating a relationship between types.) For example, offender types 4, 7 and 8 are moderately associated with offense type 4. That is, those burglary offenses that occurred in socially disadvantaged census areas and in which force was used to gain entry to residential structures were characteristic of three groups of offenders -- those black/other offenders with no prior records who work in groups, those black/other offenders with prior records who work alone, and those black/other offenders with prior records who work in groups. The strongest relationship is observed for the first offender group (C-Type 4) since the row percentage (25 percent) exceeds the column total (16 percent) by 9 percentage points. Th latter group of offenders -- (those who are black/other, have no priors, and work in groups) -- is also moderately associated with two other types of burglary offenses. These include non-residential burglaries in low status areas in which force

Table 5 Cross-Tabulation of Offense Type with Offender Type

Offense Types	Offender Types								
	C-Type 1 No Criminal History White Single Offender	C-Type 2 No Criminal History White Multiple Offenders	C-Type 3 No Criminal History Black Single Offender	C-Type 4 No Criminal History Black Multiple Offenders	C-Type 5 Criminal History White Single Offender	C-Type 6 Criminal History White Multiple Offenders	C-Type 7 Criminal History Black Single Offender	C-Type 8 Criminal History Black Multiple Offenders	Row Total
I-Type 1 Low Force Low Status Area Non-Residential Structures	9%[a] 7%[b] (8)	33% 7% (29)	9% 15% (8)	23% 11% (20)	5% 4% (4)	10% 7% (9)	8% 12% (7)	5% 5% (4)	8% (89)
I-Type 2 Low Force High Status Area Residential Structures	13% 5% (6)	35% 4% (17)	4% 4% (2)	21% 6% (10)	2% 1% (1)	10% 4% (5)	4% 4% (2)	10% 6% (5)	4% (48)
I-Type 3 Low Force High Status Area Non-Residential Structures	9% 16% (18)	41% 21% (80)	3% 9% (5)	20% 22% (39)	9% 17% (18)	10% 14% (20)	4% 12% (7)	4% 8% (7)	17% (194)
I-Type 4 High Force Low Status Area Residential Structures	7% 4% (5)	18% 4% (14)	4% 6% (3)	25% 11% (19)	10% 8% (8)	16% 9% (12)	8% 11% (6)	13% 12% (10)	7% (77)
I-Type 5 High Force Low Status Area Non-Residential Structures	12% 28% (32)	28% 20% (78)	7% 33% (18)	20% 31% (54)	10% 27% (28)	9% 19% (26)	6% 28% (16)	9% 29% (25)	25% (277)
I-Type 6 High Force High Status Area Residential Structures	9% 6% (7)	34% 7% (27)	5% 7% (4)	4% 2% (3)	10% 8% (8)	22% 12% (17)	6% 9% (5)	10% 9% (8)	7% (79)
I-Type 7 High Force High Status Area Non-Residential Structures	11% 34% (39)	41% 37% (145)	4% 26% (14)	8% 17% (30)	10% 36% (37)	14% 36% (50)	4% 25% (14)	8% 31% (27)	32% (356)
Total	10% (115)	35% (390)	5% (54)	16% (175)	9% (104)	12% (139)	5% 57%	8% (86)	100% (1,120)

[a] Refers to the row percent.

[b] Refers to the column percent.

is used to gain entry (I-Type 5) and non-residential burglaries in low status areas in which little or no force is used to gain entry (I-Type 1).

Other interesting relationships are also observed in Table 5. Those white offenders with no prior record who work in groups (C-Type 2) tend to burglarize non-residential structures in high status social areas, yet these burglaries vary with respect to the degree of force used to gain entry -- either minor or substantial force (I-Type 3 and I-Type 7). Those black/other offenders with no previous record who work in groups (C-Type 4) tend to commit burglaries in socially disadvantaged areas hitting residential and non-residential structures with either force or no force to gain entry (I-Types 1, 4, and 5).

It would seem then that those offenders sharing the characteristics of C-Type 4 are not discriminating in the types of structures they burglarize or in the manner in which these burglaries are committed (either forcible or non-forcible entries). Thus, for those black/other offenders with no prior record who work in groups, burglary (might) be more a matter of opportunity than of planned attack. A contrast is provided by those black/other offenders who work either singly or in groups but who have a previous criminal history (C-Types 7 and 8). Those offenders are most likely to commit forcible entry burglaries of residential structures located in disadvantaged social areas (I-Type 4). Hence, these latter offenders (are quite possibly) making more rational choices concerning the types of burglaries they commit. This line of reasoning, however, must

be considered speculative in light of the small number of cases in certain cells and because cell percents, although higher than average, could not be considered substantial.

It is interesting to note that offense I-Type 2 (low force, high status areas and residential structures) is essentially unrelated to any of the eight offender C-Types. That is, offenders included in each of the separate C-Types are about equally likely to burglarize structures evidencing such characteristics. These targets may provide the burglar with relatively lucrative profits for a minimal expenditure of energy. A similar finding is noted regarding both offender C-Types 1 and 5; white offenders who work alone, regardless of whether or not they have a previous criminal record, are about equally likely to commit burglaries subsumed under the seven offense types. No pattern appears here, indicating that lone white offenders may not be specializing in any particular type of burglary.

The overall results displayed in Table 5 are informative but not as substantial as might be expected. If cell row or column percents that exceed the marginals by 10 percentage points were accepted as a criterion for establishing a substantial relationship,[11] only one relationship could then be considered substantial: those white offenders with previous criminal histories who work in groups (C-Type 6) tend to use force to burglarize residential structures in socially advantaged target areas (I-Type 6). The row percentage for that cell is 22 percent compared with 12 percent for the column total -- a difference of 10 percentage points.

Although some interesting patterns were suggested, the cross-tabulation of offense and offender types evidenced no predictive utility from one set to the other. That is, on the basis of these findings one must conclude that the eight offender types have no overall interrelated pattern with respect to the seven offense types. Nonetheless, it may prove profitable to cite some of those relationships that were suggested by the data in Table 5. Black/other offenders, for example, were consistently found to commit burglaries in areas that were socially disadvantaged with respect to the four census indicators. White offenders, on the other hand, tended to commit burglaries in more prosperous target areas. Generally, those offenders who evidenced little or no previous exposure to the criminal justice system tended to favor non-residential structures, but those with prior records tended to choose residential structures. Those white offenders who worked singly, regardless of whether or not they exhibited a previous record, were not associated with any particular type of burglary in that they were equally likely to be involved in each of the seven types of burglary offenses.

Type of Offender and Type of Property Stolen

In an effort to examine further the underlying nature of burglary, the offense and offender types were cross-tabulated in turn with type of property stolen and the amount of money taken during the burglary. Table 6 provides information regarding the

Table 6 Type of Offender, by Type of Property Stolen

	Type of Property Stolen							
	Money	Jewelry/ Furs	Soft Saleable Items[a]	Hard Saleable Items[b]	Drugs	Firearms	Items From Safe	Row Total
C-Type 1								
No Criminal History	41%[c]	4%	12%	38%	3%	3%	0%	
White	21%[d]	6%	12%	7%	17%	4%	0%	10%
Single Offender	(33)	(3)	(10)	(31)	(2)	(2)	(0)	(81)
C-Type 2								
No Criminal History	23%	9%	8%	51%	2%	7%	1%	
White	38%	42%	26%	31%	50%	36%	100%	34%
Multiple Offenders	(59)	(23)	(22)	(132)	(6)	(17)	(2)	(261)
C-Type 3								
No Criminal History	16%	11%	16%	51%	0%	5%	0%	
Black/Other	4%	7%	7%	5%	0%	4%	0%	5%
Single Offender	(6)	(4)	(6)	(19)	(0)	(2)	(0)	(37)
C-Type 4								
No Criminal History	16%	5%	14%	56%	0%	9%	0%	
Black/Other	13%	11%	21%	17%	0%	23%	0%	16%
Multiple Offenders	(20)	(6)	(18)	(71)	(0)	(11)	(0)	(126)
C-Type 5								
Criminal History	28%	7%	9%	51%	3%	3%	0%	
White	13%	9%	7%	9%	17%	4%	0%	9%
Single Offender	(20)	(5)	(6)	(36)	(2)	(2)	(0)	(71)
C-Type 6								
Criminal History	8%	8%	9%	64%	2%	9%	0%	
White	5%	15%	11%	15%	17%	19%	0%	13%
Multiple Offenders	(8)	(8)	(9)	(64)	(2)	(9)	(0)	(100)
C-Type 7								
Criminal History	6%	6%	15%	71%	0%	3%	0%	
Black/Other	1%	4%	6%	6%	0%	2%	0%	4%
Single Offender	(2)	(2)	(5)	(24)	(0)	(1)	(0)	(34)
C-Type 8								
Criminal History	12%	6%	12%	66%	0%	5%	0%	
Black/Other	5%	7%	10%	11%	0%	6%	0%	9%
Multiple Offenders	(8)	(4)	(8)	(44)	(0)	(3)	(3)	(67)
Total	20%	7%	11%	54%	2%	6%	0%	100%
	(156)	(55)	(84)	(421)	(12)	(47)	(2)	(777)

[a]For example, clothing and furniture.

[b]For example, televisions and stereos.

[c]Row percent.

[d]Column percent.

joint relationship between the eight offender C-Types and the type of property stolen. These data show that currency is most likely to be stolen during burglaries committed by those white offenders with no previous criminal record who work singly (C-Type 1) followed by those white offenders with a prior record who work singly (C-Type 5). The row total for the former group is 41 percent compared to a column total of 21 percent -- a difference of 20 percentage points. Earlier, these two offender groups were found to be randomly distributed across the seven offense types (see Table 5). If these offenders tend not to specialize in particular types of burglary but rather respond as opportunities present themselves, it is logical that they would prefer currency (because it) is easy to remove from the premise and has immediate payoff.

Hard saleable items such as televisions, stereos, appliances, and similar commodities are shown to be targets of offender C-Types 6,7, and 8. All of these types share some similar characteristics in that they subsume those offenders who have a previous criminal record. Other characteristics include white offenders who work alone (C-Type 6), black/other offenders who work alone (C-Type 7), and black/other offenders who work in groups (C-Type 8). (Although drugs were stolen) in only 12 instances these cases tended to (be grouped) in C-Type 2 -- those white offenders with no previous criminal history who work in groups.

Type of Offender and Amount of Financial Loss

In an earlier report, a relationship was observed between the amount of loss and probability of clearance such that those burglaries in which no financial loss occurred were substantially more likely to be cleared than those in which a financial loss resulted (Pope, 1976a). Further, a substantial relationship was noted between the amount of financial loss and whether or not the crime was cleared by arrest -- those burglaries resulting in small losses were most likely to be cleared. An examination of the relationship between the eight offender types and whether or not a financial loss occurred revealed that two of the C-Types were substantially related to this variable (table not presented). Those offenders included in C-Type 2 -- white offenders with no prior record who worked in groups -- were substantially more likely than those included in other types to commit burglaries resulting in a financial loss. Those in C-Type 7, however, (black/others with no prior record who worked alone) were most likely to be involved in burglaries in which no financial loss resulted. Table 7 provides a more detailed examination of the data for those cases involving a financial loss of some type. A strong linear trend in the amount of financial loss is evident here as one moves from C-Type 1 to C-Type 8.

Those offenders included in C-Type 1 (white offenders with no previous record who work singly) are most likely to commit burglaries resulting in losses in the $10 to $49 range. The row percentage for this group is 34 percent compared with an overall column

Table 7 Type of Offender by Amount of Financial Loss

Offender Types	Amount of Financial Loss: $0 to $9	$10 to $49	$50 to $99	$100 to $199	$200 to $499	$500 to $999	$1,000 or More	Row Total
C-Type 1	16%[a]	34%	10%	12%	10%	12%	5%	
No Criminal History	15%[b]	20%	11%	9%	6%	8%	5%	11%
White	(11)	(23)	(7)	(8)	(7)	(8)	(3)	(67)
Single Offender								
C-Type 2	22%	23%	10%	14%	16%	11%	5%	
No Criminal History	68%	46%	34%	36%	31%	25%	18%	37%
White	(50)	(52)	(22)	(33)	(36)	(25)	(11)	(229)
Multiple Offenders								
C-Type 3	7%	7%	19%	11%	19%	30%	7%	
No Criminal History	3%	2%	8%	3%	4%	8%	3%	4%
Black/Other	(2)	(2)	(5)	(3)	(5)	(8)	(2)	(27)
Single Offender								
C-Type 4	5%	15%	9%	21%	23%	13%	15%	
No Criminal History	5%	11%	11%	19%	16%	11%	19%	13%
Black/Other	(4)	(12)	(7)	(17)	(19)	(11)	(12)	(82)
Multiple Offenders								
C-Type 5	3%	15%	12%	25%	28%	12%	7%	
Criminal History	3%	8%	11%	17%	15%	7%	6%	10%
White	(2)	(9)	(7)	(15)	(17)	(7)	(4)	(61)
Single Offender								
C-Type 6	6%	11%	11%	6%	30%	23%	14%	
Criminal History	7%	8%	14%	6%	21%	19%	19%	14%
White	(5)	(9)	(9)	(5)	(25)	(19)	(12)	(84)
Multiple Offenders								
C-Type 7	0%	9%	13%	9%	17%	39%	13%	
Criminal History	0%	2%	5%	2%	3%	9%	5%	4%
Black/Other	(0)	(2)	(3)	(2)	(4)	(9)	(3)	(23)
Single Offender								
C-Type 8	0%	8%	10%	16%	8%	25%	33%	8%
Criminal History	0%	4%	8%	9%	3%	12%	25%	(49)
Black/Other	(0)	(4)	(5)	(8)	(4)	(12)	(16)	
Multiple Offenders								
Total	12%	18%	11%	15%	19%	16%	10%	100%
	(74)	(113)	(65)	(91)	(117)	(99)	(63)	(622)

[a] Row percent.

[b] Column percent.

total of 18 percent. Offenders found in C-Type 8 (black/others with previous records who work in groups) are disproportionately clustered in burglaries with reported losses of $1,000 or more. Here the row percentage is approximately 33 percent compared with a column total of 10 percent. Those offender types associated with the most frequent loss category -- $200 to $499 -- include those white offenders with previous criminal histories who either work alone or in groups (C-Types 5 and 6). Although striking, this relationship is, perhaps, not unexpected. Those offenders involved in burglaries resulting in larger amounts of financial losses all share one common characteristic, a previous criminal history. It could be argued, for example, that those with criminal experience (measured by previous arrests and/or convictions) are more likely to know which items are of most value and also to have established connections for the disposal of expensive goods. Those without criminal sophistication (which also includes those 17 years and younger) may be more likely to steal currency or inexpensive items that can be easily disposed of or re-marketed.

Type of Offense and Type of Property Stolen

Type of property stolen and amount of financial loss were also cross-tabulated with the seven offense types to determine if similar relationships might exist with respect to incident characteristics. Table 8 presents the joint relationship between the seven offense types and the type of property stolen. Examination of this table reveals

Table 8 Type of Offense by Type of Property Stolen

Offense Types	Type of Property Stolen: Money	Jewelry/ Furs	Soft Saleable Items	Hard Saleable Items	Drugs	Firearms	Items From Safe	Row Total
I-Type 1	13%[a]	8%	21%	47%	4%	8%	0%	
Low Force	5%[b]	7%	13%	6%	17%	9%	0%	7%
Low Status	(7)	(4)	(11)	(25)	(2)	(4)	(0)	(53)
Non-Residential Structures								
I-Type 2	17%	14%	11%	57%	0%	0%	0%	
Low Force	4%	9%	5%	5%	0%	0%	0%	5%
High Status Area	(6)	(5)	(4)	(20)	(0)	(0)	(0)	(35)
Residential Structures								
I-Type 3	11%	9%	26%	49%	3%	1%	0%	
Low Force	7%	15%	27%	11%	25%	2%	0%	12%
High Status Area	(10)	(8)	(23)	(44)	(3)	(1)	(0)	(89)
Non-Residential Structures								
I-Type 4	29%	2%	3%	56%	0%	11%	0%	
High Force	12%	2%	2%	8%	0%	15%	0%	8%
Low Status Area	(18)	(1)	(2)	(35)	(0)	(7)	(0)	(63)
Residential Structures								
I-Type 5	19%	4%	10%	57%	2%	7%	1%	
High Force	24%	15%	23%	27%	25%	30%	100%	25%
Low Status Area	(37)	(8)	(19)	(111)	(3)	(14)	(2)	(194)
Non-Residential Structures								
I-Type 6	23%	7%	7%	54%	0%	10%	0%	
High Force	10%	9%	6%	9%	0%	15%	0%	9%
High Status Area	(16)	(5)	(5)	(38)	(0)	(7)	(0)	(71)
Residential Structures								
I-Type 7	23%	9%	8%	54%	2%	5%	0%	
High Force	39%	44%	24%	34%	33%	30%	0%	35%
High Status Area	(61)	(24)	(20)	(143)	(4)	(14)	(0)	(266)
Non-Residential Structures								
Total	20%	7%	11%	54%	2%	6%	0%	100%
	(115)	(55)	(84)	(416)	(12)	(47)	(2)	(771)

[a] Row percent
[b]

a moderate relationship between those offenses included in I-Type 4 and the theft of currency. Those burglaries of residential structures in low status target areas in which force was used to gain entry are most frequently categorized by the theft of money as opposed to other objects. The cell total is approximately 29 percent compared with a column total of 20 percent. Burglaries of non-residential targets characterized by non-forcible entries in high status social areas (I-Type 3) are most likely to result in the loss of soft saleable items such as clothing, furniture, bedding, and the like. It is interesting to note that burglaries involving the theft of hard saleable items (e.g., home entertainment equipment) are quite evenly distributed across the seven offense types. The row percentages for each of the O-Types in the hard saleable item category do not exceed the column total of 54 percent by more than 3 percentage points. Thus, the theft of such items is not characteristic of any one type of burglary.

Type of Offense and Amount of Financial Loss

In Table 9 the seven offense types are cross-tabulated with the amount of loss occurring during a burglary. Financial losses are relatively uncommon for the first three burglary offense types. In fact, offense type 2 (non-forcible residential burglaries in high status social areas) evidenced no reported financial losses. Separate examination of the seven offense types by the attribute variable financial loss versus no financial loss underscored this trend (table

not presented). For those cases in which information about a financial loss was reported, the first three offense types were substantially more likely to involve no financial losses. These were all cases in which little or no force was used to gain entry. Overall, data in Table 9 show that the amount of reported financial loss is less associated with structural characteristics of burglary than with offender characteristics. The relationships reported here are less substantial and more evenly distributed than those reported in Table 7. Those offenses characterized by forcible non-residential burglaries in high status areas (I-Type 7) are slightly more likely to result in ($0 to $9) loss. High forcible entry burglaries in low status areas of residential structures (I-Type 4) are generally characterized by losses in the $500 to $999 range, followed by those in the $100 to $199 range. High force entry burglaries in low status areas of non-residential structures (I-Type 5) were generally characterized by less financial loss than that for the offense group reported above. Losses here were more likely to occur in the $10 to $49 and the $50 to $99 ranges.

Offense/Offender Types and Sex of Apprehended Offenders

The relationship between both the offense and offender types and the attribute variables of distance from the offender's residence to the site of the burglary and were also examined. Rather than present each separate table, since few differences were noted, the major findings are summarized in the text. While offense groups containing both male and female offenders were likely to be white, they differed with respect

Table 9 Type of Offense by Amount of Financial Loss

Offense Types	Amount of Financial Loss: $0 to $9	$10 to $49	$50 to $99	$100 to $199	$200 to $499	$500 to $999	$1,000 or More	Row Total
I-Type 1								
Low Force	0%[a]	0%	57%	0%	0%	43%	0%	
Low Status Area	0%[b]	0%	6%	0%	0%	3%	0%	1%
Non-Residential Structures	(0)	(0)	(4)	(0)	(0)	(3)	(0)	(7)
I-Type 3								
Low Force	0%	0%	0%	0%	33%	33%	33%	
High Status Area	0%	0%	0%	0%	1%	1%	2%	1%
Non-Residential Structures	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(3)
I-Type 4								
High Force	0%	14%	14%	21%	14%	25%	11%	
Low Status Area	0%	7%	12%	14%	7%	15%	10%	9%
Residential Structures	(0)	(8)	(8)	(12)	(8)	(14)	(6)	(56)
I-Type 5								
High Force	9%	23%	14%	15%	17%	13%	10%	
Low Status Area	23%	37%	39%	30%	27%	24%	30%	30%
Non-Residential Structures	(17)	(42)	(25)	(27)	(31)	(23)	(19)	(184)
I-Type 6								
High Force	4%	4%	13%	21%	24%	24%	10%	
High Status Area	4%	4%	14%	16%	14%	17%	11%	11%
Residential Structures	(3)	(3)	(9)	(14)	(16)	(16)	(7)	(68)
I-Type 7								
High Force	18%	20%	6%	12%	20%	13%	10%	
High Status Area	73%	53%	29%	40%	52%	41%	48%	49%
Non-Residential Structures	(54)	(60)	(19)	(36)	(61)	(39)	(30)	(299)
Total	12% (74)	18% (113)	11% (65)	14% (89)	19% (117)	16% (96)	10% (63)	100% (617)

[a] Row percent.

[b] Column percent.

to other characteristics. Females, for example, exhibited no previous criminal histories and generally engaged in multiple offender burglaries. Males, on the other hand, frequently worked alone and were likely to have a previous criminal record of some type. The distribution of male and female offenders among the six remaining offender types proved to be quite similar. With respect to the offense I-Types females tended to commit non-residential burglaries in socially advantaged areas and were as likely to use force to gain entrance as not. The difference between the percentage of male and female offenders falling into both I-Types was 10 percent or greater. Males, in comparison to females, were substantially more likely to commit burglaries of non-residential structures by means of force in areas that were socially disadvantaged.

Offense/Offender Types and Distance From Residence to Burglary Site

Certain types of offenders were found to commit burglaries closer to their places of residence than others. Those (who committed burglaries) less than 1 mile from their residence included both white and black offenders with no previous criminal histories who worked in groups. Similarly, those (who burglarized targets) more than 1 (from their homes) mile included three offender types all evidencing previous criminal records. Other distinguishing characteristics included white offenders who worked singly or in groups and black offenders who tended to work with others. Few relationships were found between distance from offender's (residence to burglary target) the seven offense types. A moderate relationship, however, did

maintain between the distance and both offender C-Type 2 and C-Type 5. Those offenders who committed burglaries characterized by minimum force to gain entry, high status target areas and residential structures, traveled more than 1 mile. Those who traveled less than 1 mile tended to burglarize non-residential structures in low social status areas utilizing substantial force to gain entry.

Offense/Offender Types and Temporal Characteristics

In a similar manner, part of the week (and time of the day) during which the burglary occurred were also examined in relation to the seven offense types and eight offender types. The data showed no relationship between either weekday or weekend and the seven offense types. That is, each type of burglary was equally likely to occur on the weekend as during the week. Time of day however, did evidence some relationship to the seven offense types. Those burglaries most likely to occur during the daytime hours included the following types: forcible entry burglaries of residential structures in low status areas (I-Type 4) and forcible entry burglaries of residential structures in high status areas (I-Type 6). With respect to the offender types, black/other offenders who worked in groups but had no prior record (C-Type 4) were more likely to commit burglaries during the weekend, and black/other offenders who worked singly but who had a prior record (C-Type 7) were most likely to commit burglaries during the weekday. This latter group was also more likely to burglarize during the nighttime hours.

With few exceptions, the data have shown only slight relationships between offender and offense characteristics. Cross-tabulation of the seven offense types with the eight offender types revealed the existence of only one relationship that could be considered substantial. Both the offense and offender types were also found to be relatively independent of other offense and offender variables when these were later introduced in the analysis. A major exception, however, proved enlightening. The offender types and the amount of financial loss occurring during the burglary were strongly related. The amount of financial loss increases substantially from C-Type 1 to C-Type 8, thus indicating that those with criminal histories committed burglaries resulting in higher profits.

There are still relationships that have not been reported (e.g., between sex of the burglary offender and temporal characteristics of reported burglary incidents). It may prove informative to examine some of the bivariate relationships between single attribute variables in order to refine earlier findings based on cross-tabulation of the offense and offender types. Hence, the following tables examine the joint relationship between the sex, race, and age of apprehended burglary offenders and various incident characteristics.

In Table 10, (arrestee's sex) is cross-tabulated with the temporal characteristics of those burglary incidents that were cleared by arrest. Female offenders were substantially more likely than their male counterparts

Table 10 Temporal Characteristics of Reported Burglaries, by Sex of Apprehended Offenders

Temporal Characteristics	Sex		
	Male	Female	Total
Weekday	67% (694)	80% (83)	69% (777)
Weekend	33% (334)	20% (21)	31% (355)
Total	100% (1,028)	100% (104)	100% (1,132)
Day	42% (381)	58% (56)	43% (437)
Night	58% (529)	42% (41)	57% (570)
Total	100% (910)	100% (97)	100% (1,007)
Winter	28% (305)	27% (30)	28% (335)
Spring/Autumn	33% (359)	45% (49)	34% (408)
Summer	39% (422)	28% (31)	38% (453)
Total	100% (1,086)	100% (110)	100% (1,196)

to commit burglaries during the weekday as opposed to the weekend. Eighty percent of the female offenders burglarized during the weekday compared to 67 percent of the male offenders. Similarly, female offenders (58 percent) were also substantially more likely than males (42 percent) to burglarize structures during the daylight hours.

With respect to the season of the year during which these burglary incidents were reported, the marginal distributions in Table 10 show that those burglaries cleared by arrest were substantially more likely to be reported during the summer months than the winter months. For all burglary incidents which occurred during the project period, there was no difference with regard to the season of the year during which they were reported to the police. It may, however, be the case that the greater activity and interaction among people that usually occurs during the summer months results in the discovery of burglaries that are still in progress and therefore more likely to be reported to the police, which possibly results in more apprehensions. Also of interest is that a greater proportion of males than females apprehended for burglaries which were committed during the summer months (39 percent and 28 percent, respectively).

Prior record was subsequently introduced as a control variable to determine whether these initial relationships would change when the prior records of each group were similar. The data revealed that

for those who had no prior record, females were still substantially more likely than males to commit burglaries on the weekdays during daylight hours, but those with a prior record, sex showed no relationship to the part of the week during which burglaries occurred. The relationship observed between sex and time of day was not altered when both groups had a prior record, and no changes occurred in the correlation between (month of reporting) and sex when prior record was introduced as a control variable.

Table 11 provides data regarding the methods employed in burglary incidents and the sex of apprehended offenders. Findings reported here are quite striking. Female offenders were substantially more likely to enter structures via the door than were male offenders and were consistently associated with lesser amounts of force than were males. That is, females were substantially more likely than their male counterparts to commit burglaries characterized by no force, no tools, and no damage to property. For example, while 79 percent of those burglaries committed by females involved no damage to the property of others, only 43 percent of those burglaries committed by males involved no damage. Introduction of prior record as a control variable did not alter these relationships.

As the data in Table 12 indicate, female offenders (59 percent) were more likely to burglarize non-residential structures than were

Table 11 Methods Employed in Burglary Incidents, by Sex of Apprehended Offender

Methods	Sex		
	Male	Female	Total
Door	59% (594)	77% (84)	61% (678)
Window	41% (414)	23% (25)	39% (439)
Total	100% (1,008)	100% (109)	100% (1,117)
No Force	40% (420)	78% (86)	44% (506)
Force	60% (627)	22% (24)	56% (651)
Total	100% (1,047)	100% (110)	100% (1,157)
Tool	44% (458)	74% (81)	47% (539)
No Tool	56% (578)	26% (28)	53% (606)
Total	100% (1,036)	100% (109)	100% (1,145)
No Damage	43% (452)	79% (86)	46% (538)
Damage	57% (603)	21% (23)	54% (626)
Total	100% (1,055)	100% (109)	100% (1,164)

Table 12 Selected Burglary Incident Characteristics, by Sex of Apprehended Offenders

Incident Characteristics	Sex		
	Male	Female	Total
Residential	63% (684)	41% (45)	61% (729)
Non-Residential	37% (402)	59% (65)	39% (467)
Total	100% (1,086)	100% (110)	100% (1,196)
No Loss	37% (330)	32% (30)	37% (360)
Loss	63% (558)	68% (64)	63% (622)
Total	100% (888)	100% (94)	100% (982)
Money or Hard Saleable Items	69% (543)	32% (34)	64% (577)
Other	31% (247)	68% (71)	36% (318)
Total	100% (790)	100% (105)	100% (895)
Attempted	6% (61)	1% (1)	5% (62)
Completed	94% (1,025)	99% (109)	95% (1,134)
Total	100% (1,086)	100% (110)	100% (1,196)

their male counterparts (37 percent). Further, females were slightly more likely than males to commit burglaries in which a financial loss of some type resulted and were substantially more likely to steal commodities other than currency or hard saleable items. These items were found to be those of the soft saleable variety including furniture, bedding, and the like. Those burglaries committed by male offenders were substantially more likely to result in attempts only compared to those committed by female offenders. Again, the relationships in Table 12 remained stable when the prior records of each group were similar.

Table 13 reports on the temporal characteristics of reported burglaries by the race of apprehended offenders. Contrary to earlier findings (regarding an arrestee's sex,) the temporal aspects of burglary were not associated with the racial characteristics of burglary offenders. Both white and black/other offenders were equally likely to commit burglaries on a weekday and during the daylight hours. Further, no differences were noted among black/others and whites regarding the season of the year during that these burglaries were reported. Although white offenders were slightly less likely than black/other offenders to commit burglaries which were reported during the summer months, this relationship is not substantial according to a 10 percent difference criterion. Only one relationship changed when priors was utilized as a control variable. For those who had no prior record, black/others were more likely than whites to commit burglaries on the weekend, but no differences were noted when both groups had a prior record of some type.

Table 13 Temporal Characteristics of Reported Burglaries, by Race of Apprehended Offenders

Temporal Characteristics	Race		
	White	Black/Other	Total
Weekday	71% (518)	65% (259)	69% (777)
Weekend	29% (215)	35% (140)	31% (355)
Total	100% (733)	100% (399)	100% (1,132)
Day	43% (280)	44% (157)	43% (437)
Night	57% (370)	56% (200)	57% (570)
Total	100% (650)	100% (359)	100% (1,007)
Winter	30% (235)	25% (100)	28% (335)
Spring/Autumn	35% (278)	32% (130)	34% (408)
Summer	35% (282)	43% (171)	38% (453)
Total	100% (795)	100% (401)	100% (1,196)

Black/

other offenders were substantially more likely than their white counterparts to commit burglaries in which force was used to gain entry, a tool was utilized, and damage occurred to the property of the victim (Table 14). Sixty-seven percent of the black/other offenders compared with 51 percent of the white offenders committed burglaries in which force was employed. Black/other offenders (49 percent) were also substantially more likely than their white counterparts (34 percent) to enter structures via the window rather than the door. For those who had a prior record, black/others were slightly more likely than whites to use a tool to gain entrance with resulting property damage although these relationships were not substantial. For those with no prior record, however, black/other offenders were substantially more likely than whites to commit burglaries characterized by tools and property damage.

There was no difference between black/other and white offenders concerning the type of structure selected by each. As Table 15 indicates, 61 percent of both black/other and white offenders selected residential targets. This relationship maintained regardless of prior criminal record, as did that between race and (financial loss). Forty-three percent of those burglaries perpetrated by black/other offenders resulted in no financial loss compared (with) 33 percent for white offenders. Black/other offenders were slightly more likely than whites to steal money or hard saleable items, but the percentage difference

Table 14 Methods Employed in Burglary Incidents, by Race of Apprehended Offender

Methods	Race		Total
	White	Black/Other	
Door	66% (483)	51% (195)	61% (678)
Window	34% (253)	49% (186)	39% (439)
Total	100% (736)	100% (381)	100% (1,117)
No Force	49% (376)	33% (130)	44% (506)
Force	51% (393)	67% (258)	56% (651)
Total	100% (769)	100% (388)	100% (1,157)
No Tool	52% (396)	38% (143)	47% (539)
Tool	48% (370)	62% (236)	53% (606)
Total	100% (766)	100% (379)	100% (1,145)
No Damage	51% (392)	37% (146)	46% (538)
Damage	49% (382)	63% (244)	54% (626)
Total	100% (774)	100% (390)	100% (1,164)

Table 15 Selected Burglary Incident Characteristics, by Race of Apprehended Offender

Incident Characteristics	Race		
	White	Black/Other	Total
Residential	61% (484)	61% (245)	61% (729)
Non-Residential	39% (311)	39% (401)	39% (467)
Total	100% (795)	100% (646)	100% (1,196)
No Loss	33% (221)	43% (139)	37% (360)
Loss	67% (441)	57% (181)	63% (622)
Total	100% (622)	100% (320)	100% (982)
Money or Hard Saleable Items	63% (383)	67% (194)	64% (577)
Other	37% (223)	33% (95)	36% (318)
Total	100% (606)	100% (289)	100% (895)
Attempted	4% (35)	7% (27)	5% (62)
Completed	96% (760)	93% (374)	95% (1,134)
Total	100% (795)	100% (401)	100% (1,196)

was only 4 percent. Black/other offenders were also slightly more likely than their white counterparts to engage in burglaries resulting in attempts only, a relationship that became substantial when neither group had a prior record.

Data in Table 16 show that those 17 years of age or less and those 18 years of age or older were about equally likely to commit burglaries on the weekends as during the weekday. Juvenile offenders, however, were substantially less likely than their adult counterparts to burglarize during the nighttime hours. Fifty-one percent of the juvenile offenders committed burglaries at night compared with 62 percent of the adult offenders -- a substantial difference of 11 percentage points. While adult offenders (34 percent) were substantially more likely than juveniles (23 percent) to commit burglaries that were reported to the police during the winter months, juveniles were more likely to commit burglaries reported during the spring/autumn and summer months. The relationships observed here could reflect status differentials between juveniles and adults, since those 17 years of age or less are more likely to be attending school during the week and thus less likely to be out during the evening hours on school days. They are, however, likely to have free time to engage in burglary after school, on the weekends, and during the non-winter months.

Table 16 Temporal Characteristics of Reported Burglaries, by Age of Apprehended Offender

Temporal Characteristics	Age		
	17 Or Less	18 Or Older	Total
Weekday	66% (378)	71% (399)	69% (777)
Weekend	34% (192)	29% (163)	31% (355)
Total	100% (570)	100% (562)	100% (1,132)
Day	49% (247)	38% (190)	43% (437)
Night	51% (258)	62% (312)	57% (570)
Total	100% (505)	100% (502)	100% (1,007)
Winter	23% (138)	34% (197)	28% (335)
Spring/Autumn	37% (225)	31% (183)	34% (408)
Summer	41% (247)	35% (206)	38% (453)
Total	100% (610)	100% (586)	100% (1,196)

The data reported for the methods of entry show slight but non-substantial relationships between juvenile and adult offenders. Fifty-seven percent of those 17 years of age or less entered structures via the door compared (with) 64 percent of those 18 years or older (Table 17). Further, juveniles were slightly more likely than adults to commit burglaries in which no force was used to gain entry, no tool was utilized, and no property damage resulted.

Although those 17 and under were slightly more likely than their older counterparts to burglarize non-residential structures, this relationship was not substantial (Table 18). Sixty-eight percent of the juvenile offenders committed burglaries that resulted in financial losses compared (with) 59 percent of the adult offenders.

difference. When only those juvenile offenders with no prior adult record were considered, however, this relationship did prove to be quite substantial. Sixty-nine percent of the juveniles and 55 percent of the adults, respectively, engaged in burglaries in which a financial loss was reported (table not presented). Juvenile and adult offenders were about equally likely to steal money or hard saleable items and to engage in burglaries that resulted in attempts only.

These data indicate that, although there are some relationships existing between offender and incident characteristics, most relationships are not strong and few could be considered substantial even by a 10 percent difference criterion. The strongest relationships between offense and incident characteristics were observed for sex, followed by race, and age.

Table 17 Methods Employed in Burglary Incidents, by Age of Apprehended Offender

Methods	Age		Total
	17 Or Less	18 Or Older	
Door	57% (326)	64% (352)	61% (678)
Window	43% (242)	36% (197)	39% (439)
Total	100% (568)	100% (549)	100% (1,117)
No Force	47% (273)	41% (233)	44% (506)
Force	53% (311)	59% (340)	56% (651)
Total	100% (584)	100% (573)	100% (1,157)
No Tool	50% (294)	44% (245)	47% (539)
Tool	50% (291)	56% (315)	53% (606)
Total	100% (585)	100% (560)	100% (1,145)
No Damage	50% (298)	42% (240)	46% (538)
Damage	50% (297)	58% (329)	54% (626)
Total	100% (595)	100% (569)	100% (1,164)

Table 18 Selected Burglary Incident Characteristics, by Age of Apprehended Offender

Incident Characteristics	Age		Total
	17 Or Less	18 Or Older	
Residential	59% (358)	63% (371)	61% (729)
Non-Residential	41% (252)	37% (215)	39% (467)
Total	100% (729)	100% (467)	100% (1,196)
No Loss	32% (157)	41% (203)	37% (360)
Loss	68% (334)	59% (288)	63% (622)
Total	100% (491)	100% (491)	100% (982)
Money or Hard Saleable Items	63% (294)	66% (283)	64% (577)
Other	37% (170)	34% (148)	36% (318)
Total	100% (464)	100% (431)	100% (895)
Attempted	4% (25)	6% (37)	5% (62)
Completed	96% (585)	94% (549)	95% (1,134)
Total	100% (610)	100% (586)	100% (1,196)

Summary and Discussion

This report examined the extent to which the characteristics of burglary incidents and characteristics of persons apprehended for their commission were related. Previous monographs specified the nature and interrelationships of characteristics within each set.

Other studies focusing on violent and personal crime have shown that offenders and victims often form an interactive pattern in which certain kinds of offenders are likely to prey on certain kinds of victims and to exhibit distinct methods of attack. In studying rape, for example, Amir discovered that older offenders preferred victims generally about 5 or 10 years younger (1971:55). Wolfgang found a cultural preference by race and sex with regard to particular methods and weapons used to inflict death (1958:32). Such studies have deomonstrated that the correlates of violent crimes like homicide, rape, and robbery are not randomly distributed but rather are highly structured events as evidenced by the relationship between both the offender and his victim.

Although burglary is generally considered to be impersonal because the target is property rather than a person, similar patterns might also be evident. That is, it was generally supposed or hypothesized that those burglary offenders who differ with respect to age, race, sex, and other characteristics would exhibit certain preferences in the structures they burglarize,

the property they steal, the manner in which they commit the crime, and other factors as well. This supposition, however, was not entirely or completely substantiated by the data.

The findings presented here generally did not support a strong relationship between the characteristics of burglary offenders and the types of burglary they commit. This lack of patterning was forcefully illustrated when the seven offense types were cross-tabulated with the eight offender types. Although some patterns were suggestive, they could not be considered substantial. Those row and column cell percents that were, on the average, higher than their respective marginal totals indicated that black/other offenders often burglarized structures in socially disadvantaged areas, whereas white offenders selected targets in more prosperous areas, as indicated by the social area dimension. Similarly, black/other offenders were generally associated with burglaries of a more forcible nature. Those with no previous criminal record focused on non-residential targets, and those with a previous criminal history tended to choose residential targets. These relationships, however, were not strong and may reflect only chance variation.

Since it was quite possible that the offense and offender types might be related to other variables that had not been included as definers of the types, a more extensive analysis was undertaken. The

eight offender C-Types were found to be substantially related to the amount of loss reported to the police. An offender's previous criminal history was the most determining factor in regard to financial loss, with those who evidenced a previous criminal history most likely to commit burglaries in which reported financial losses were quite high. Although certain of the offense and offender types were found to be associated with categories of specific variables, there were no substantial overall relationships.

Sex, race, and age were separately cross-tabulated with various incident characteristic variables, the most substantial differences noted for the variable sex.

Females, for example, were substantially more likely than males to burglarize non-residential structures with no force or tool to gain entry and no damage to property. Black/other offenders were more likely to use a tool in forcible entries with resulting property damages but were equally likely as whites to select either residential or non-residential targets. Few differences were noted between those 17 years of age or younger and those 18 years of age or older regarding patterns in the commission of burglary. The latter group, however, was more likely to commit burglaries at night and during the winter months.

Although there are some apparent differences when offense and offender characteristics are cross-tabulated, these differences are not

strong (with the exception of those for male and female offenders).

Regardless of how the data were viewed, then, there seems to be little overall relationship among offense and offender characteristics. With few exceptions, on the basis of the data utilized in this study, certain kinds of burglars do not commit certain kinds of burglaries. It may simply be the case, for example, that crimes of burglary are evenly distributed among members of the population. Unlike violent crimes in which there is an interactive pattern, burglary and other property crimes, as well, may reflect opportunity more than choice. While this is not to say that burglaries are commonly committed without intent, it is probably true that burglary -- more so than violent crimes -- is randomly perpetrated. Homicide, rape, and assault are not generally stranger-to-stranger crimes in that the perpetrator is likely to know his victim, at least in a casual way. On the other hand, the average burglar---while evidencing intent -- is unlikely to be familiar with potential targets other than that they belong to a particular class such as residential or non-residential structures.

Although it is possible that the results obtained here may be an artifact of the data rather than an underlying phenomenon of burglary, this would not seem to be the case. The characteristics of the offenses reported herein were found to be quite consistent with those found by other studies as well. Victim survey results and numerous studies based on police incident reports have consistently found the characteristics of burglary to be similar. Further, in those few instances where offender

characteristics have been reported, the distribution of these characteristics did not differ greatly from those reported in this study.

We were, however, limited in the types of variables available for analysis. If additional variables of interest such as educational level, occupation, or employment status had been available, these may have been associated with incident characteristics. Unfortunately, we have no way of knowing. Suffice it to say that the present study, employing more incident and offender data than have previously been used, failed to find substantial interrelated patterns in offense and offender characteristics.

Conclusions: The Nature of Burglary

In addition to the analysis of the link between offense and offender types, and between types and separate single variables of interest, other substantive areas -- such as the interrelationships among offense characteristics only and among offender characteristics only -- were examined. Because of the length and complexity of these analyses, three reports were necessary to appropriately present and discuss the findings. Yet, it is useful and instructive to synthesize all three, so the major findings and their implications are presented below.

Burglary is a broadly defined crime category generally involving the theft of goods from the dwelling place of another. As with many other criminal offenses, the statutory definition of burglary has

evolved through the years to meet the demands of a growing, complex society. For example, few of the original common law elements of burglary remain today. Thus, the crime of burglary may be committed either in the daytime or at nighttime; it may involve the use of force to gain entry or it may not; it may result in an attempt only or it may be carried through to completion. Further, the notion of a dwelling unit has been expanded to include a wide variety of structures ranging from garages and tool sheds to vehicles.

Although burglary frequently involves the use of force to gain entry, it is often popularized as a crime of stealth. As opposed to robbery and other violent crimes such as rape and assault, burglary is generally characterized by little, if any, confrontation between the perpetrator and his intended victim (if we may conceive of the property owner as victim). Given the choice and an appropriate exit, the typical burglar would most often choose flight than fight. The hallmark of the "professional" burglar , for example, is his ability to leave the scene of the crime without being detected. Rarely do we find even unskilled burglars chancing entry to premises that they know in advance are occupied. Available data consistently show that residential burglaries are more likely to be committed during daylight and commercial burglaries at nighttime -- hours when both types of structures are most likely to be unoccupied. In Reppetto's recent study of residential burglary in the greater Boston metropolitan area, over 90 percent of those incidents reported to the

police involved the burglary of unoccupied premises (1974:17). Similarly, the incidence of residential robberies was found to be quite small, constituting less than 10 percent of all reported robberies in Boston (Reppetto, 1974:26). The President's Commission on Law Enforcement and Administration of Justice estimated that less than 3 percent of all reported burglaries resulted in sufficient confrontation to be reclassified as robberies (1967a).

In light of such facts it is, perhaps, not surprising that burglary evokes less fear among the populace than do violent crimes such as homicide, rape, robbery, and the like. Nationwide public opinion polls have shown that the percentage of citizens expressing a fear of walking alone at night has increased from 34 percent in 1965 to 41 percent in 1972 (Hindelang, et al., 1974). Such expressed fear is understandable considering the increase in the number of rapes and assaults reported in most major cities throughout the country. Newspapers and other popular accounts daily contain stories reporting vicious attacks upon those citizens who chance to be upon the streets at night. Yet it is quite well substantiated that the average citizen is far more likely to be the victim of a burglary than other more violent types of criminal offenses.

Both victim survey results and figures reported in the Uniform Crime Reports show the incidence of burglary to be substantially higher than that of homicide, rape, robbery, and aggravated assault. Of the seven index offenses reported to the

police in 1971, burglary exhibited the highest rate per 100,000 inhabitants (Gray, 1972:60). In that year, the burglary rate was 1,148.3 per 100,000 compared (with) rates of 8.5 for murder, 20.3 for forcible rape, 187.1 for robbery and 176.8 for aggravated assault. The burglary rate reported for 1971 represented an absolute increase of 62 percent for the 5- year period beginning in 1966. It is quite apparent from these and other figures that burglary is a ubiquitous crime, affecting the lives of millions of Americans. Another aspect of the seriousness of the burglary problem can be seen in the amount of economic loss occurring as a result of this criminal offense. Such losses generally run into the hundreds of millions of dollars per annum. In 1971, for example, the estimated economic loss resulting from burglary was $739 million (Gray, 1972:21). These losses would be substantially higher if figures from those burglaries never reported to the police were included.

In light of the serious nature of burglary, it is surprising that relatively few research efforts have focused upon this criminal offense. We know far less about burglary offenders, for example, than we know about rapists, assaulters, and robbers. Only recently have attempts been made to examine the correlates of burglary and establish relationships among incident characteristics, (but) such studies, (although) growing in number, are not comprehensive.

This effort contributes to body of knowledge surrounding burglary and should be considered exploratory and descriptive. Accepting the premise that crime is a structured event, we looked for those patterned relationships existing in the burglary enterprise. We did not strive to construct a theory nor did we attempt to test a previously existing one since we were still in "uncharted waters" regarding this particular criminal offense. Our first task was to describe the nature of burglary, thus laying the foundation for future research and theory-construction endeavors. The course of the investigation then followed three separate lines. First, an examination of the characteristics of burglary offenses was undertaken, followed by an examination of the characteristics of burglary offenders. Finally, the research focused upon interrelated patterns of offense and offender characteristics. This latter area was of primary import because so little research has been undertaken in this area.

1. Patterns of Burglary

A major finding of this research was the lack of any significant patterned relationship between the chacteristics of burglary incidents and those offenders apprehended for their commission. Although some offense and offender variables were found to be related -- for example, females were more likely than males to burglarize non-residential structures -- no overall pattern was evident. This was graphically illustrated when the offense and offender types were cross-tabulated. Some patterns were suggestive, but the lack of any substantial relationship between offense types and offender types was quite apparent. Those individuals apprehended during the project period did not differ substantially with regard to the kinds of burglary they committed. As mentioned earlier, this could be an artifact of the data, certain important offender variables such as education or income level were not available for analysis, and it may well be the case that offender variables are only randomly associated with offense variables.

The utility of creating and cross-classifying empirical typologies as an efficient method in crime-specifc research has been given some support. As in other disciplines, the construction and application of typologies has often proven useful in criminological research.

In a recent book, Sneath and Sokal (1973) present and describe various principles of numerical

taxonomy as an aid toward ordering and examining relationships among entities. Similarly, as Clinard and Quinney suggest:

> In the study of human behavior there is an attempt to order the diversified world of discrete phenomena. The task is often accomplished through the development of classifications. The categorizing of observations into classes or types provides a means by which concrete occurrences can be ordered and compared (1967:1).

Continuing their discussion, the authors note some of the advantages to be gained by classifying like phenomena into distinct groups. Among these advantages are the reduction of phenomena to permit more systematic observation, and the formation of hypotheses for later testing as a guide for future research endeavors. Similarly, typologies are also found useful as a preliminary step in macro-level theory construction.

Typologies, then, are instrumental in aiding the researcher in discovering relationships among phenomena. Roebuck and Cadwallader, for example, found distinct differences among criminal offenders who were classified into types on the basis of their criminal history (1961). The arrest histories of black armed robbers differed substantially from those of other groups and these offenders were found to exhibit distinct social and personal attributes. A typology of crime based on criminal behavior systems was constructed by Clinard and Quinney (1967). Offenders included in each of the types, which ranged from violent personal crime to professional crime, were found to differ with respect to criminal career patterns, group support of the criminal behavior, reaction

of the general population, and the degree of correspondence between criminal and legitimate behavior patterns. Other methods of classification have included those based upon both physiological and psychological variables.

The usefulness of any typology, of course, depends upon the purpose for which it is constructed. In the present study, the data were grouped into distinct offender and offense types as an aid toward examining joint relationships. That such relationships were not in evidence suggests the disutility of creating typologies without a concomitant attempt by verification. If, for example, those who commit burglary offenses do not differ substantially with respect to the types of burglary which they commit, then theoretical explanations based upon supposed differences would not be fruitful. It is not argued that the findings presented here are definitive, but neither can they be ignored. The task at hand would seem to be toward additional research in other settings, hopefully with the inclusion of more varied offender information.

2. Temporal Characteristics

Analysis of the burglary incident data served to substantiate the findings of previous studies on the temporal aspects of reported burglary incidents. Residential burglaries were found to be reported as a weekday phenomenon most often occurring during the daylight hours. Non-residential structures were most likely to be burglarized during the weekends at nighttime. These relationships, how-

ever, were weaker when only those incidents that were cleared by arrest were considered. For cleared burglary incidents there was less of a distinction between the part of the week during which burglaries were committed (weekday or weekend) and the type of structure burglarized (either residential or non-residential). The relationship between time of the burglary and type of structure, however, was still quite substantial. That is, residential structures were substantially more likely to be burglarized during the daylight hours and non-residential structures were _____ during the night. Attempted and completed burglaries were about equally likely to be committed during the daylight or evening hours and either on weekdays or weekends.

Type of structure burglarized was found to be unrelated to either the month or season during which burglaries were reported -- seasons being broken down into winter, spring-autumn, and summer. Both residential and non-residential burglaries were similarly distributed by season of the year. These data were compiled in California -- a State with a rather temperate year-round climate. As a result, we would probably not expect burglaries to vary by season, since winter months are not debilitating enough to prohibit or circumscribe outdoor activity.

A comparison of offenders' demographic characteristics and temporal characteristics of offenses showed no differences between the day of the week during which burglaries were committed and the ages of apprehended offenders. Although those offenders who were 18 years of age or older

were slightly more likely to burglarize during the weekdays, this relationship was not substantial. Those 17 years of age and under, however, were substantially more likely than their older counterparts to burglarize during the daylight hours. This latter relationship is quite plausible, since the activities of many juveniles are restricted by their parents during the evening hours. A prime time for many juvenile burglaries is that period from the end of school to dinnertime -- approximately 3:00 PM to 6:00 PM. Females were more likely than males to commit burglaries on a weekday and during daylight hours. No differences were found between the temporal characteristics of reported burglary incidents and whether the apprehended offender was white or black/other.

As noted earlier, most burglars try to avoid confrontation with the victim and thus choose times when residents or employees are likely to be absent. The data tend to support this supposition. Residential structures, therefore, are most vulnerable to burglaries during the daytime on weekdays, with non-residential structures most vulnerable at nighttime during weekends. It is basic logic, then, to assert that extra precautions should be taken during these critical hours. These precautions may be as simple as making certain that doors and windows are locked before leaving homes or apartments for the day. Since entry to many residences can be effected with little or no force, this may simply reflect the lack of foresight by citizens in taking such precautions.

Thirty-eight percent of all reported burglaries, for example, involved non-forcible entries. This figure was found to be substantially higher for residential (43 percent) as opposed to non-residential burglaries (27 percent).

3. Methods (Modus Operandi)

As with many other types of criminal offenders, burglars frequently display distinct methods or ways of committing burglaries. Often, it is through these distinctive methods or modus operandi that known burglars are eventually apprehended. That is, such unique methods may be traced to an ex-offender's criminal file, thus making him a prime suspect in a current case if similar patterns were also found in those past burglaries that he committed. Although we have no data reflecting the refined modus operandi of individual offenders, we do, nonetheless, have some gross estimates focusing on the manner in which entrances were effected. These data include the amount of force used to enter the structure, whether or not tools were used in the commission of the burglary, and whether or not damage occurred to property. It is quite possible that certain types of burglary incidents or certain types of offenders may have been associated with distinctive patterns of force, tools, and damage.

The three modus operandi variables were found to be highly intercorrelated. Those burglaries characterized by substantial force to gain entry were also those likely to have been entered by the use of tools with resulting property damage. Approximately 60

percent of those reported burglary incidents involved forcible entries, use of tools, and damage to property. This relationship is not unexpected, for the use of tools would generally mean that the entry was forcible and property damage would thus be likely to occur.

The *modus operandi variables* were found to be substantially related to the type of structure burglarized. Non-residential as opposed to residential burglaries were more likely to be forcible entries in which tools were utilized and damage occurred to property. Non-residential structures were also more likely than residential structures to be associated with various target hardening characteristics such as lighted entrance ways and alarm systems. Further, all burglaries *that* were reported as attempts only were characterized by forcible entries. The use of tools and property damage were also found to be associated with attempted burglaries, although the relationship was not as substantial as for *(forcible entries)*. Generally speaking, most burglaries reported to the police are completions rather than attempts. Attempted burglaries are less likely to be reported to the police, possibly because they are less likely to be discovered by the intended victim. The data reported here seem to substantiate this supposition. All attempted burglaries were forcible entries also characterized by the use of tools and damage to property. Hence, it is not unreasonable to assume that they were more likely to be discovered and subsequently reported to the appropriate authorities.

tain offender characteristics were also related to methods of entry. If Certain offender characteristics Females, for example, were substantially more likely than males to commit burglaries characterized by non-forcible entries, no tools, and no property damage. This may be an indication that females are less likely to be directly involved in the burglary. That is, they may serve as lookouts for male accomplices who actually perpetrate the entry and theft. Data reported in another study lend some support to this assertion in that single females were involved in only 5 percent of all reported burglaries (Burglary in San Jose, 1972). In 13 percent of the cases, however, females were apprehended in the company of males. Females were also more likely than their male counterparts to enter target structures via the door. Since these characteristics were found to be correlated with completed burglaries, we would expect those burglaries committed by females to result in completion more often than those committed by males. The data supported this supposition. An opposite picture was presented for black/other offenders. Black/others were substantially more likely than their white counterparts to commit forcible burglaries in which tools were utilized with resulting property damage. Similarly, they were less likely than whites to be associated with completed burglaries. The data also showed that while those under 18 were less likely than those 18 or older to commit forcible burglaries, use tools or have property damage occur, these relationships were not substantial.

4. Attempted Versus Completed Burglaries

Of the total burglary incidents reported herein, a substantial

proportion resulted in successful completions in that the offense was effectively carried out. Only approximately 5 percent of all reported cases were attempts only -- a figure that also held for burglaries cleared by the arrest of a suspect. Overall, the data showed the lack of any substantial relationship between attempted and completed burglaries and most of the remaining incident characteristics. Both residential and non-residential burglaries, for example, were equally likely to result in attempts or completions. Burglaries with resulting property damage were more likely to be attempts compared with those having no property damage. The presence of a working alarm system was also found to be associated with attempted burglaries. As observed above, forcible entries and attempted burglaries were highly related in that for all attempted burglaries there was a forcible entry. Similarly, attempts and financial loss evidenced a logically necessitated relationship because all attempted burglaries involved no loss of property, although property may have been damaged.

Of most interest, however, was the absence of substantial relationships between attempted and completed burglaries and the various target hardening characteristics. One might expect that preventive techniques such as increased lighting, security inspections, the presence of a dog, and the like would be more likely to hamper burglars, thus resulting in more attempted than completed burglaries. The data, however, did not support this supposition. Few differences were observed between attempted and completed burglaries and the distribution of target hardening characteristics. Only two substantial relationships

were noted -- the presence of an alarm system and identifying serial numbers. First, premises that had alarm systems were substantially more likely than those without them to result in attempted burglaries; second, those premises in which distinctive serial numbers had been etched into personal property were more likely to result in completed burglaries.

It should be reemphasized that attempted burglaries were unlikely to be reported to the police -- or even discovered -- unless there was some physical evidence that an attempted burglary had taken place. We have no way of knowing how many attempted burglaries went unnoticed by victims nor how many potential burglars were deterred from even attempting the crime. Conclusions, therefore, should be tempered by such considerations.

Approximately 65 percent of all reported burglaries involved structures with street lights within 100 feet of the premises. This is probably more a result of chance than any planned action on the part of the victim. Most major cities provide street lighting in residential neighborhoods, and non-residential structures are likely to provide their own lighting or, if located in downtown sections, take advantage of municipal lighting. Those premises with lighted entrance ways and those with unobstructed entrance ways accounted for approximately 30 percent of all reported burglaries. Alarmed premises, security inspections, dogs present, and identifying serial numbers each accounted for approximately 10 percent of all reported cases.

5. Burglary Clearances

Contained in the data base was information pertaining to whether or not the offense was cleared and the means by which a clearance was effected (whether by arrest of the suspect, case proved unfounded, or other means). The greatest proportion of all cleared cases were cleared through the arrest of a suspect. The data were aggregated across the six jurisdictions with clearances dichotomized into those cases not cleared and those cleared by arrest. Financial loss was the variable most substantially associated with whether or not the offense was cleared.

Of those cases involving no financial loss, 34 percent were cleared, whereas in those cases in which a financial loss occurred, only 15 percent were cleared. Further, those burglaries in which reported financial losses were either in the low or high ranges were those most likely to be cleared by arrest. While 34 percent of those cases report-

ing a financial loss of 9 dollars or less were cleared, 12 percent of those cases in the modal loss category ($200 to $499) were cleared by arrest. Further, 25 percent of those burglary offenses that reported financial losses of $5,000 or more resulted in clearances. In interpreting this relationship between clearance and loss one caveat is in order. Clearances covered only the 1 year time span of the study. Thus, although burglaries may have been cleared subsequent to the end of the project period, they would not be included within this data set.

In order to determine other incident characteristic variables that may be associated with clearances, the technique of predictive attribute analysis (PAA) was employed. The first split included financial loss which, as observed above, was correlated with the criterion variable, percent cleared. Other variables rather consistently associated with those burglaries that were cleared include the use of tools and property damage. Those burglaries characterized by no tool used to gain entry and no property damage were most likely to be cleared. These relationships were stronger for non-residential burglaries than for residential burglaries. Although a number of deterrent characteristic variables were also included in the PAA branching network, they were not associated in a consistent manner with the criterion variable. An exception, however, occurred for those premises that were alarmed. Those burglaries occurring on premises having alarm systems were more likely to be cleared than those with no alarm system. The lack of an overall pattern suggests that cleared burglaries differ little from burglaries that were not cleared with respect to in-

cident characteristics -- a major exception being whether or not a loss occurred.

A possible explanation focuses upon the place where the apprehension was effected. It may be the case, for example, that many offenders were apprehended at the scene of the crime, thus accounting for the relationship between no loss and clearance.

Manner of arrest includes the categories of reasonable cause versus all other. Types of arrest subsumed under "other" include on premises arrests, citizen arrests, and those in which the offender was fleeing the scene of the crime. Table 19 presents the relationship between financial loss and manner of arrest (with the original nine categories). An examination of this table shows a substantial relationship between no financial loss and the first three categories of arrest. On premises arrests (75 percent), fleeing the scene arrests (74 percent), and citizen arrests (69 percent) were substantially more likely to involve no financial loss than those in which a loss occurred. On the other hand, arrests based on reasonable cause criteria (84 percent), warrants (83 percent), and all points bulletins (83 percent) were substantially associated with those burglaries in which a financial loss occurred.

Table 19 Whether or Not Financial Loss Resulted From Burglary, by Manner in Which Apprehension Was Effected

	Type Of Arrest									
LOSS	On Premises	Fleeing Scene	Citizen	All Points Bulletin	Other Charge	Warrant	Institutional Hold	Reasonable Cause	Other	Total
No Financial Loss	75% (163)	74% (85)	69% (20)	17% (4)	0% (0)	17% (3)	0% (0)	16% (85)	0% (0)	37% (360)
Financial Loss	25% (55)	26% (30)	31% (9)	83% (20)	100% (27)	83% (15)	100% (5)	84% (485)	100% (1)	63% (620)
Total	100% (218)	100% (115)	100% (29)	100% (24)	100% (27)	100% (18)	100% (5)	100% (543)	100% (1)	100% (980)

The data reported in Table 19 thus support our original supposition that no financial loss is associated with clearances simply because these were cases in which offenders were most likely to be apprehended at the scene. Those most likely to be involved in burglaries resulting in no financial loss included males, those 18 years of age and older and black/other offenders. The only substantial relationship , however, was that for black/other offenders. Forty-three percent of black/other offenders committed burglaries with no reported financial losses compared with 33 percent for white offenders.

6. Prior Criminal History

The apprehended burglary offenders included herein were most likely to be male (91 percent), white (66 percent), and equally divided between those 17 and younger (51 percent), and those 18 and older (49 percent). Of those offenders, 42 percent had a prior record of some type, 29 percent had a prior burglary record, 24 percent had a prior drug record, and 22 percent were under some form of criminal commitment at the time of their arrests. Unfortunately we had no data pertaining to the criminal record of juvenile offenders, and thus the criminal history variables refer to adult records only. Thirty-three juveniles, however, did evidence previous conviction as an adult offender. When only those offenders 18 years of age or older were considered, the percentage of those with a previous record increased substantially -- 80 percent had a prior record, 58 percent had a prior burglary record, 47 percent had a prior drug record, and 44 percent were under criminal

commitment at the time of their arrest. These data thus indicate substantial criminal experience on the part of this apprehended offender group. Males were substantially more likely than females to have a prior record and also more likely to have a burglary record, a drug record, or be under criminal commitment. Black/other offenders were more likely than white offenders to have a previous burglary record, but the percentage of each offender group exhibiting a previous drug record was about equal. Whites were substantially less likely than black/other offenders to have a prior record as well as being less likely to be under commitment at the time of arrest.

7. Mobility

Another area of analysis included the mobility patterns of apprehended burglary offenders. Included in the data set was a variable that measured the distance (in miles) between an offender's residence and the site of the offense. This distance was dichotomized to include those who burglarized 1 mile or less (52 percent) and those who burglarized greater than 1 mile (48 percent) from their residence. Male burglary offenders were less likely than females to commit an offense greater than 1 mile from their residence. Similarly, those 17 years of age or younger (34 percent) were substantially less likely than those 18 and older (62 percent) to commit burglaries greater than 1 mile from their residence. While white offenders were slightly more likely than black/others to commit burglaries more than a mile from their residences, this relation-

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1 OF 2

ship was not substantial. Interestingly, those with a prior burglary record were more likely than those without a prior burglary record to be represented in the greater (category) than 1 mile. This relationship held for other criminal history variables as well, possibly indicating that those with prior records (are more likely to travel) to places where lucrative scores are thought likely.

Distance was also found to be associated with certain of the incident characteristic variables. That is, those who committed ____ (more than 1 mile from their residence) an offense were most likely to burglarize non-residential structures in which entries were non-forcible, no tool was utilized, and no damage resulted to property. These relationships are probably accounted for by the strong association between distance and sex. Female offenders were also found to exhibit similar characteristics to those listed above. Distance was also correlated with census characteristics. Those in the (category) more than 1 mile committed burglaries in areas with higher median family incomes, higher educational levels, and a lower percentage of black residents. Those who (committed) burglaries outside their own neighborhoods, therefore, seemed to choose relatively socially advantaged areas.

8. Single and Multiple Offender Burglaries

Thirty percent of the arrestees included herein were single offenders in that they committed burglaries by themselves as opposed to 70 percent who were involved in group burglaries. Offenders most likely to burglarize in the company of others included those 17 years of age or less and female offenders. White and black/other offenders

were equally likely to be involved in single or multiple offender burglaries. Those who worked in groups (younger offenders and females) were also less likely to have previous criminal histories. Multiple offender burglaries were also found to result in more financial loss than single offender burglaries. Earlier, it was noted that those burglaries that resulted in financial losses were less likely to be cleared than those that did not. Since (number of crime patterns) is associated with financial loss, we would expect those who commit multiple offender burglaries to be less often apprehended than single-offender burglars, yet the mutliple offender burglars comprise a substantial proportion of those included in the data set. Those 17 years of age or younger also comprise a substantial proportion of apprehended offenders and, as noted above, are most likely to commit burglaries in the company of others. Younger offenders who burglarize in groups, therefore, seem to face a high probability of apprehension.

9. Pre-Trial Screening

Police control the initial flow of defendants in the criminal justice system by deciding under what circumstances an arrest is warranted. Similarly, after arrest police and local prosecutors screen those cases with a low probability of eventual conviction, thus reducing the case load burden at later processing stages. Data for pre-trial screening were dichotomized into those held for trial and those released. Initial zero-order tables showed a strong relationship between (dispositions) and (the age, race, and sex of apprehended offenders.) Black/other of-

fenders, those 18 and over and males were those most likely to be held for trial. When prior record was introduced as a control variable, however, black/others were substantially more likely than whites to be held for trial, but only in the no prior record category. For those offenders who had a previous criminal record, white offenders were more likely than black offenders to be held for trial, but again only in the no prior record category.

In order to assess the nature of interaction effects such as those noted above, predictive attribute analysis was employed. Again, PAA singled out those variables that were most substantially related to the decision to release suspects prior to trial. The first split occurred on overall prior record, in that those offenders with no prior record were substantially more likely than those with a prior record to be released. Other legal status variables were also found to be important. For example, those offenders who were under some form of criminal commitment at the time of arrest were more likely than those who were not to be held. While age, race, and sex differences were of less importance than previous criminal history, they were not altogether insignificant. Males, for example, generally fared worse than their female counterparts, as did black/other offenders compared with whites in those groups that exhibited similar characteristics. It is unfortunate that additional judicial processing data were unavailable at the time of this study. Such data would have allowed us to examine the relevance of both social and legal status variables at other stages where decisions are made in the processing of criminal defendants.

10. General Observations

This study examined the correlates of burglary as they occurred across six separate police jurisdictions over a 1-year period. Having relied upon official police data, the study was limited in some respects by the problems inherent in utilizing such data sources. We were not able, for example, to examine the correlates of unreported burglaries, although relevant findings from recent victimization studies were reviewed. Also, as in any ex post facto design, test conditions could not be manipulated because they were limited to the parameters established in the original California project. That is, while we might have preferred to have baseline data or to have data collected somewhat beyond the project period, such preferences were beyond our control. Research is never perfect and most designs are plagued by shortcomings of one type or another. Thus, it would seem worthwhile to note the limitations of the present undertaking.

(a) Lack of Generalizability

The data reported herein were derived from selected target areas in six separate police agencies. Thus, it would not be appropriate to generalize these findings to other geographic areas. Similarly, relationships are specific to those census tracts for which incidents were reported and may not, in fact, be found in other parts of the respective jurisdictions. Nonetheless, one is struck by the consistency with which similar findings are reported in divergent research areas. That is, the characteristics of those burg-

lary incidents reported here and elsewhere are found to be quite similar regardless of the geographic area in which the research is undertaken.

(b) Technique of Analysis

Although a number of different analytic techniques were used to examine the correlates of burglary, there are some shortcomings associated with certain of these multivariate measures. With respect to predictive attribute analysis, for example, Turner points out that, "PAA suffers from an over fitting bias, it capitalizes on chance variation" (1969:37). In such circumstances solutions are likely to be unreliable since observed relationships are distributed randomly. After having divided the data into two sets -- Northern and Southern California -- we re-ran the PAA analysis for pre-trial screening in both sets. Results were quite similar to those obtained when the entire data set was used. Although this split-half technique was not random, it should, nonetheless, increase the degree of confidence in those PAA results obtained for pre-trial release dispositions.

(c) Burglary Abatement

Because of those problems associated with the original California burglary study, (lack of baseline data, restrictive time frame, selected target areas, and the like) it was not possible to assess the overall effect of preventive techniques on the reduction of burglary. Had it been possible to do so, however, results here may have suggested some implications regarding the utility of future abatement programs. For example, whether police saturation of high burglary areas is effective in reducing the incidence of burglary.

(d) Burglary Target Areas

Although socioeconomic differences were noted across those census tracts included in the target areas, all were, in effect, high crime areas. It would have been advantageous had more diversified areas been included in the study.

Having listed some of the limitations of the study, it would only seem fair to present some of the improvements this study offered over previous research endeavors in this area.

(a) Paucity of Burglary Research

As noted at the outset, empirical research examining the correlates of burglary is quite rare and has only recently emerged. All of the literature reviewed herein, for example, contain studies conducted subsequent to 1970. This study then increases our substantive knowledge regarding the correlates of burglary.

(b) Methodology

Previous research focusing on crime patterns has frequently followed a consistent methodological format. Generally, this format consists of tabular analysis to the exclusion of other multivariate techniques. The limitations and advantages of tabular analysis were stated earlier and need not be repeated at this point. Suffice it to say that the technique generally precludes the simultaneous consideration of many variables. The multivariate analysis undertaken herein specified relationships among variables that may have been

overlooked had we relied only on tabular analysis. Similarly, by employing a cluster analytic solution it was possible to reduce a multitude of nominal variables to a more simple structure solution. Cluster analysis was also found to be an efficient technique for creating homogeneous types of both offense and offender variables. Techniques of dimensional analysis (both cluster and factor solutions) would seem to be of great value in future crime-specific research of this nature.

(c) Missing Data

For the most part the data reported in this study were relatively complete. That is, for most variables the data contained a surprisingly low percentage of missing cases. Only two variables, type of property stolen and amount of financial loss, had over 15 percent of the cases missing.

(d) Reliability of the Data

Since these data were collected as part of a large-scale crime-specific burglary program, we have more faith in their accuracy than might otherwise had been the case. The accuracy with which burglary data are recorded in day-to-day police operations is at best uncertain. However, since this project was closely monitored by both the Bureau of Criminal Statistics and each respective police jurisdiction, we have less reason to doubt the accuracy with which burglary incident characteristics were recorded. Further, the type of information recorded was relatively complete compared to those burglary characteristics reported in

other studies. While it would be possible to speculate on the type of additional variables that could have been included (e.g., victim characteristics), much more information was provided than has previously been available.

Since many of the relationships found in the data were logically expected -- for example, attempted burglaries had no financial losses -- we have even less reason to doubt the accuracy of the data. If it had been discovered that cases involving financial losses were found within the category of attempted burglaries, then coding errors would have been suspected. Thus, we have some assurance that burglary data collected by the police were accurately coded by personnel working at the Bureau of Criminal Statistics.

The similarity of burglary incidents, regardless of the geographic area in which they occur, is quite striking. Our study has confirmed the findings of previous studies relying on police incident data for analysis. For example, residential burglaries are most apt to occur on weekdays during the daylight hours and non-residential burglaries on weekends during the nighttime. Most burglaries are characterized by forcible entries and relatively few attempted burglaries are reported to the police. Findings such as these have been consistently reported by research projects conducted in quite divergent geographic areas. Further, victim survey results have found similar characteristics. That is, characteristics of burglary incidents reported in victimization studies are

While there is no way of knowing the characteristics of those burglary offenders who were not arrested, those offenders who were arrested and those who were not seem to be committing the same types of burglaries. Further, these burglaries do not seem to be the type likely to be committed by those skilled at their trade. These data, then, lend some measure of support to Shover's (1971) observations regarding the type of burglary offender emerging today -- occasional, unskilled offenders who evidence little sophistication, planning, and specialization.

The results obtained here are suggestive but not final. In order to examine burglary patterns over time, longitudinal data containing information on both offense and offender characteristics are needed. Unfortunately, however, even data to support research of the present type are not generally available. It was only because of the special nature of the

California project that the analysis undertaken herein was made possible. If we are to increase our knowledge regarding the nature of crime and those who engage in it, adequate data collection systems must be instituted and maintained. If refined data such as that utilized in this study had been maintained over time along with information on judicial and correctional outcome, we would be able to add even more to our knowledge about burglary incident and offender characteristics and interrelationships.

NOTES

[1]The six agencies involved in the California burglary project included the San Francisco, Oakland, Los Angeles, and San Diego Police Departments plus the Los Angeles and Orange County Sheriff's offices. The reader is referred to the first monograph in this series for a more detailed discussion of the data base (Pope, 1976a).

[2]For both offense and offender information a distinct crime report number was appended to the original coding form, thus providing a means of linking together offense and offender characteristics. Thus, if an offender was apprehended for a burglary offense committed in one of the target areas during the course of the project, he was provided with the same crime number as the incident itself. Since it was possible that more than one offender was involved in a particular incident or that one offender committed a number of burglaries, it was necessary to repeat each information field to provide for multiple offenses and offenders. That is, if more than one offender was involved in a burglary incident, burglary offense information was repeated for each offender. Similarly, if more than one offense was assocated with a particular offender then the offender information was repeated. The end result was a matched data set of 1,196 cases in which each offender was linked to each incident and vice versa. While the procedure introduces a certain degree of error, any biasing effects should be minimal, since we are primarily concerned with the correlates of individual offense and offender characteristics.

[3]Both factor and cluster analysis are appropriate techniques for reducing data to a manageable subset. There are, however, some crucial differences in procedure. A major difference between the two techniques lies in the mathematical procedures utilized to reach a final solution and the manner in which dimensions are extracted. Factor analysis derives dimensions (factors) based upon the total data set; cluster analysis, on the other hand, derives dimensions (clusters) based upon a subset of variables that are mutually colinear. These mutually colinear subsets of variables are used to reproduce (maximize the variance in) the original correlation matrix rather than dimensions defined by the complete set of variables. Similarly as Bailey observes:

> In cluster analysis we draw boundaries so that each object is in one (but only one) group. Thus we meet the typological requirements of exhaustiveness and mutual exclusiveness. In factor analysis we place a factor through a cluster of vectors; each object is represented by a vector and each vector represents a condensation of the vectors. The set of factors is not mutually exclusive and exhaustive. An object can belong to (load positively on) more than one factor because the object's variance is divided between factors (1975:62).

If the individual factors are not mutually exclusive then objects are later typed (grouped) on the basis of those factors may form overlapping types. Since it is desirable that both offense and offender types be as independent as possible so that cross-classification will produce meaningful results, the cluster analytic solution would seem to be the more appropriate procedure.

[4]These data comprise the matched set of 1,196 offense and offender cases derived by the procedure discussed in footnote 2. Since these data represent those incidents cleared by the arrest of the offender, frequency distribution may differ from those noted for all the burglary incident data (N=8,137) as discussed in the first (Pope 197 a). Since clustering was done with the former data set it would seem appropriate to present the frequency distributions for those incident cases cleared by arrest.

[5]Since the logic and procedures for cluster analysis can be quite complex, our discussion focuses primarily upon conceptual rather than empirical tasks. For a more detailed presentation the reader is referred to Cluster Analysis by Tryon and Bailey (1970).

[6]The defining variables for each cluster dimension were as follows: first dimension--property damage occurring during the burglary, force used to enter structure, tool used; second dimension--median family income, median years' education completed, percentage of home owner-occupied, percentage of the population black; third dimension--burglar alarm system, type of structure burglarized.

[7]Often, questions arise concerning the reliability of cluster solutions. That is, some argue that cluster analysis capitalizes on chance variation and, therefore, solutions are likely to differ when used on similar data collected in different areas or for different time periods. If data are longitudinal in nature, one check on the reliability of cluster solutions would simply be to repeat the analysis at different points in time. Results can then be compared across time periods. Another reliability testing technique often used in social science research is that of split-half -- randomly dividing the data into two groups and then comparing the results in both groups. In order to provide some overall measure of the reliability of the cluster solution, it was decided to apply a split-half technique, since the total data set contained a sufficient number of burglary incident cases (8,137) to support such a method.

[8]While there are numerous ways to obtain cluster scores, the procedure decided upon was a simple sum scoring method. As Tryon and Bailey note:

> The most meaningful weight matrix is the simple sum type... where the standard scores on a subset of variables form a composite score on that dimension; each variable participating in the composite does so with a weight of 1.00; the nondefining remaining variables contribute a weight of .00. On common sense grounds this form of weighting makes dimensions easier to interpret than the case in which the variables show graded weights. (1970:175).

[9]For the offender data, the clustering process extracted only one true dimension of mutually colinear variables. This dimension included the following variables: prior criminal record, prior burglary record, offender's age, criminal status at the time of arrest and prior drug use. Two additional dimensions consisted of single defining variables. For the second dimension, the variable race was utilized since, overall, it was less substantially correlated with the defining variables of cluster one and, therefore, thought to be a good discriminator for later typing. The third dimension was defined by the number of crime partners which was also less correlated with the definers of dimension one than other offender variables.

[10]Those readers who are not interested in the analytic results reported here may proceed to page 53 where the major findings are summarized and discussed.

[11]In the previous two reports a 10 percentage point difference was utilized to evaluate the magnitude of observed relationships. That is, if a percentage difference was 10 percent or greater then the relationship was considered substantial. If the relationship showed less than a 10 percent difference, it was not considered substantial. For a more detailed discussion of this procedure see Pope (1976a).

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