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ABSTRACT

Title of Thesis: EXPLORING THE CHARACTERISTICS OF PERSONAL VICTIMS USING THE NATIONAL CRIME VICTIMIZATION SURVEY

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Degree and year: Master of Arts, Criminology, 1998

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This thesis endeavors to investigate the effects of different individual-level and household-level characteristics (such as marital status, employment, and active lifestyle) on personal victimization prevalence, incidence and concentration. The main attributes of interest explored in this analysis targets **vulnerability, opportunity, attractiveness,** and **area population.** Two statistical methods were used to investigate these hypotheses, logistical regression for victimization prevalence, and negative binomial regression for victimization incidence and

concentration. Results were in accord with empirical expectations of all hypotheses. The evidence clearly suggests that there are individual-level and household-level characteristics that influence prevalence, incidence, and concentration. Evidence from the model of concentration implies that although there are characteristics that are shared by victims, not all characteristics that influence one's chances of becoming a victim seem significant for repeat victims. Further the measure of overdispersion from the negative binomial analysis of concentration suggests that there was very little unexplained heterogeneity when compared to the analysis of incidence. Hence the statistically significant explanatory variables in this model accurately captures the characteristics shared by many repeat personal victims.

EXPLORING THE CHARACTERISTICS OF PERSONAL VICTIMS USING THE NATIONAL CRIME VICTIMIZATION SURVEY

by

Shashi S. Jairam

Thesis submitted to the Faculty of the Graduate School of the University of Maryland, College Park in partial fulfillment of the requirements for the degree of Masters of Arts 1998

Advisory Committee:

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DEDICATION

Dedicated

to

Laura M. Jairam

and

Samantha S. Jairam

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INTRODUCTION

Not too long ago if one proposed studying victimization, (s)he may have been accused of what is loosely referred to as "victim blaming." That is, seeking to assign blame to victims for their misfortunes as though they had somehow caused their attack. Fortunately this shortsighted view seems less prevalent today. Increasingly criminologists are beginning to focus their attention on the characteristics that make some people prone to higher levels of victimization than others. This is not done in an effort to assign blame, but rather to assist scientific understanding, provide suggestions to reduce susceptibility to victimization, and guide policy. If we can somehow identify those characteristics that make one prone to victimization, we can suggest preventive measures for people to reduce their vulnerability. Some characteristics (such as sex and race etc.) are undoubtedly unchangeable. However when these characteristics are combined with certain actions, behaviors, or other characteristics, there may be an exponential increase in ones susceptibility. For example, if single females are considerably more

victimized than married females, no one is suggesting that they get married. However, their safety may be improved if they lived with a roommate as opposed to living alone. Likewise, they may benefit from renting an apartment with a security guard. Basically what victimization research seeks to accomplish is to identify what makes people prone to victimization. With this knowledge people may be able to take precautions to decrease their chances of being victimized.
Victimization research also has implications for crime prevention policies. Too often crime reduction policies only focus on efforts to reduce criminal offending. Victimization research can add to this effort by approaching crime prevention from another angle. By identifying people prone to victimization, greater legislative efforts can be made to protect this group. For example, if we learn that people who use public transportation are more victimized, we could redirect some of our available police enforcement to the public transportation system.

Alternatively, this type of research also seeks to allay the fears of people. Many people seem to believe crime is this country's biggest problem. Our news sources inundate us with violence and identify for us

the latest "crime wave" or "crime problem." As a consequence of this perceived fear, some people alter their entire lifestyles in an attempt to be less vulnerable. For example, as a group elder people seem to believe they are very susceptible to crime and structure their lives to lessen their perceived danger. They may refrain from going out for a walk in the park during evenings, change their shopping habits to avoid large crowds, or even curtail the frequency of their outings. However the evidence suggests otherwise. Studies by Sampson and Wooldredge (1987), and Cohen and Cantor (1981), to name but a few, found that as one gets older his(her) victimization risk decreases.

I. **Research Questions.**

The aim of this research is to answer two specific questions:

1. Why are some people victimized and others are not? Specifically what, if any, are the characteristics that make some people prone to personal victimization?

A quick review of any victimization data (refer to page 29 for a discussion on the data, and Table 1) shows that most people are non-victims and the highest reported frequency for those victimized is one (1).

This relatively low distribution of victims may not tell the whole story however, since being a victim as opposed to a non-victim could be due to chance and may have nothing to do with an individual's characteristics. This raises another question that must be answered to fully explore victimization.

2. What are the characteristics of victims of personal crimes and are they different from the population?

II. **Current Theoretical Perspectives.**

In an article on victimization theories, Maxfield (1987) points out the fact that people's behaviors and habits place them at different levels of risk is nothing more than common sense. For example people who participate in high-risk sports, such as skydiving or mountain climbing, are much more susceptible to injuries as compared to people who play tennis or softball. Obviously extreme activities cause higher risk, but what distinguishes victimization studies is the more in-depth analysis of how people live their daily lives and how the very structure of their lives influence their victimization risk. The focus is on activities such as

how one's shopping habits, work location, or commuting methods influences victimization risk.

There are two branches of theories that deal with victimization; individual level theories at the micro level and community level theories (Osborn and Tseloni, 1998). At the micro level, the Lifestyles (Hindelang *et al.*, 1978) or Routine Activity Theory (Cohen and Felson, 1979) underscore individual factors that determine potential exposure to crime. This approach emphasizes the role that guardianship (refers to how well a potential target is protected) and the suitability of targets (characteristics that makes some prone to victimization) play in victimization (Cohen and Felson, 1979). At the macro level, social disorganization theories (Shaw and McKay, 1942; Sampson and Groves, 1989) argue that disintegration of social controls and community structures lead to increased victimization rates. For example, economic status, ethnic heterogeneity, residential mobility, and unstable families all influence victimization rates. Although these two theoretical approaches are distinctly separate, some criminologists have argued for a more integrated approach. Smith and Jarjoura (1989) and Rountree *et al.*, (1994) found strong support for an

interactive effect between individual and area social characteristics on the probability of victimization.

Typically research on victimization involves the exploration of several factors that make one prone to victimization. The factors explored generally involve specific attributes. For example Cohen and Felson (1979), in their version of the Routine Activity Theory, proposed that: (a) the presence of a motivated offender (b) the presence of a suitable target, and (c) the absence of a guardian are the necessary conditions for a criminal victimization to occur. There are various factors proposed by many authors. One very appealing structural guideline to the current research is provided by Sparks (1981).

III. **Spark's Six Attributes of Victims.**

Sparks identified six attributes or social situations of victims that may account for the variation in victimization risk.

i. Precipitation. A person may behave in a particular manner that may encourage the offender. For example provoking speeches and gestures may arouse the offender's emotions, which then incites violence. There is not much empirical or theoretical support for this

argument. First this is a difficult concept on which to collect empirical data. Does provoking behavior cause victimization or is it a result of being victimized? From a theoretical perspective this concept is also inadequate. The idea of precipitation, though interesting, does not fit well when looking at lifestyles or routine activities. Provoking behavior seems to be more the result of a personality trait or disposition rather than a characteristic. Precipitation also seems to hold connotations of victim blaming.

ii. Facilitation. Though the victim does not play an active role in the crime, (s)he may nevertheless facilitate its commission--"by deliberately, recklessly, or negligently placing himself at special risk" (Sparks, 1981:772). The issue here amounts to, while it is perfectly reasonable to go for a walk, is it reasonable to go for a walk at night in a deserted area? This is certainly an interesting concept, but it's application depends on the definition of "special" risk which varies with time and place. The proposed data set, the National Crime Victimization Survey (NCVS), offers only a couple of variables that captures attributes of facilitation. This attribute would be better explored in studies using local data on victimization.

iii. Vulnerability. Because of some physical attribute, behavior, or position in the socio-economic system, some people may be more vulnerable than others. For example the young and elderly may be less able to protect themselves, as a result they are more vulnerable than other segments of the population. This concept is especially relevant to the current research. It can be explored by focusing on characteristics such as living conditions, race, occupation, social class, sex, and family structure. Sparks points out, that what distinguishes vulnerability from facilitation is that with vulnerability the victim does nothing to increase their risk. Vulnerability is more a status than an action.

iv. Opportunity. In order for a crime to occur, there must be opportunity. For example, someone that uses public transportation may present more opportunities to a robber than does a private commuter. Likewise people with more active lifestyles may also be more vulnerable, as opposed to those who stay at home.

v. Attractiveness. Undoubtedly some people present a more tempting target for criminals. A person driving an expensive car may be more attractive to carjackers than someone in an "old clunker." Likewise,

females are more susceptible to sexual violence than males.

vi. Impunity. With this attribute, Sparks suggests that some people are more prone to victimization, not because of their physical appearance, but because they make it easy for the criminals to get away with victimizing them. For example minorities, illegal aliens, or people of lower social class may be victimized since they may be less likely to report victimization to the authorities. These types of people are usually less trustful of the police and as such present ideal targets. This idea of impunity is an interesting concept, because if true, it would indicate that special efforts should be made to reach this group of victims without causing them any fear of retribution. However impunity is a difficult concept to capture in nonexperimental research. The people that this concept targets are the very people who may mistrust researchers and interviewers, and are hard to locate.

Some of these concepts seem to overlap. For example, gender may make one both vulnerable and attractive to victimization. On the other hand, some of these concepts seem to suggest opposite effects for some characteristics. For example, a wealthy person may be

more attractive than a poor one to a robber, but so does the concept of impunity make someone of low socioeconomic status vulnerable. It is undoubtedly difficult with the current state of research to disentangle some of these concepts, nevertheless they present a good structural framework for exploring the characteristics of victimization.

IV. **Literature Review.**

Research investigating victimization covers a wide variety of approaches. Some look at individual characteristics, and some look at area characteristics, while other take a more integrated approach.

i. Micro level studies. Cohen and Cantor (1981), using the 1975-76 National Victimization Survey, examined how characteristics of individuals and their lifestyles related to residential burglary victimization. This study found support for the hypothesis that individual characteristics are related to victimization. They found that the highest income and lowest income groups had higher levels of victimization when compared to other groups-a parabolic effect on victimization. They reported that the profile for a person most likely to be victimized was "a central

city resident who is young, poor or wealthy, non-white, and frequently away from home" (Cohen and Cantor, 1981:125). While a person least likely to be victimized was "a middle-income category person, and whose home is likely to be occupied" (Cohen and Cantor, 1981:125).

Another study focusing on individual characteristics was by Lynch (1987). Lynch conducted a two-stage analysis on this issue using the Victim Risk Supplemental data to the 1982 National Crime Survey. First, he explored the relative effect of sociodemographic characteristics and routine activities on a person's risk of victimization. The second focus was designed to glean specific information on the effects of individual activities on victimization in the work place. Lynch found that demographic characteristics of victims were significantly related to victimization in general, however when victimization was limited to the work domain, the significance of sociodemographic characteristics on victimization disappeared. Though sociodemographic characteristics were not related to victimization in the work place, other routine activities were. People with jobs that offered them high exposure to the public had higher victimization rates when compared to those who were less

accessible. He also found that individuals whose jobs confined them to one location afforded them a greater degree of guardianship that resulted in less victimization. This study also found that money handlers were also more likely to be victimized than were people whose jobs did not involve money handling. In sum, this study offers excellent evidence that a person's profession was related to their risk of victimization.

A 1995 study by Lauritsen *et al.*, using panel data from the National Youth Survey, examined whether there was something different about individuals that were repeatedly victimized as opposed to single victims. Interestingly this study found that the individual characteristics that were associated with repeat victimization depended on the type of victimization you were exploring. For example males, family income, neighborhood disorder, respondents delinquency, time with delinquent peers, and initial victimization all influenced future victimization for assault risk. Considering robbery risk, age, being male, respondents delinquency, and initial victimization were correlated with repeated victimization. See also studies by Cohen

et al. (1981), and Tseloni (1995) for further evidence on micro level influences on victimization.

ii. Macro level studies. There are just few victimization studies that focus only at the macro level. In 1992 Trickett *et al.* used the 1982 British Crime Survey (BCS) to explore the differences in vulnerability for different crime areas. This study found that the number of property crimes were dramatically higher in the worst areas compared to the best areas. They also found that for personal victimization, there was an even higher rate for the worst areas. These victims suffered between three to four times more victimization than those living in low crime areas.

Another study looking at areal characteristics was by Osborn *et al.* (1992). This study used the 1984 BCS to examine area characteristics that influenced area property crime levels. The researchers found that there was a strong positive effect of area density and young population prevalence on area victimization rates. They also reported that male unemployment and the proportion of ethnic minorities were positively related with levels of victimization using a simple regression model. However, once other area influences were controlled for,

higher male unemployment and the presence of ethnic minority groups appeared to reduce the area rate of property victimization, thus providing evidence that a multivariate approach may be best when exploring the characteristics of victims.

iii. Integrated Approach. A number of studies, and especially the recent ones, investigate integrated effects of individual and area characteristics on victimization. One of the earlier studies using this integrated approach was by Sampson and Wooldredge (1987). They attempted to link the micro-level and macro-level [focus] of personal and area characteristics using the 1982 BCS. This study found that area demographic profile, such as number of single individual households, area unemployment, and housing density, had the most significant influence on burglary victimization regardless of a person's individual characteristics. Personal theft, on the other hand, was influenced by a combination of individual (more particularly age and lifestyle) and community characteristics.

A 1989 study by Smith and Jarjoura of households in 57 residential neighborhoods in three Metropolitan Statistical areas, focusing on individual and aggregate characteristics, showed a combination of both individual

and area characteristics was a better predictor of victimization risk than any one of these two types.

Another study looking at both individual and area characteristics was by Lynch and Cantor (1992). They studied criminal opportunity theories of victimization for burglary and larceny using the National Crime Survey and the Victim Risk Supplement for 1984. Their main focus was to test the direct behavioral and ecological concepts that base victimization theories. They found that households occupied during the daytime (a guardianship factor) had reduced risk of household larceny, but nighttime occupancy did not affect such risk. Guardianship was more significant in determining burglary risk than household larceny. Installing security devices on your housing unit, such as locks and alarms, did not affect the risk of burglary. They concluded that the significance of the ecological and behavioral variables differ by type of crime.

Miethe and McDowall (1993) conducted a study focusing on analysis of an individual's victimization risk in the environmental context using a Seattle sample. They found that such factors as guardianship and higher target attractiveness significantly increases a person's risk of being burglarized in affluent areas.

However, these same factors had little relevance on burglary risk for people who lived in socially disorganized areas. This study concluded that the influence of individual characteristics on victimization risk depended on the contextual environment under study.

Osborn and Tseloni (1998) used the 1992 BCS and 1991 Census (for area information) to analyze sociodemographic attributes of households and community level characteristics to predict the number of property victimization. They found that both individual and area characteristics had a significant impact on victimization. For example they found that as one gets older and as the number of adults in a household increased, victimization decreased. The areal construct of affluence tends to increase one's susceptibility to property victimization, but demographic composition did not play a significant role. Also relevant to the current research, they found evidence that past victimization was related to future property victimization risk. See also studies by Kennedy and Forde (1990), Trickett *et al.* (1994), Rountree *et al.* (1994), and Osborn *et al.* (1996) for similar interaction effect.

Though the integrated approach is particularly appealing, this research is mainly concerned with the micro level factors since the proposed data source (the NCVS) makes very little information available on areal characteristics. Nevertheless, results from this study can be compared with findings by authors using the integrated approach. Most authors that take the integrated approach often conduct separate analysis for the micro and/or macro perspectives and report results for both, in addition to the results from the integrated approach.

V. **Rationale for Current Study.**

We know that some people are victimized more often than are others. This has been demonstrated by empirical research utilizing official data, victimization surveys, and self-reports. However there are several questions that remain unanswered or are not fully explored, which this research seeks to accomplish.

A review of quantitative victimization literature shows that much work has been done utilizing the British Crime Survey, however such studies are less common in the United States. Though some quantitative research has been done in the United States, much of the work has

been of a qualitative nature. This research will help our scientific understanding of criminal victimization here in the US. Also more empirical research on victimization in the US would provide a useful source of reference to evaluate cross-cultural characteristics and the universality of any theory of victimization. If research in the US yields similar results as those in other countries, this would suggest a more cooperative effort to understanding and preventing criminal victimization. We would be able to share our knowledge of what strategies prove effective and what precautions can be taken to reduce risk of victimization.

Another issue that lends itself in support of the current research proposal is the fact that most victimization studies only look at property crimes. In the US, the few studies that do look at personal victimization are done using local surveys. Also, when exploration into personal victimization is done, it is incorporated with property victimization research. There are no studies to the author's knowledge that focuses primarily on personal victimization using a national data set, such as the NCVS, here in the US. There may be a rationale for our lack of personal victimization studies. It is postulated that since

property crimes make up the highest crime category it offers the best construct for the exploration of victimization. Because of the need to lay the foundations of criminal victimization research, it is understandable that early researchers focused on the more statistically manipulable dependent variable, property victimization. However with this groundwork in place, now there needs to be a focus on personal victimization. This study is interested in personal victimization and whether some characteristics, if any, are similar to those in prior research on the characteristics of property victimization or where available, personal victimization. Answering this question would also add to the universality of criminal victimization theories. If however the characteristics of personal victims prove different from property victims, current victimization theories may have to be revised to accommodate these differences. Criminal victimization theories would need to differentiate between prediction with regards to property versus personal victimization.

The final reason for this research has to do with modeling. Quantitative research into criminal victimization is most often done using logit regression.

These models obscure the distribution of crime events per person and therefore the influence of individual characteristics on repeat personal victimization. Some models assume that successive events of victimization are independent of prior events and occur at a constant rate. The problem with these assumptions is that they are not true in the real world. A person's likelihood of being a repeat victim may depend on a prior incident or may have nothing to do with it whatsoever. For example, after the first victimization, a person may take added precautions to prevent future victimization, thus altering the probability of being victimized. One model that will solve this dilemma is the Negative Binomial Model, which does not suffer the mathematical handicap of these two assumptions. To the author's knowledge, the Negative Binomial Model has once been used to explore personal victimization (Tseloni, 1995), and another time to explore property victimization (Osborn and Tseloni, 1998).

VI. **Research Hypotheses.**

To look at the characteristics that influence personal victimization, the current research will explore three of the concepts proposed by Sparks (1981);

vulnerability, opportunity, and attractiveness. Sparks explains these as, "actions, attributes, or social situations of victims [that] may help to explain variations in crime rates" (Sparks, 1981:772). It is more instructive however to have a working definition of these concepts to narrow their meaning, and make clear their implications for testing. That is, it is necessary to define them as measurable constructs. A few examples of the measures that will help capture the meaning of these constructs are provided to clarify the implications for testing. Refer to the Measures of Variables section for a full account of the variables that will be explored under each of these constructs. Definitions stated here are derived in part from Sparks (1981) and in part by the author.

Vulnerability is the result of some attributes, behavior, or a place in a social system that makes a person differentially more susceptible to victimization. Examples of measures that will capture this construct are a person's age, marital status, or their length of time at current residence. For instance, older persons are physically weaker and hence may be more defenseless to attacks than someone younger who can more easily protect him/herself.

Opportunity refers to a person's exposure outside the home that differentially increases their risk of victimization. Examples of measures that will capture this construct are a person's shopping habits or exposure at nights.

Attractiveness is loosely defined here, as those characteristics that make a person appear to be a more fruitful target. Unlike vulnerability, which has connotations of an "easier" target, attractiveness implies that a person appears to offer the "expected returns" of the offender that differentially increases victimization risk. Sparks notes however, that attractiveness is clearly in the eye of the beholder. Examples of measures that will capture this construct are a person's household income and educational status.

One other construct that will be explored for its influence on personal victimization is type of area. To fully answer the research questions posed earlier in this thesis, three hypotheses are suggested:

The first hypothesis deals with personal victimization prevalence (risk) in the population. That is, victims per population.

Hypothesis 1 states: Personal victimization <u>risk</u> will increase for people with attributes of

vulnerability, **opportunity**, and **attractiveness**, who live in **more populated** areas. Hence those attributes that are associated with a higher risk of personal victimization, will indicate characteristics that make people more prone to victimization.

The second hypothesis deals with personal victimization incidence in the population. That is, crimes per population.

Hypothesis 2 states: Personal victimization incidence will increase for people with attributes of **vulnerability**, **opportunity**, and **attractiveness**, who live in **more populated** areas. Hence those attributes that are associated with a higher incidence of personal victimization, will indicate characteristics that make people suffer more victimization.

Since the likelihood of being victimized may be a random or spurious event among the population, a third hypotheses is suggested. To further decrease the probability that personal victimization is due to chance, it is necessary to explore the characteristics that differentially increases personal victimization for victims. To do this the third hypothesis will look at personal victimization concentration in the population. That is, crimes per victims. If an attribute of victims

proves significant, this would provide further evidence for the influential effects of that attribute on personal victimization.

Hypothesis 3 states: Personal victimization concentration will increase for victims with attributes of **vulnerability**, **opportunity**, and **attractiveness**, who live in **more populated** areas. Hence those attributes that are associated with a higher concentration of personal victimization, further evidences the significance of characteristics that make victims suffer more victimization.

MODELS AND METHODS

I. Analytical Models.

i. Model 1: Logistic Regression. To test the first hypothesis the logistic regression model (Kennedy, 1997:241-242) will be used. The logistic regression model is a refinement of the linear probability model. First consider the linear probability model,

$$Y = X\beta + \varepsilon$$

Where Y represents the probability of being victimized, X represents the explanatory variables, β represents the estimated coefficients for β_1, β_2,..., and ε represents the error term. The heteroskedastic quality of the error term can be seen by observing that for a victimized individual (probability $X\beta$) the residual assumes the value $(1 - X\beta)$ and for an individual who is not victimized (probability $1 - X\beta$) the residual assumes the value of $- X\beta$.

The logistic function is given as

$$f(\theta) = e^{\theta} / (1+e^{\theta})$$

So the function varies from 0 to 1 as θ varies from $-\infty$ to $+\infty$, and resembles the cumulative normal distribution. Now replace θ with an index $X\beta$. From the linear probability model above let's assume $X\beta$ is a linear function representing several characteristics of a potential victim. The logistic model gives the probability of being victimized

$$\text{prob(victim)} = \frac{e^{x\beta}}{1 + e^{x\beta}}.$$

So the probability of not being victimized is

$$\text{prob(non-victim)} = 1 - \text{prob(victim)} = \frac{1}{1 + e^{x\beta}}.$$

The likelihood function is formed as

$$L = \prod_i \frac{e^{x\beta}}{1 + e^{x_i\beta}} \prod_j \frac{1}{1 + e^{x_j\beta}}.$$

where i refers to those who were victimized and j to non-victims.

So that the formula given for the logit model is (this gives the log odds)

$$\ln \frac{\text{prob(victim)}}{\text{prob(non-victim)}} = X\beta$$

The dependent variable is binary taking on, in the case of this research, the value 0 for non-victims, and 1 for victims. That is

$$y_i = \{1 \text{ if } y_i > 0, \text{ and } 0 \text{ if } y_i = 0\}$$

Each of the coefficients of β gives the change in the log odds ratio for a unit increase in the corresponding explanatory variable, assuming that all other characteristics are equal. So if any individual characteristic has a statistically significant coefficient, this indicates that persons with the corresponding characteristic have a significantly different probability of being victimized than persons with the base characteristics (see section IV, Reference Categories for the Explanatory Variables).

ii. Model 2: Negative Binomial Regression. According to Osborn and Tseloni (1998), models that assume that successive events of victimization occurs independently of each prior victimization and at a constant rate do not accurately capture the nature of victimization. Since models such as the Poisson regression model assume independence and constant rate of events, it is not ideal for the current analysis. A more accurate model is needed to explore the characteristics of victims. To model personal

victimization incidence and concentration, in the second and third hypotheses respectively, the Negative Binomial model will be used. The LIMDEP software package (Greene, 1991) will be used to estimate this model.

There are many specifications of the Negative Binomial Model in a regression context (McCullagh and Nelder, 1989). The known studies modeled overdispersion by assuming that it arises from unexplained heterogeneity. By introducing an individual, unobserved effect into the mean, heterogeneity can be modeled as an unexplained randomness in λ by the following specification

$$\ln(\lambda) = X\beta + \varepsilon$$

where $\exp(\varepsilon)$ has a gamma distribution with a mean of one and variance α. With this in mind one specification of the Negative Binomial Model (Cameron and Trivedi, 1986) for the number of events is

$$\Pr(Y_i = y_i) = \frac{\Gamma(y_i + \nu)}{Y_i!\,\Gamma(\nu)} \quad \frac{\nu^{\nu}\mu^{yi}}{(\nu + \mu_i)^{\nu+yi}} \qquad y_i = 0,1,\ldots$$

where $\nu = 1/\alpha$ (α represents the overdispersion) refers to the precision parameter and Γ represents the Gamma function. This model has variance

$$\mathrm{Var}(Y) = \mu + \alpha\mu^2$$

Since μ and α are positive, the variance is greater than the mean; so this model allows for overdispersion (Osborn and Tseloni, 1998). Each of the coefficients of β gives the change in the natural logarithm of the mean Y for a unit increase in the explanatory variable. The estimated values α^* and $\mu^* = \exp(X\beta^*)$ are then used to estimate the probability distribution for Y. For analyzing incidents, the dependent variable is defined by the following range of values $Y_i = 0,1\ldots$, and for analyzing concentration, the dependent variable is $Y_i = 1,2\ldots$.

II. **Data.**

As was mentioned, this research will utilize the 1994 National Crime Victimization Survey (previously called the National Crime Survey). The choice of the NCVS over other data sources is due partly to the research interests and partly to its methodological basis. In 1972 and 1975, methodological studies were conducted to determine the validity of victimization surveys and the best method to accomplish this task (NCVS Codebook, 1994). For example, the studies indicated that when people said they were victimized and

reported the incident to police, this data was consistent with police records. This provided foundational support for the validity of victimization surveys. They discovered that the most reliable information was obtained if respondents were 18 or older and reporting on people 12 or older. They also found that the optimum reporting period was 6 month. People were likely to forget information and incidents for periods longer than 6 months. With this research in mind, the Bureau of Justice Statistics (BJS) was now ready to launch the NCVS.

In 1975 BJS formally launched the NCVS. The survey involves or a multi-stage cluster sample of 50,000 households and over 100,000 people using a "rotating panel" design. Households are randomly selected and data collected on all eligible individuals in terms of age. Respondents are interviewed every six months over a three-year period. The first and fifth interviews are face-to-face, and the others are conducted by phone. The person designated as the Household Respondent is asked to report crimes against the entire household. BJS reports that the NCVS has consistently obtained a response rate of approximately 95 percent.

The NCVS is made up of a "Screening Section" and an "Incident Report." The screening section is designed to evaluate whether a respondent has been victimized during the reference period. For example, a screening question asks:

> "Has anyone attacked or threatened you in any of the following ways: with any weapons, for instance a gun or knife; with anything like a baseball bat, frying pan...?"

If a crime is ascertained, then an incident report is accomplished to gather the details of the victimization.

There is another reason the NCVS data was chosen over other data sources, such as official police data. Police data is only collected on crimes known to police or on official arrests, and in some cases 911 calls. Official data has consistently underreported levels of victimization (O'Brien, 1996). There are two reasons for this underreporting (NCVS Codebook, 1994). First, many crimes are never reported. Second, organizational and administrative differences between jurisdiction affect data collection procedures. In comparison analysis, the NCVS has proved very useful in filling some of the gaps in these data sources. As was already

mentioned, the NCVS does not have the problem with only reporting on crimes known to police. The NCVS also counts the total number of criminal actions at each incident (the Uniform Crime Report only counts the worst criminal act at each incident). The NCVS also provides a wealth of information on characteristics of the incident and the particulars involved, which is something much lacking from official police data.

Despite being a better source of victimization information than official police data, the NCVS has some shortcomings. First, since crime is a relatively infrequent occurrence and the sample size is small (small for the purposes of generalization) it is prone to sampling errors (O'Brien, 1995). People are only likely to report a few incidences for each crime category, so it is difficult to make generalizations about areal demographics and crime. Second, the NCVS also misses a large segment of the population by only interviewing those 18 or older, on those 12 or older. Young deviants are unlikely to inform the Respondent of their victimization since they may themselves partake in similar actions. Missing this young segment of the population may be even more serious since the young as a group are highly victimized (Lynch, 1987). For obvious

reasons, the NCVS does not include data on murders. To compensate for the small data-set BJS will launch a city level survey for the 6 largest cities.

This research is a nonexperimental research design in which individual (characteristics) correlates of victimization will be explored, so there are few if any threats to internal validity. A more pressing concern for this type of research is external validity. Some concerns for validity have already been addressed, however the representativeness of the sample has yet to be addressed. It is widely accepted when using national data sets, such as the NCVS, that the representativeness of the sample is taken for granted. However since one of the aims of this thesis is to demonstrate mechanics of a good research, I will explore this issue. I will use the 1990 Census projections for 1994 to check the representativeness of the NCVS (refer to Table 2).

As was expected, the NCVS proved highly representative when compared to the 1994 Census projections. There was only a negligible difference between the two sources with respect to several demographic characteristics. However, a problem arises when making age comparisons. Since only those 18 or older are interviewed on those 12 or older for the NCVS,

the mean age of the interviewee cannot be legitimately compared to census data which includes all age ranges. Nevertheless, this should not prove too problematic. It is unlikely that a household survey could accurately capture the representativeness of age of the United States population. Since the NCVS is a survey of households, it is highly likely that it misses a large segment of the elderly population, students, prisoners, and the sick or disabled. Many elder citizens often live in retirement/nursing homes; which would be excluded from the NCVS sample. Since many students live in dormitories, and the sick or disabled are in the hospital or special care facilities, they would also be excluded.

III. **Measures of Variables.**

The dependent variables are whether the individual suffered any personal victimization during the past year and the number of victimization suffered. Personal victimization includes sexual assault, robbery, assault, threats, and pocket picking.

To enhance the validity and reliability of the analysis high counts of personal victimization will be truncated by limiting the high frequency counts. Any

respondent reporting frequency of victimization greater than eight will be limited to eight. It has been demonstrated in the past that the exact figures reported by respondents may be unreliable when several incidents are reported (Sparks, 1981). Since crime is a relatively infrequent and traumatic occurrence, it is likely to make a large impact on people; this no doubt aids in their recollection. However as frequency increases, the effect of the traumatization may lessen, thereby clouding recollection of each event; as a result accuracy of reporting lessens. So an individual reporting a high number of incidents, whether it is 52 or a 100 incidents of victimization, may be overstating or understating the number of victimization. It is interesting to note that the NCVS Codebook, 1994, defines series crime as six or more similar crimes over the past six months. However, in this research series are confounded and measured as one incident following the standard NCVS practice. My decision by no means understates the importance of series, on the contrary it implies that they merit special attention and research.

Most of the explanatory variables chosen for this research have been repeatedly used in prior research exploring property victimization, and in the few

personal victimization studies. Since victimization theories generally apply to all types of victimization, the selected variables do not violate the theoretical premises of criminal victimization theories when used to explore personal victimization. These variables include individual-level characteristics and represent the key concepts of victimization theories.

For the individual characteristics of victims, non-victims, and repeat victims this research will look at indicators of vulnerability, opportunity, and attractiveness. Some individual characteristics may seem to belong under different concepts, however prior research suggests they may be explored under these suggested categories.

i. Vulnerability will be operationalized by exploring the attributes that victimization theories suggest may influence one's susceptibility to attacks. Again, this construct measures attributes that may influence one's victimization risks that were in no way facilitated by the victim's behavior. Under this construct I will use three demographic variables, Age, Race, and Marital Status. The influence of age on victimization risk is one of the more reliable predictors, and is consistently supported by researchers

(Smith and Jarjoura, 1989). Both Cohen and Cantor (1981), and Smith and Jarjoura (1989) found that older individuals had lower rates of property crime since they were more often at home as compared to younger people. This research revisits the age variable with regards to personal victimization. Since the daily activity of many older persons involves much less mobility than younger people, they should be less exposed to high-risk environment, and as a result less likely to be harmed. The NCVS has two different measures of Race, one variable includes the four basic census classification (see Table 2 for classification), and one that questions Hispanic origins as a separate measure; this research will explore both of these variables. Race variables are widely used by victimization researchers as a control characteristic, so there are no predicted effects. Nevertheless, many researchers find that nonwhites often suffer greater victimization. Rountree *et al.* (1994) found that nonwhites had a higher likelihood of suffering violent crimes, and Cohen and Cantor (1981) found that nonwhites suffered greater burglary victimization. Marital status is also included as a measure of attractiveness, since individual's lifestyles are influenced by marital status. Research

has found that single people often suffer more victimization than married people (Tseloni *et al.*, 1994). For example, a single person can be expected to have a higher risk since (s)he may be involved in higher risk activities, such as going out to bars and therefore presents a more vulnerable target.

An element of guardianship can also affect one's vulnerability. Guardianship refers to the ability of a person or presence of safety precautions to prevent or lessen the likelihood of a crime occurring (Miethe and McDowall, 1993). The following measures will be explored for elements of guardianship: number of persons in household over 12 years old, presence of neighborhood watch, participation in neighborhood watch, presence of security devices against intruders, length of time at present address, number of times moved in last five years, and finally the presence of children in household under 12 years old). Many studies find that the greater the number of adults in a household the lower the risk of property victimization (see Lynch and Cantor, 1992; Smith and Jarjoura, 1989). Whether this effect will be similar for the personal crime category is unknown. Though the presence of more adults in a household may deter property crimes, it may increase the likelihood of

incidence such as child abuse, sexual attacks, and domestic violence. Miethe and McDowall (1993) also suggest that the presence of a neighborhood watch program, an element of physical guardianship and community supervision, may deter property victimization. The presence of neighborhood watch programs and security devices should also have the same deterrent effect on personal crimes. The length of residency and frequency of moves over the past five years, though an element of disorganization theories (Shaw and McKay, 1942), is also relevant with regards to guardianship. Just as people who are less rooted to the community may suffer higher property victimization (Sampson and Wooldredge, 1987), so too they may also suffer higher personal victimization. They may be unwilling or unable to turn to their neighbors for help since they are unfamiliar with them. Also, people who move frequently may be the type of people with a "less stable" lifestyle subjecting them to higher risks of personal victimization. One of the most resilient facts in criminal research is that young people offend at a higher rate than their representative sample in the population. So too is the fact that they suffer a greater proportion of victimization than adults. Therefore it is predicted

that households with children will be more susceptible to personal victimization.

ii. Opportunity will be operationalized by looking at variables that captures an individual's active lifestyle. That is, such lifestyles that may place them at greater exposure and hence at a higher risk of being victimized. As an area of victimization research, the concept of opportunity may offer the most fruition, since this is one area that people may be most able to alter. People can change their lifestyles or take added precautions to decrease their risk of victimization. Many researchers have examined opportunity by focusing on variables that measures people's daily and social lives.

Lynch (1987) found that more exposed people suffered higher victimization. Similar links have also been made using the BCS. Tseloni *et al.* (1994) found that people who spent more evenings out had a higher risk of being threatened. Similar results are also predicted using US data. It is postulated that the more exposed one is to the public, the higher one's chances are that (s)he will suffer a personal attack. Under this assumption, I will also study the effects of the

frequency of public transportation usage, and frequency of shopping on personal victimization.

Another variable of interest is a measure of professional status on personal victimization. Collens *et al.* (1987) found that occupation was related to violent victimization (see also Lynch, 1987). Specifically they found that people whose jobs involved some form of transportation (such as deliveries, taxicab drivers) suffered the highest number of victimization. The Collens *et al.* (1987) study used 1983 NCS data which has since been revised (NCVS) to take advantage of more advanced sampling methods, so the current research will revisit this issue.

It is widely accepted by criminologists and others that cities have higher crime rates than other areas. This research will explore whether personal victimization risk is different with regards to where people work. People who work in cities can be expected to suffer more attacks than people who work in the suburbs or in rural areas.

Finally I will look at employment status as a measure of opportunity. Most often, research on victimization does not examine employment status alone. It is often looked at as a contextual measure of social

disorganization (Lynch, 1987; Lauritsen *et al.*, 1995). I will take a different approach and focus on employment as an individual measure. The postulated effect is that unemployed people will suffer greater attacks since they have greater opportunity to be involved in questionable activities or have less structured lifestyles.

iii. For attractiveness, this research will look at variables that attempt to measure the allure that some individuals seem to present offenders.

A widely accepted measure of attractiveness is sex. Since females are less muscular than males and may be less able to defend themselves, one may suggest that this variable is a measure of vulnerability. However researchers consistently find that males are more victimized than females. Since I am following a modified structure proposed by Sparks (1981), I have decided not to include gender as a measure of vulnerability; it seems to fit better as a measure of attractiveness. Other researchers may choose to include sex as a measure of one or the other, or both constructs. Regardless, sex was chosen more as a control variable than an actual measure so the exact placement is less of an issue.

Many authors also consider the following variables as excellent measures of target attractiveness with reference to property victimization; type of living quarters, household income, and tenure. These are another set of variables that are often used as a measure of social disorganization. Research generally finds that people who live in more affluent areas suffer less property victimization (Rountree *et al.*, 1994; Miethe and McDowall, 1993; Smith and Jarjoura, 1989). At the individual-level the results should be similar, people who live in apartments or rented property can be expected to have a higher victimization risk. At the individual-level however, income may have a different effect on personal victimization as opposed to property victimization. High earners may present a more enticing target for some personal crimes such as robberies. On the other hand, they may live in areas with less proximity to offenders, and therefore are at a reduced risk.

One explanatory variable that is often omitted by researchers is a measure of educational status. Education may offer a good indication of a person's status in society and associations, and as a status indicator it conforms to the criteria proposed by Sparks

(1981) to be included as a measure of attractiveness. The predicted effect is that less educated people may take fewer precautions in their daily lives and are at a greater risk for personal victimization.

iv. The final group of variables employed in this research concerns area characteristics and reference period. My models will include the only two area-level variables included in the NCVS. The first, land use, distinguishes whether the respondent lives in a rural or urban area. The second variable gives a measure of the population size of the area where the respondent resides. Expectations derived from disorganization theories lead to the prediction that people who live in cities and more densely populated areas will have a higher risk of personal victimization.

The final explanatory variable will be a measure of the reference period. This is a crucial variable to both models. Since the NCVS is a rotating panel design of households, there is a discontinuity of data on individuals if they move out of the household. Also recall that interviews are conducted on each household every six months. To ensure that the information used in the analyses was not discontinuous the data set was modified to only include the first household that

occupied the housing unit at the first interview period of the 1994 NCVS. That is, if a household moved during the reference period the new residents were not included in the analysis. This variable is included in both analyses as a control measure.

Prior to estimating the two models, crosstabs analyses were conducted for all categorical variables to determine their relevance and validity in predicting personal victimization in the current research. A quick review of some of the more interesting characteristics will be briefly reported prior to proceeding to the next section. Results for crosstabs analysis can be found in Tables 3 through 23.

From the crosstabs analyses we see that for race, Asians had less repeat personal victimization (Table 3). For marital status, singles had higher repeat victimization, while widows had less repeat victimization (Table 5). Those who reported living at current address between one to two years had the highest repeat victimization (Table 6). Moving two, three, or four plus times was also associated with higher victimization (Table 7). People without security devices against intruders suffered more repeat victimization (Table 10). Households with children

under age 12 suffered greater repeat victimization (Table 12). Males had higher repeat victimization than females (Table 12). Having a college education was associated with decreased repeat victimization, while those with elementary education had greater repeat victimization (Table 13). Those in the no response category for income, had less repeat victimization (Table 17). People who lived in households without any motor vehicle had greater repeat victimization (Table 18). College students reported no victimization whatsoever (Table 19). City residents had higher repeat victimization (Table 20). People who used public transportation more frequently had higher repeat victimization (Table 21). Likewise those who reported the most frequent shopping habits also had higher repeat victimization (Table 22). People who reported going out nightly had higher repeat victimization (Table 23).

Professional status was omitted from analysis altogether since there were too many missing values. This was possibly due to the many omitted categories in the classification of occupations used by the NCVS. The variable measuring work location also had a high percentage of missing values and will be omitted from further analysis (see Table 20). Nevertheless one can

see that the majority of single and repeat victims were employed in cities. Type of living quarters also had a non-significant Chi-Square value and was omitted from future analysis (see Table 14).

The Chi-Square values for neighborhood watch group in area and participation in neighborhood watch group were also low compared to other measures (see Tables 8 and 9). Based on these results, the two measures were combined to produce a single measure of neighborhood watch.

IV. **Reference Categories for the Explanatory Variables.**

Except for age and the number of persons over twelve years old in household, all the other variables included in the analyses (BJS measured as qualitative variables) are qualitative. A base or reference category was selected for each categorical measure. In the models, the constant or intercept captures all these base effects and effort has been made to make this base or reference individual meaningful.

The reference categories for the attributes of vulnerability are: 'White' for race, 'non-Hispanic' for Hispanic, 'married' for marital status, '11 plus years' for time at current address, 'never moved' for number of

moves over the past five years, 'no participation in neighborhood watch' for neighborhood watch, 'no security devices' for security devices against intruders, and 'living in a household without children under 12' for children under 12.

The reference categories for the attributes of opportunity are: 'never use public transportation' for public transportation, 'never go shopping' for shopping, 'never go out during evenings' for evenings out, and 'participate in full-time employment' for employment.

The reference categories for attributes of attractiveness are: 'female' for gender, 'elementary education or less' for education, '$10,000-$49,999' for income, 'no vehicles' for number of motor vehicles in household, and 'rented' for tenure. One other point, a no-response category was included as a measure of *income* in the analysis instead of assigning this response into missing values. The position taken here is that many of the more affluent members of our society may not want to divulge information on their earnings to interviewers. This is not to say that only the affluent refrain from giving information on income, only that they are more likely than others not to.

The reference categories for attributes of area characteristics and reference period are: 'rural' for area of residence, 'less than 24,999' for population density, and 'eighteen months' for time.

FINDINGS

I. **Model 1: Logistic Regression Results.**

This model provides the empirical basis for exploring the first hypothesis which states that, personal victimization risk will increase for people with attributes of **vulnerability, opportunity, attractiveness**, and who lived in **more populated** areas. Three versions of model 1 were estimated for the logistic regression portion of this analysis. Refer to Table 24 for results on the three versions. In model 1.1 the dependent variable was regressed on all explanatory variables. Education and tenure had non-significant associations on personal victimization and were dropped from the revised model, model 1.2. Model 1.3 is identical to model 1.2 with the exception of length of residence, which is substituted by households moved. The two explanatory variables could not be included in the same model since they're directly related and therefore would cause multicollinearity.

Analysis of results will focus mostly on model 1.2 for two reasons. First the model's significance was the highest of the three, with a model chi-square of

3644.818. Also since responses for the length of residence at current address does not have any reference period limitations, it best captures the measure of one's stability in the community, hence providing an excellent measure of guardianship. Response to the number of moves is limited to the past five years.

I present the exponential of the estimated coefficients to ease the computation of risk of personal victimization. For any qualitative variable, applying the following formula:

$$Pr(victim) = [1 + \exp(-\beta)]^{-1}$$

gives risk resulting from belonging in the corresponding category compared to the base individual. However since the probability of personal victimization is very low (Trickett *et al.*, 1994), exponentials of coefficients smaller than 1 indicate a decreased risk relative to the reference category, and those greater than 1 indicate a greater risk.

The exponential of the intercept is not meaningful in its present form because it ignores the effects of the discrete explanatory variables, age and number of adults in household. To correct this the intercept effect is computed for the average age person (a 42-year-old) who lives in a two-person household, and

possesses all the base characteristics of the qualitative variables.[1]

$$\text{Basic Risk} = [1 + \exp(-(-3.257-(.0344*42)-(.0521*2))]^{-1}$$

This yields a basic risk of .0081. In other words the estimated probability of becoming a victim of personal crime for an individual (who is a 42 year old, married, white female of non-Hispanic origin, residing 11 plus years at current address, in neighborhood watch, have children, never uses public transportation, never shops, never goes out during evenings, fully employed, of average income, does not live in a household with any motor vehicle, lives in a rural area with less than 24,999 people, and reported victimization during an eighteen-month reference period) is .0081.

To examine the probability of each of the characteristics in the regression, one must include the coefficient of that characteristic in the exponential and solve the above formula. However by doing this, the effects of each characteristic are hard to discern. It is more beneficial to compare the risk change for each

[1] The reason for a two-person household is because the base category for *marital status* was married; hence requiring at least two adults in a household.

characteristic relative to its base or reference category, assuming that all other characteristics remain unchanged. This is done by applying the following the formula:

$$\text{Percent Risk Change} = [\exp(\beta) - 1] * 100$$

which yields roughly the risk change due to effect X_i relative to the reference category holding all other characteristics constant.

The following results were obtained for the attributes of interest; implications of these results are discussed later:

i. Results on Measurements of Vulnerability. The three demographic variables were all significantly related to personal victimization risk. Age had a decreasing effect on risk. For each year older, respondents had a 3.38 percent lower risk of victimization. So compared to the youngest person in the survey, a 12 year old (the earliest age at which the NCVS compiles data on), an average age person had a 101.4 percent [(42 - 12) * 3.38] lower risk of being victimized. For the oldest respondents, those 90 years old, the decrease was 263.64 percent compared to 12 year

olds. The overall effect of race also had a significant relation to victimization risk. Asians had 37.65 percent less risk of being victimized as compared to Whites, and Hispanic had a decreased risk of 15.58 percent when compared to non-Hispanics. Marital status proved a very strong predictor of personal victimization risk. The overall effect of the variable was highly significant. Single individuals had a 48.19 percent higher victimization risk as compared to married individuals, the base category. Even more striking divorced and separated had a 152.81 percent increased risk over the base category. The last category, widowed respondents, the risk was 43.92 percent higher than for married people.

Of particular interest to this research is the guardianship elements of vulnerability, all of which proved significant in predicting personal victimization risk. The overall effect for time at address proved significant. Consistent with predictions the longer one spent at the same address the lower the risk. Respondents reporting less than 6 months had a very pronounced risk of 143.26 percent higher than those at present residence for 11 or more years. Those in the 6-11 months category had a 58.7 percent greater risk than

the base category. The last significant coefficient of the address variable, respondents reporting 1-2 years at address, indicates a 22.28 percent increased risk.

For the other measure of residential mobility, frequency of moves over the past five years, refer to model 1.3 in Table 24. This measure was also significant overall and in line with predictions. The greater the frequency of moves, the higher the risk of personal victimization. For those reporting moving twice, three times, or four times, the increased risk was 22.74 percent, 53.51 percent, and 187.02 percent respectively over the base category. Victimization risk successively increased with the frequency of moves.

Referring back to model 1.2 we see that contrary to the predicted effects, people who participated in a neighborhood watch program had a 20.83 percent higher risk than those who did not. Individuals who lived in households with security devices against intruders had 18.44 percent increased risk than those that did not. Consistent with findings in property victimization studies, as the number of persons in a household increase, personal victimization risk decreases. For each person over 12 years old present in a household, risk decreases by 5.08 percent. People in households

with children under 12 years old has an increased victimization risk of 17.4 percent over those in households without children.

ii. Results on Measurements of Opportunity. The overall effects of all measures of opportunity were statistically significant. People who reported using public transportation daily or at least once a week had a 54.55 percent higher risk of becoming a victim than those people who reported never using this form of transportation. The increase was 28.14 percent for those who reported less than once a week. Respondents who reported daily shopping habits had a 59.92 percent increase in risk over respondents reporting never going shopping. Though not statistically significant, those reporting shopping once a week or less had only a 14.81 percent higher risk over the base category. Individuals who had daily night outings had 42.61 percent greater risk of becoming the victim of a personal crime than individuals whom reported never going out. Now turning to employment we see that people who participated in part-time work had a 37.76 percent higher risk of victimization than those in full-time work. School pupil had 18.45 percent higher risk of personal victimization than the base category.

iii. Results on Measurements of Attractiveness. From the results we can see that males had a much higher risk of personal victimization. Their risk was 45.26 percent higher than females. The two main indicators of social class, income and number of motor vehicles were also significantly related to personal victimization risk. Individuals in the lower income category had 19.5 percent higher risk than those in the average income category. Those in the highest income category had 7.36 percent lower risk than the base category. The coefficient for those giving no response was not statistically significant though the effect was a lower risk than the base category; somewhat offering evidence consistent with the assumption that the super rich may not respond to questions about their earnings. Individuals with four or more motor vehicles had 27.22 percent greater risk of personal victimization than did people who had no vehicles in their household.

Recall that two variables, education status and tenure, were dropped from model 1.2 since they were not statistically significant.

iv. Results on Measurements of Area Characteristics and Reference Period. Both area measures were significantly related to personal

victimization risk. Respondents who lived in urban areas had 29.8 percent higher risk of becoming the victim of a personal crime than their rural counterparts. Even more instructive was the effect of the incremental increase in personal victimization risk as population density increased. People who lived in areas with a population density between 25,000-249,000 had 12.65 percent higher risk than those did in the areas with less than 25,000. For those who lived in areas with more than 250,000 people the increase was 30.89 percent over those in the base category. The measure of reference period also had an overall significant effect on personal victimization. People in the six-month category reported 51.51 percent less chances of being victimized than those in the eighteen-month category. The coefficient for people in the twelve-month category was not statistically significant, however the effect was 9.78 percent decreased risk over the base category.

II. **Model 2: Negative Binomial Results.**

a. Overview of Model 2 Results. Three versions of model 2 were also estimated for the negative binomial regression analysis which are presented in Table 25. In

model 2.1 the dependent variable was regressed on all explanatory variables. However unlike in model 1.1, education and tenure both proved significant, while Hispanics and neighborhood watch had non-significant effects on personal victimization and were dropped from the revised model, model 2.2. Model 2.2 provides analytical results for incidence of personal victimization (second hypothesis). A third model, model 2.3, was estimated to capture the effects of individual characteristics on personal victimization among victims. This model provides analytical results for the concentration of personal victimization (third hypothesis). Analysis of results will focus on models 2.2 and 2.3. Results are in the same format as those in model 1. The exponential of the estimated coefficients minus 1 gives the increase and decrease in the mean number of victimizations compared to the reference individual other things being equal. Applying the following formula:

$$\text{Percent Change in Mean \# of Crimes} = [\exp(\beta) - 1] * 100$$

precisely yields the change in the mean number of incidence due to effect X_i relative to the reference category holding all other characteristics constant.

One other very important indicator in the negative binomial model is a measure of overdispersion, which gives evidence of unexplained heterogeneity in the population. That is, heterogeneity in the population not due to the explanatory variables included in the model. Lower (higher) overdispersion implies less (greater) unexplained heterogeneity in the population. Referring to Figure 1, we see that model 2.3 (overdispersion of .20) indicates much less unexplained heterogeneity in the population than model 2.2 (overdispersion of 7.25). The implications of this are discussed later.

b. Model 2.2: Distribution of Victimization Incidence in the Population. This model provides the empirical basis for exploring the second hypothesis which states that, personal victimization incidence will increase for people with attributes of **vulnerability, opportunity, attractiveness,** and who lives in **more populated** areas. The most significant contribution of this model is that it does not lump all victims in the same category for analytical purpose. Recall that pursuant to answering the research hypotheses, one of the aims was to explore relaxing the assumptions that successive victimizations are random events. This model

is not handicapped by this assumption and therefore should offer a better source on how individual characteristics affect personal victimization. It also models the complete distribution of victimization and predicts risk more accurately than the logistic (Osborn and Tseloni, 1998:325).

From the exponential of the intercept, exp(a), we can compute the mean number of victimizations of the reference person (who is a 42 year old, married, white female, residing 11 plus years at current address, have children, never uses public transportation, never shops, never goes out during evenings, has an elementary education, fully employed, of average income, does not live in a household with any motor vehicle, renting residence, lives in a rural area with less than 24,999 people, and reported victimization during an eighteen-month reference period) as:

$$\exp(a) = \exp[-1.7179 - (.0373*42) - (.0619*2)]$$

This yields a mean of .033 victimization for the base person per 18-month period.

To examine the mean number of victimization suffered by a person with a different characteristic,

exp(b), compute the following:

$$\exp(a + b) = \exp(a) * \exp(b)$$

For example, the mean number of victimization suffered by a divorced person is .071 (all other characteristics held constant). The following results were obtained for the main attributes of interest:

i. Results on Measurements of Vulnerability. The demographic variables all had significant coefficients. Aging decreased personal victimization by 3.67 percent for each year a person ages. Blacks had 8.31 percent less personal victimization than Whites. Asians had 38.79 percent fewer attacks than the base category. Marital status again proved a very strong predictor of personal victimization. Singles had 25.89 percent more victimization as compared to married individuals, the base category. For divorced and separated the increase was 115.71 percent over the base category. Widowed respondents had 59.36 percent less victimization than did married people.

All characteristics for the guardianship element of vulnerability, except neighborhood watch, proved significant in predicting personal victimization. As

with results from model 1.2 the longer one generally spent at the same address seems to decrease personal victimization. Respondents reporting less than 6 month had 58.89 percent more victimization than those at present residence for 11 or more years. Those in the 6-11 month category had only 6.53 percent increase for each event than the base category, though this coefficient was slightly non-significant. Those reporting 1-2 years at the same address had 11.73 percent fewer attacks. People in the 3-5 years category had 22.59 less victimization, and those in the 6-10 year category the decrease was 17.24 percent over the reference category.

Individuals who lived in households with security devices against intruders had 4.16 percent increased victimization than those that did not. Like the results in model 1.2, as the number of persons in household increases, personal victimization decreased by 6.01 percent per person. Having children under 12 years old in the household increases the mean number of victimization suffered by 15.23 percent.

ii. Results on Measurements of Opportunity. Focusing on the measures that influenced exposure, we see that people who reported using public transportation

daily or at least once a week had 7.97 percent more victimization than those people in the never use public transportation category. The coefficient for the less than once a week category was non-significant. Respondents who reported shopping once a week or less had 24.99 percent lower victimization than the base category. Individuals who had daily night outings had 19.19 percent greater victimization than individuals who reported never going out. Respondents who reported going out at night only once a week or less suffered 16.06 percent fewer personal crimes than those in the base category. People who participated in part-time employment had 52.57 percent higher victimization than did those in full-time work. The coefficient for the unemployed was not statistically significant, though it indicates an increase of .60 percent. School pupil had 29.52 percent more victimization than people did in the base category, for college students the effect was a decrease of 48.84 percent in the mean number of victimization.

iii. Results on Measurements of Attractiveness. The dimensions of attractiveness were all significantly related to personal victimization in this model. Males had 36.36 percent more victimization than females. For

education status, those who reported a high school level education had 6.67 percent fewer victimization than people with only elementary education. Those with college education had 6.76 percent greater victimization than the base category. The two main indicators of economic class, income and number of motor vehicles were also significantly related to personal victimization. Individuals in the lower income category had 18.17 percent more victimization compared to people in the reference category. Those giving no response had 9.95 percent less victimization. Individuals who lived in households with 1-3 vehicles had 15.29 percent less victimization than people who did not. For the four or more motor vehicles category there was 6.93 percent greater personal victimization. The effect for tenure was a 17.77 percent increase in the mean number of victimization for people who reported living in property that was owned or being bought as opposed to those who lived in rental property.

iv. Results on Measurements of Area Characteristics and Reference Period. Again both area measures were significantly related to personal victimization. Respondents who lived in urban areas had 33.07 percent more personal attacks than their rural

counterparts. For population density, we see that people who lived in areas with a population density of between 25,000-249,000 had 12.81 percent higher victimization than those did in the areas with less than 25,000. Those who lived in areas with more than 250,000 people had 35.50 percent higher victimization than people in the base category. For the control variable, the measure of reference period, people in the six-month category reported 56.02 percent less victimization versus people in the eighteen-month category. The coefficient for people in the twelve-month category was not statistically significant, however the effect was 13.75 percent less reported victimization than the base category.

c. Model 2.3: Distribution of Victimization Concentration. This model provides the empirical basis for exploring the third hypothesis which states that, personal victimization concentration will increase for victims with attributes of **vulnerability**, **opportunity**, **attractiveness**, and who live in **more populated** areas. Results presented in this section are limited to the significance of the individual characteristics (refer to Table 25). It is less important to examine the exact effect of the characteristics since this model only

looks at victims. Suffice to say that generally they are lower than the effects for the population. Those wishing to explore the specific effects can use the approximate formula given above to estimate the change in the mean number of victimization among victims.

Compared to the many characteristics that influence one's risk or change in the mean number of personal victimizations (incidence), not many remain as significant when exploring concentration of personal victimization. The characteristics with highly significant coefficients ($p < .01$) were age, divorced, widowed, less than 6 months at address, 3-5 years at address, persons over 12, part time work, college students, male, college education, 1-3 vehicles in household, population density of 250,000 or more, and reference period of six months. Characteristics with moderately significant coefficients ($p < .05$) were Asians, 6-10 years at address, children under 12, shopping once a week or less often, school pupil, and population density of 25,000-249,000. The characteristics with slightly significant coefficients ($p < .10$) were 1-2 years at address, and evenings out once a week or less. All other characteristics had non-significant coefficients.

DISCUSSION AND CONCLUSIONS

Analytical evidence from the logistic and negative binomial regression analyses is consistent with the premise of all three hypotheses. The evidence clearly suggests that there are individual-level characteristics which influences risk (prevalence) of personal victimization. There are also characteristics which influence the mean number of personal crimes per population (incidence) and mean number of personal crimes per victims (concentration). Also the implications of the evidence from exploring the characteristics of victims suggest that not all characteristics that influence ones chance of becoming a victim, or their mean number of incidence suffered, are as significant when only victims are considered. Moreover, we glean from model 2.3 that not only were there characteristics that influence concentration, the measure of overdispersion in this model provides compelling evidence for the third hypothesis. The low unexplained heterogeneity in this model indicates that victims were more alike than victims and non-victims considered together. Further, the implications are that

the statistically significant effects in this model adequately described the characteristics of victims. Put another way, the evidence clearly implies that there is strong support for the assertion that there are certain characteristics that make some individuals more prone to repeat personal victimization. That is, victims share many of the same characteristics.

Table 26 provides a summary of the percent changes in victimization for models 1.2 and 2.2. It is technically inaccurate to make direct comparisons between logistic regression analysis and negative binomial analysis since the first model indicates percent changes in the risk and the latter, percent changes in the mean number of victimization. Also the explanatory variables in the two models are not identical. This table should only be used as a quick reference for the relative degree of change for each characteristic in the two models, not for comparisons.

As evidenced by the indicators of vulnerability we see that it is one of the stronger predictors of personal victimization. As was expected, as people aged their risk to personal victimization decreases. This information is consistent with findings from property victimization research using both US and British (the

BCS) data. What's interesting is that, considering the numerical factor by which age lowers victimization per year older, it proves to be one of the more influential individual-level characteristics. Aging also decreased the likelihood of victimization incidence and concentration. Of all racial categories, Asians had the lowest risk and mean number of incidence of victimization and the only significant (moderately) coefficient for crime concentration among victims. Many researchers have reported that nonwhites suffer greater number of victimization (see Rountree *et al.*, 1994; Cohen and Cantor, 1981), however the evidence here is inconsistent with this finding. Findings for the effect of marital status is in accord with those reported by other authors. Cohen *et al.*, (1981) reported that married people had a lesser risk of predatory criminal victimization than unmarried. The current study found that the divorced or separated had the highest risk and mean number of incidence of victimization among all characteristics considered in the study. Though prior research on property victimization using US and British data has indicated that being divorced or separated does influence victimization, the results here intone a stronger effect on personal victimization. This

pronounced effect would seem to suggest that in this case, instead of the divorced or separated being an indication of vulnerability, it is probably more the result of personal victimization. The conjecture is that domestic abuse or assault is more likely to propel one to get a divorce or separation versus someone in a more stable marriage. This effect also carried over for victimization concentration. Widows had a higher victimization risk than married people, however they had lower incidence and concentration of victimization. So while widows had a greater probability of becoming a victim, they were also more likely to have a lower number of incidence and concentration.

The purports of the guardianship element of victimization theories are conformed by the current analysis. The evidence overwhelmingly indicates that the length of residency is associated with personal victimization. The longer one remains in the same residence, the lower the risk of victimization. This was also true for incidence and concentration of victimization. Whether this relationship between victimization and length of residency is due to closer ties to the community, or that people refrain from moving because they live in a low crime area cannot be

determined from this research. Arguably however, this characteristic at some level measures the residential mobility element of social disorganization theories put forth by Shaw and McKay (1942) and Sampson and Groves (1989). As such these results support the premise that people who live in less stable communities are more likely to be victimized. Regardless, at the individual-level the results indicate that people who moved fewer times were less victimized. These results are similar to findings on property victimization research by Sampson and Wooldredge (1987).

Another measure of the guardianship element of vulnerability, the number of people over twelve in household, also provides support for victimization theories. As with many studies on property victimization, this study found that individuals who reside in households with more people had less risk of victimization. This was also true for the number of incidence and concentration.

Two other measures of guardianship included in this analysis did not yield the expected results. Participation in a neighborhood watch was only related to risk of becoming a victim, but had no relation to incidence or concentration. Having security devices

against intruders was also associated with victimization risk and the mean victimization incidence per person, but was not related to concentration. In both cases these variables were associated with increased victimization risk, not the predicted decrease. These results would indicate that, instead of these measures deterring personal crime they probably capture some resulting measure following an initial occurrence of victimization. This belief is further supported by the fact that having security devices were significantly related to the risk of becoming a victim, but has no significant impact on concentration. Lynch and Cantor (1992) reported finding no significant effect of having one or more security devices on burglary victimization. They point out that having such devices is one thing, using them is another. They also suggest that the qualitative differences in security devices may also account for the unpredictable findings. Lynch and Cantor (1992) also found that neighborhood watch had a significant deterrent effect on burglary, but not larceny victimization. Regardless, while these measures may (Miethe and McDowall, 1993) or may not (Lynch and Cantor, 1992) have proved significant in some property victimization research, the current analysis cannot

support the value of this measure in affecting personal victimization.

The empirical predictions for the attributes of opportunity formulated from victimization theories are also supported by this research. In almost every measure of active or exposed lifestyle indicates that more active people suffered greater personal victimization risk, incidence, and concentration. Findings here were consistent with findings using both US (Lynch, 1987) and British data (Tseloni *et al.*, 1994). People who reported frequent public transportation usage had a much higher risk of becoming a victim and higher incidence. However this measure had no impact on the concentration of victimization. People who confined their shopping to once a week or less also had less risk of victimization. They also suffered fewer incidence and concentration of victimization. People who reported going out at night once a week had a slightly higher risk, however they had lower incidence and concentration than those who reported never. This evidence would indicate that while going out once a week resulted in higher risk, there were actually fewer incidence and concentration. Those who went out daily had a higher risk and more incidences of victimization.

The postulated effect for employment status received mixed support from this analysis. In accordance with predictions, people who were employed part-time had a higher risk of victimization than people who were employed full-time. They also had more incidence and concentration. However in the case of the unemployed, there was no significant association. This result is somewhat perplexing since the unemployed account for 32 percent of respondents. Researchers in the past have generally found that people who lived in areas with high unemployment suffered greater property victimization (Lauritsen *et al.*, 1995). Whether the results here were affected because this study focused on employment as an individual measure rather than a contextual variable, or that unemployment is unrelated to personal victimization cannot be ascertained. As was expected, a school pupil was more likely to be personally victimized. They also suffered more incidence and concentration of personal victimization. The evidence here is concordant with the widely accepted findings that school children are a high-victim group.

Evidence of the effect of target attractiveness on personal victimization was somewhat mixed. The fact that sex, a control variable in this model, supports the

voluminous research that indicates males suffer greater victimization comes as no surprise. The only thing evidenced here is a confirmation that the effect of this characteristic holds true for personal victimization, and that the characteristic is one of the stronger predictors of risk, incidence and concentration. As an attribute of attractiveness, education status provides evidence opposed to predictions. First, education status was unrelated to risk. Second people with college education had more incidence and concentration of victimization when compared to people with only an elementary education. On the other hand, there were fewer incidences for people with a high school education. One might infer that this greater mean number of incidence and concentration for college educated people was associated with college campuses. Such inferences would be wrong however, since this characteristic only captures a measure of educational attainment. This refutation is also evidenced by the characteristic that measures employment status. It indicates that college student had less incidence and concentration of victimization.

Two other measures of social status in this analysis also yield mixed results. The parabolic effect

of indicators of social class on property victimization reported by some authors (see Cohen and Cantor, 1981) was not found in the current analysis. This study did find that less affluent people were more likely to become victims, and suffered more incidences. This is consistent with findings by Meithe and McDowall (1993), who found a negative relationship between family income and violent crime. From their contextual analysis, they surmised that this was probably due to living in a poor socioeconomic area. Smith and Jarjoura (1989) also reported similar findings. On the other hand, people who lived in households with four or more motor vehicles were also more likely to become victims, and suffered more incidences. The evidence also indicates that people who owned 1-3 motor vehicles had less victimization risk, incidence, and concentration than those who reported not owning any. There may be a plausible explanation for this finding however. The effect for respondents who reported not owning any vehicles, the base category, may be covarying with measures of public transportation usage and the effect of living in urban areas. If this happened, it would explain the mixed results.

The area-specific effects obtained in this research all indicates significant associations with personal victimization. This significance of the effects were the same with regards to incidence and concentration of victimization except for urban residents (effect was only slightly statistically non-significant). The fact that this study found people who lived in more densely populated areas had higher risk has been widely reported by other researchers using the BCS (see studies by Osborn *et al.*, 1992; Trickett *et al.*, 1992). They also suffered more incidences and had greater concentration of personal victimization. What is interesting here is that the variable that measures population density shows the gradation effect of population density on personal victimization. Comparing medium and highly populated areas, it is evident that those living in medium density areas only had a slightly lower increase in victimization risk than those in highly populated areas. In other words, living in a medium density area does not drastically alter personal victimization risk compared to those living in high-density areas. This effect also carried over for the mean number of incidence and crime concentration among victims. Many prior researchers only measured the effect of living in an urban versus

rural area, without regards to the population density effect. It should be noted that some authors have reported findings opposed to these predictions. Smith and Jarjoura (1989) reported that they did not find any significant impact of population density on burglary victimization. They questioned whether population density was an important variable in theories of household victimization. From the current analysis, I must conclude that it certainly seems important when it comes to personal victimization.

Concluding Remarks. In the concluding section of this paper, I will discuss what this research tells us with regard to the three aims or justifications given earlier. First, as one of the few quantitative studies of personal victimization in the United States using a national data set, the findings here are generally consistent with studies using British data. Many of the individual-level characteristics that affect victimization seem to hold true across the two nations. The only difference seems to be the degree of the effect of each characteristic on victimization. This cross-cultural consistency of the evidence would tend to bolster the universality of victimization theories. On a practical level, it is likely that crime-fighting

strategies that prove effective in England should also prove effective in the US, and vice versa.

Second, this research also found solid evidence that many of the effects of individual characteristics on personal victimization are very similar to research on property victimization, further evidencing that victimization theories hold true regardless of crime category. The research evidence supports the premise that victimization theories apply to property and personal victimization alike.

The final goal for this research had to do with the negative binomial modeling. The evidence from models 1.2, 2.2, and 2.3 offers clear proof that many of the characteristics that impact the risk of victimization also impact the mean number of victimization incidence and concentration of crime among victims. However in some cases the significance of the effects is different, what makes one a victim does not necessarily translate to higher incidence or concentration of victimization. Further, many of the characteristics that are significantly related to the chances of becoming a victim, or the number of incidence suffered, are less or even totally insignificant when looking at crime concentration among victims.

The evidence from the models reinforces the hypotheses in this research, though there is clearly stronger evidence for the effects of **vulnerability**, **opportunity** and **type of area** on personal victimization, than there is for the influence of **attractiveness**.

Table 1.

Frequency Distribution of Personal Victimization

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
0	163956	89.2	96.9	96.9
1	4084	2.2	2.4	99.4
2	621	.1	.1	99.7
3	184	.0	.0	99.8
4	71	.0	.0	99.9
5	25	.0	.0	99.9
6	52	.0	.0	99.9
7	14	.0	.0	99.9
8	8	.0	.0	99.9
9	5	.0	.0	99.9
10	17	.0	.0	100.0
11	8	.0	.0	100.0
12	13	.0	.0	100.0
13	1	.0	.0	100.0
14	1	.0	.0	100.0
15	6	.0	.0	100.0
16	2	.0	.0	100.0
17	1	.0	.0	100.0
18	1	.0	.0	100.0
20	10	.0	.0	100.0
21	1	.0	.0	100.0
22	1	.0	.0	100.0
23	2	.0	.0	100.0
24	5	.0	.0	100.0
25	2	.0	.0	100.0
26	4	.0	.0	100.0
30	4	.0	.0	100.0
31	1	.0	.0	100.0
32	1	.0	.0	100.0
36	1	.0	.0	100.0
38	1	.0	.0	100.0
40	6	.0	.0	100.0
44	1	.0	.0	100.0
48	2	.0	.0	100.0
50	2	.0	.0	100.0
60	2	.0	.0	100.0
70	1	.0	.0	100.0
72	1	.0	.0	100.0
73	1	.0	.0	100.0
76	2	.0	.0	100.0
78	2	.0	.0	100.0
80	1	.0	.0	100.0
90	1	.0	.0	100.0
96	1	.0	.0	100.0
100	2	.0	.0	100.0
120	2	.0	.0	100.0
121	1	.0	.0	100.0
140	1	.0	.0	100.0
180	2	.0	.0	100.0
200	2	.0	.0	100.0
Total	169136	92.0	100.0	
System Missing	14742	8.0		
Total	183878	100.0		

Table 2.

Comparison of NCVS and Census Data (%)

	NCVS 1994	Bureau of Census[a]	Deviation[b]
SEX:			
Male	47.3	48.9	1.6
Female	52.7	51.1	-1.6
RACE:			
White	85.9	83.0	-2.9
Black	10.5	12.6	2.1
Am Ind[1]	.6	0.9	0.3
Asian[2]	3.0	3.6	0.6
Married:	54.1	54.8	0.7
AGE:			
Mean Age[3]	41.79	35.7	-6.1

[a]1994 projections based on 1990 Census published by the U.S. Bureau of the Census.

[b]Deviation = Census - NCVS.

[1]American Indian represents American Indian, Eskimo, and Aleut.

[2]Asian represent Asian and Pacific Islander.

[3]Note this not a percentage.

Table 3.

Crosstabs: Personal Victimization by Race

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Race			Total
			White	Black	Asian/Pacific Is American Indian/ Aleut/Esk	
Personal Victims	Non Victims	Count	165196	21010	5570	191776
		% Within Personal Victims	86.1%	11.0%	2.9%	100.0%
	Single Victims	Count	3386	587	91	4064
		% Within Personal Victims	83.3%	14.4%	2.2%	100.0%
	Repeat Victims	Count	683	93	13	789
		% Within Personal Victims	86.6%	11.8%	1.6%	100.0%
Total		Count	169265	21690	5674	196629
		% Within Personal Victims	86.1%	11.1%	2.9%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	58.330	4	.000

Table 4.

Crosstabs: Personal Victimization by Hispanic Origin

Case Processing Summary

	N	Percent
Valid	194909	99.1%
Missing	1720	.9%
Total	196629	100.0%

Crosstabulation

			Hispanic Origin		
			Yes	No	Total
Personal Victimization	Non Victims	Count	15977	174133	190110
		% Within Personal Victimization	8.4%	91.6%	100.0%
	Single Victims	Count	428	3591	4019
		% Within Personal Victimization	10.6%	89.4%	100.0%
	Repeat Victims	Count	82	698	780
		% Within Personal Victimization	10.5%	89.5%	100.0%
Total		Count	16487	178422	194909
		% Within Personal Victimization	8.5%	91.5%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	29.892	2	.000

Table 5.

Crosstabs: Personal Victimization by Current Marital Status

Case Processing Summary

	N	Percent
Valid	195971	99.7%
Missing	658	.3%
Total	196629	100.0%

Crosstabulation

			Marital Status				
			Married	Single	Divorced/ Separated	Widowed	Total
Personal Victims	Non Victims	Count	105885	53248	18452	13549	191134
		% Within Personal Victims	55.4%	27.9%	9.7%	7.1%	100.0%
	Single Victims	Count	1265	2062	638	88	4053
		% Within Personal Victims	31.2%	50.9%	15.7%	2.2%	100.0%
	Repeat Victims	Count	174	480	118	12	784
		% Within Personal Victims	22.2%	61.2%	15.1%	1.5%	100.0%
Total		Count	107324	55790	19208	13649	195971
		% Within Personal Victims	54.8%	28.5%	9.8%	7.0%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	1955.038%	6	.000

Table 6.

Crosstabs: Personal Victimization by Length of Time at Address

Case Processing Summary

	N	Percent
Valid	178600	90.8%
Missing	18029	9.2%
Total	196629	100.0%

Crosstabulation

			Length of Time at Address						
			<6 Mths	6-11 Mths	1-2 Years	3-5 Years	6-10 Years	11+ Years	Total
Personal Victims	Non Victims	Count	6425	8479	25454	34863	32551	66098	173870
		% Within Personal Victims	3.7%	4.9%	14.6%	20.1%	18.7%	38.0%	100.0%
	Single Victims	Count	387	351	780	793	681	970	3962
		% Within Personal Victims	9.8%	8.9%	19.7%	20.0%	17.2%	24.5%	100.0%
	Repeat Victims	Count	72	78	164	162	143	149	768
		% Within Personal Victims	9.4%	10.2%	21.4%	21.1%	18.6%	19.4%	100.0%
Total		Count	6884	8908	26398	35818	33375	67217	178600
		% Within Personal Victims	3.9%	5.0%	14.8%	20.1%	18.7%	37.6%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	947.344	10	.000

Table 7.

Crosstabs: Personal Victimization by The Number of Moves Over the Past Five Years

Case Processing Summary

	N	Percent
Valid	177793	90.4%
Missing	18836	9.6%
Total	196629	100.0%

Crosstabulation

			Number of Moves in the Past 5 Years					Total
			Never	Once	Twice	Three Times	Four or More	
Personal Victims	Non Victims	Count	109628	31106	15179	15005	2164	173082
		% Within Personal Victims	63.3%	18.0%	8.8%	8.7%	1.3%	100.0%
	Single Victims	Count	1881	742	459	663	204	3949
		% Within Personal Victims	47.6%	18.8%	11.6%	16.8%	5.2%	100.0%
	Repeat Victims	Count	335	132	111	139	45	762
		% Within Personal Victims	44.0%	17.3%	14.6%	18.2%	5.9%	100.0%
Total		Count	111844	31980	15749	15807	2413	177793
		% Within Personal Victims	62.9%	18.0%	8.9%	8.9%	1.4%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	1174.711	8	.000

Table 8.

Crosstabs: Personal Victimization by Neighborhood Watch Group in Area

Case Processing Summary

	N	Percent
Valid	167858	85.4%
Missing	28771	14.6%
Total	196629	100.0%

Crosstabulation

			Neighborhood Watch Group in Area			
			Yes	No	Don't Know	Total
Personal Victims	Non Victims	Count	40390	100504	22552	163446
		% Within Personal Victimization	24.7%	61.5%	13.8%	100.0%
	Single Victims	Count	985	2213	488	3686
		% Within Personal Victimization	26.7%	60.0%	13.2%	100.0%
	Repeat Victims	Count	190	422	114	726
		% Within Personal Victimization	26.2%	58.1%	15.7%	100.0%
Total		Count	41565	103139	23154	167858
		% Within Personal Victimization	24.8%	61.4%	13.8%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	11.758	4	.019

Table 9.

Crosstabs: Personal Victimization by Participation in Neighborhood Watch Group

Case Processing Summary

	N	Percent
Valid	45897	23.3%
Missing	150732	76.7%
Total	196629	100.0%

Crosstabulation

			Participation in Neighborhood Watch Group			Total
			Yes	No	Don't Know	
Personal Victims	Non Victims	Count	18079	26127	441	44647
		% Within Personal Victimization	40.5%	58.5%	1.0%	100.0%
	Single Victims	Count	433	602	13	1048
		% Within Personal Victimization	41.3%	57.4%	1.2%	100.0%
	Repeat Victims	Count	75	124	3	202
		% Within Personal Victimization	37.1%	61.4%	1.5%	100.0%
Total		Count	18587	26853	457	45897
		% Within Personal Victimization	40.5%	58.5%	1.0%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	2.375	4	.667

Table 10.

Crosstabs: Personal Victimization by Households With Device Against Intruders

Case Processing Summary

	N	Percent
Valid	194774	99.0%
Missing	1885	1.0%
Total	196629	100.0%

Crosstabulation

			Children Under 12		
			No	Yes	Total
Personal Victims	Non Victims	Count	65516	124399	189915
		% Within Personal Victimization	34.5%	65.5%	100.0%
	Single Victims	Count	1274	2768	4042
		% Within Personal Victimization	31.5%	68.5%	100.0%
	Repeat Victims	Count	256	531	787
		% Within Personal Victimization	32.5%	67.5%	100.0%
Total		Count	67046	127698	194744
		% Within Personal Victimization	34.4%	65.6%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	16.815	2	.000

Table 11.

Crosstabs: Personal Victimization by Households With Children Under 12

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Children Under 12		
			No	Yes	Total
Personal Victims	Non Victims	Count	134343	57433	191776
		% Within Personal Victimization	70.1%	29.9%	100.0%
	Single Victims	Count	2533	1531	4064
		% Within Personal Victimization	62.3%	37.7%	100.0%
	Repeat Victims	Count	452	337	789
		% Within Personal Victimization	57.3%	42.7%	100.0%
Total		Count	137328	59301	196629
		% Within Personal Victimization	69.8%	30.2%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	171.998	2	.000

Table 12.

Crosstabs: Personal Victimization by Sex

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Gender		
			Female	Male	Total
Personal Victims	Non Victims	Count	101495	90281	191776
		% Within Personal Victimization	52.9%	47.1	100.0%
	Single Victims	Count	1838	2226	4064
		% Within Personal Victimization	45.2%	54.8%	100.0%
	Repeat Victims	Count	345	444	789
		% Within Personal Victimization	43.7%	56.3%	100.0%
Total		Count	103678	92951	196629
		% Within Personal Victimization	52.7%	47.3%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	120.350	2	.000

Table 13.

Crosstabs: Personal Victimization by Education Level

Case Processing Summary

	N	Percent
Valid	193910	98.6%
Missing	2719	1.4%
Total	196629	100.0%

Crosstabulation

			Education Level			
			Elementary	High School	College	Total
Personal Victims	Non Victims	Count	22723	89160	77219	189102
		% Within Personal Victims	12.0%	47.1%	40.8%	100.0%
	Single Victims	Count	593	1808	1623	4024
		% Within Personal Victims	14.7%	44.9%	40.35	100.0%
	Repeat Victims	Count	167	345	272	784
		% Within Personal Victims	21.3%	44.0%	34.7%	100.0%
Total		Count	23483	91313	79114	193910
		% Within Personal Victims	12.1%	47.1%	40.8%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	92.129	4	.000

Table 14.

Crosstabs: Personal Victimization by Type of Living Quarters

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Type of Living Quarters		
			House/Apartment/ Flat	Other	Total
Personal Victims	Non Victims	Count	180064	11712	191776
		% Within Personal Victimization	93.9%	6.1%	100.0%
	Single Victims	Count	3807	257	4064
		% Within Personal Victimization	93.7%	6.3%	100.0%
	Repeat Victims	Count	742	47	789
		% Within Personal Victimization	94.0%	6.0%	100.0%
Total		Count	184613	12016	196629
		% Within Personal Victimization	93.9%	6.1%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	.358	2	.836

Table 15.

Crosstabs: Personal Victimization by Tenure

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Tenure		
			Rented	Owned/Being Bought	Total
Personal Victims	Non Victims .	Count	143709	48067	191776
		% Within Personal Victimization	74.9%	25.1%	100.0%
	Single Victims	Count	2499	1565	4064
		% Within Personal Victimization	61.5%	38.5%	100.0%
	Repeat Victims	Count	481	308	789
		% Within Personal Victimization	61.0%	39.0%	100.0%
Total		Count	146689	49940	196629
		% Within Personal Victimization	74.6%	25.4%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	457.435	2	.000

Table 16.

Crosstabs: Personal Victimization by Land Use

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Land Use		
			Rural	Urban	Total
Personal Victimization	Non Victims	Count	54607	137169	191776
		% Within Personal Victimization	28.5%	71.5%	100.0%
	Single Victims	Count	805	3259	4064
		% Within Personal Victimization	19.8%	80.2%	100.0%
	Repeat Victims	Count	160	629	789
		% Within Personal Victimization	20.3%	79.7%	100.0%
Total		Count	55572	141057	196629
		% Within Personal Victimization	28.3%	71.7%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	172.324	2	.000

Table 17.

Crosstabs: Personal Victimization by Household Income

Case Processing Summary

	N	Percent
Valid	196629	100.0%
Missing	0	.0%
Total	196629	100.0%

Crosstabulation

			Household Income				
			Poor[1]	Average[2]	Rich[3]	No Response[4]	Total
Personal Victims	Non Victims	Count	19802	102147	45045	24782	191776
		% Within Personal Victims	10.3%	53.3%	23.5%	12.9%	100.0%
	Single Victims	Count	596	2187	889	392	4064
		% Within Personal Victims	14.7%	53.8%	21.9%	9.6%	100.0%
	Repeat Victims	Count	111	405	198	75	789
		% Within Personal Victims	14.1%	51.3%	25.1%	9.5%	100.0%
Total		Count	20509	104739	46132	25249	196629
		% Within Personal Victims	10.4%	53.3%	23.5%	12.8%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	128.150	6	.000

[1]<$9,999
[2]$10,000-$49,999
[3]>$50,000
[4]Household income not given

Table 18.

Crosstabs: Personal Victimization by Number of Motor Vehicle in Household

Case Processing Summary

	N	Percent
Valid	196030	99.7%
Missing	599	.3%
Total	196629	100.0%

Crosstabulation

			Race			
			None	1-3 Vehicles	4+ Vehicles	Total
Personal Victims	Non Victims	Count	13392	149776	28014	191182
		% Within Personal Victims	7.0%	78.3%	14.7%	100.0%
	Single Victims	Count	402	2977	680	4059
		% Within Personal Victims	9.9%	73.3%	16.8%	100.0%
	Repeat Victims	Count	81	567	141	789
		% Within Personal Victims	10.3%	71.9%	17.9%	100.0%
Total		Count	13875	153320	28835	196030
		% Within Personal Victims	7.1%	78.2%	14.7%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	92.651	4	.000

Table 19.

Crosstabs: Personal Victimization by Employment Status

Case Processing Summary

	N	Percent
Valid	180478	91.8%
Missing	16151	8.2%
Total	196629	100.0%

Crosstabulation

			Employed					Total
			Full Time Work	Part Time Work	No Work	School Pupil	College Student	
Personal Victims	Non Victims	Count	98304	6446	57084	13454	457	175745
		% Within Personal Victims	55.9%	3.7%	32.5%	7.7%	.8	100.0%
	Single Victims	Count	2276	263	781	645		3965
		% Within Personal Victims	57.4%	6.6%	19.7%	16.3%		100.0%
	Repeat Victims	Count	396	52	135	185		768
		% Within Personal Victims	51.6%	6.8%	17.6%	24.1%		100.0%
Total		Count	100976	6761	58000	14284	457	165737
		% Within Personal Victims	55.9%	3.7%	32.1%	7.9%	.3%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	992.633	8	.000

Table 20.

Crosstabs: Personal Victimization by Employment Location

Case Processing Summary

	N	Percent
Valid	108599	55.2%
Missing	88030	44.8%
Total	196629	100.0%

Crosstabulation

			Employment Location		
			Not in City	In City	Total
Personal Victims	Non Victims	Count	50394	55152	105546
		% Within Personal Victimization	47.7%	52.3%	100.0%
	Single Victims	Count	1146	1455	2601
		% Within Personal Victimization	44.1%	55.9%	100.0%
	Repeat Victims	Count	177	275	452
		% Within Personal Victimization	39.2%	60.8%	100.0%
Total		Count	51717	56882	108599
		% Within Personal Victimization	47.6%	52.4%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	26.859	2	.000

Table 21.

Crosstabs: Personal Victimization by Frequency Public Transportation Usage

Case Processing Summary

	N	Percent
Valid	177978	90.5%
Missing	18651	9.5%
Total	196629	100.0%

Crosstabulation

			Public Transportation Usage			Total
			Never/Do Not Know	Daily or Once A Week	Once A Month or More	
Personal Victims	Non Victims	Count	138427	12060	22759	173246
		% Within Personal Victims	79.9%	7.0%	13.1%	100.0%
	Single Victims	Count	2745	568	649	3962
		% Within Personal Victims	69.3%	14.3%	16.4%	100.0%
	Repeat Victims	Count	486	121	163	770
		% Within Personal Victims	63.1%	15.7%	21.25	100.0%
Total		Count	141658	12749	23571	177978
		% Within Personal Victims	79.6%	7.2%	13.2%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	521.749	4	.000

Table 22.

Crosstabs: Personal Victimization by Frequency of Shopping

Case Processing Summary

	N	Percent
Valid	178352	90.7%
Missing	18277	9.3%
Total	196629	100.0%

Crosstabulation

			Frequency of Shopping			
			Never/Do Not Know	Daily	Once a Week or More	Total
Personal Victims	Non Victims	Count	3851	34293	135469	173613
		% Within Personal Victims	2.2%	19.8%	78.0%	100.0%
	Single Victims	Count	47	1082	2839	3968
		% Within Personal Victims	1.2%	27.3%	71.5%	100.0%
	Repeat Victims	Count	7	228	536	771
		% Within Personal Victims	0.9%	29.6%	69.5%	100.0%
Total		Count	3905	35603	138844	178352
		% Within Personal Victims	2.2%	20.0%	77.8%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	198.166	4	.000

Table 23.

Crosstabs: Personal Victimization by Frequency Evenings Spent Away from Home

Case Processing Summary

	N	Percent
Valid	178198	90.76
Missing	18431	9.4%
Total	196629	100.0%

Crosstabulation

			Frequency of Evenings Spent Out			
			Never/Do Not Know	Daily	Once a Week or More	Total
Personal Victims	Non Victims	Count	14233	32875	126355	173463
		% Within Personal Victims	8.2%	19.0%	72.8%	100.0%
	Single Victims	Count	185	1291	2488	3964
		% Within Personal Victims	4.7%	32.6%	62.8%	100.0%
	Repeat Victims	Count	35	296	440	771
		% Within Personal Victims	4.5%	38.4%	57.1%	100.0%
Total		Count	14453	34462	129283	178198
		% Within Personal Victims	8.1%	19.3%	72.6%	100.0%

Chi-Square Tests

	Value	df	Sig. (2-sided)
Pearson Chi-Square	668.689	4	.000

Table 24.

Model 1. Logistic Regression Predicting Risk of Personal Victimization by Individual Characteristics

Estimated Exponential Coefficients (β) of Personal Victimization			
Variable	**Model 1.1**	**Model 1.2**	**Model 1.3**
Constant	.0412***	.0385***	.0359***
Vulnerability			
AGE	.9662***	.9662***	.9672***
RACE(White)	***	***	***
Black	.9527	.9473	.9651
Asian	.6132***	.6235***	.6368***
HISPANIC	.8257***	.8442***	.8625**
MARITAL STATUS(Married)	***	***	***
Single	1.4733***	1.4819***	1.5139***
Divorced/Separated	2.5484***	2.5281***	2.5495***
Widowed	1.4675***	1.4392***	1.4384***
TIME AT ADDRESS(11+ Years)	***	***	-
Less than 6 Months	2.3843***	2.4326***	-
6-11 Months	1.5390***	1.5870***	-
1-2 Years	1.1951***	1.2228***	-
3-5 Years	1.0073	1.0231	-
6-10 Years	1.0554	1.0665	-
MOVES/PAST 5 YRS(Never)	-	-	***
Once	-	-	1.0301
Twice	-	-	1.2274***
Three Times	-	-	1.5351***
Four Times	-	-	2.8702***
NEIGHBORHOOD WATCH	1.2102***	1.2083***	1.1975***
SECURITY DEVICE	1.1864***	1.1844***	1.1844***
PERSONS OVER 12 YRS OLD	.9521***	.9492***	.9583***
CHILDREN UNDER 12	1.1770***	1.1740***	1.1719***
Opportunity			
PUBLIC TRANSPORTATION(Never)	***	***	***
Daily/At Least Once a Week	1.5392***	1.5455***	1.5581***
Less Than Once a Week	1.2717***	1.2814***	1.2783***
SHOPPING(Never)	***	***	***
Daily	1.5655***	1.5992***	1.6076***
Once a Week or Less Often	1.1266	1.1481	1.1603
EVENINGS OUT (Never)	***	***	***
Daily	1.4247***	1.4261***	1.4129***
Once a Week or Less Often	1.0416	1.0467	1.0458
EMPLOYMENT(Full Time)	***	***	***
Part Time	1.3880***	1.3776***	1.4085***
No Work	.9746	.9588	.9682
School Pupil	1.1727**	1.1845***	1.1867***
College Student	.0159	.0153	.0150

Table 24. continued

Estimated Exponential Coefficients (β) of Personal Victimization			
Variable	**Model 1.1**	**Model 1.2**	**Model 1.3**
Constant	.0412***	.0385***	.0359***
Attractiveness			
MALE	1.4520***	1.4526***	1.4571***
EDUCATION STATUS(Elementary)	n/s	-	-
High School	.9378	-	-
College	.9996	-	-
INCOME($10,000-$49,999)	***	***	***
Less than $10,000	1.1833***	1.1950***	1.2169***
$50,000 or More	.9249*	.9264*	.9297*
No Response	.9449	.9391	.9651
MOTOR VEHICLES(None)	***	***	***
1-3 Vehicles	.9661	.9655	.9414
4 or More	1.2756***	1.2722***	1.2346***
TENURE (Rented)	1.0385	-	-
Area Characteristics and Reference Period			
URBAN	1.2876***	1.2980***	1.2813***
POPULATION DENSITY(<24,999)	***	***	***
25,000-249,000	1.1221***	1.1265***	1.1282***
250,000 or More	1.2994***	1.3089***	1.2981***
TIME(Eighteen Months)	***	***	***
Six Months	.4835***	.4849***	.5200***
Twelve Months	.9025	.9022	.9134
Model Significance			
MODEL Chi-Square	3631.800***	3644.818***	3643.155***
Degrees of Freedom	40	37	36
Number of observations	196629	196629	196629

*p <.10 **p <.05 ***p <.01 n/s = not significant

Note: 1. Asterisk(s) that appears without a coefficient indicates significance of the overall variable.

2. Base categories given in parentheses.

3. Exponential coefficients less than 1 indicate a decreased risk relative to the reference category, and those greater than 1 indicates a greater risk.

Table 25.

Model 2. Negative Binomial Regression Predicting the Mean Number of Personal Victimization by Individual Characteristics

Estimated Exponential Coefficients (β) of Personal Victimization			
Variable	**Model 2.1**	**Model 2.2**	**Model 2.3**
Constant	.1944***	.1794***	.5273***
Vulnerability			
AGE	.9626***	.9633***	.9709***
RACE(White)			
Black	.9213*	.9169*	.8603
Asian	.6235***	.6121***	.7609**
HISPANIC	.9959	-	
MARITAL STATUS(Married)			
Single	1.2065***	1.2589***	1.0894*
Divorced/Separated	2.0873***	2.1571***	1.5591***
Widowed	.4411***	.4064***	.6219***
TIME AT ADDRESS(11+ Years)			
Less than 6 Months	1.6128***	1.5889***	1.2079***
6-11 Months	1.0557	1.0653	1.0631
1-2 Years	.8770***	.8827***	.9471*
3-5 Years	.7727***	.7741***	.8877***
6-10 Years	.8306***	.8276***	.9275**
NEIGHBORHOOD WATCH	.9959	-	
SECURITY DEVICE	1.0403*	1.0416**	1.0066
PERSONS OVER 12 YRS OLD	.9390***	.9399***	.9402***
CHILDREN UNDER 12	1.1393***	1.1523***	1.0819**
Opportunity			
PUBLIC TRANSPORTATION(Never)			
Daily/At Least Once a Week	1.0701*	1.0797**	1.0182
Less Than Once a Week	1.0066	.9883	1.0264
SHOPPING(Never)			
Daily	1.0298	1.0337	1.0322
Once a Week or Less Often	.7488***	.7501***	.8308**
EVENINGS OUT(Never)			
Daily	1.1977***	1.1919***	1.1078
Once a Week or Less Often	.8428***	.8394***	.8576*
EMPLOYMENT(Full Time)			
Part Time	1.5115***	1.5257***	1.2243***
No Work	1.0035	1.0060	1.0286
School Pupil	1.3130***	1.2952***	1.1195**
College Student	.5101***	.5116***	.7403***

Table 25. continued

Estimated Exponential Coefficients (β) of Personal Victimization			
Variable	**Model 2.1**	**Model 2.2**	**Model 2.3**
Constant	.1944***	.1794***	.5273***
Attractiveness			
MALE	1.3647***	1.3636***	1.1460***
EDUCATION STATUS(Elementary)			
High School	.9370***	.9333***	.9552
College	1.0651***	1.0676***	1.0056***
INCOME($10,000-$49,999)			
Less than $10,000	1.2052***	1.1817***	1.0324
$50,000 or More	.9862	.9915	1.0307
No Response	.8996**	.9005**	.9609
MOTOR VEHICLES (None)			
1-3 Vehicles	.8442***	.8471***	.8362***
4 or More	1.0675*	1.0683*	.9502
TENURE (Rented)	1.1850***	1.1777***	1.0530
Area Characteristics and Reference Period			
URBAN	1.3261***	1.3307***	1.0722
POPULATION DENSITY(< 24,999)			
25,000-249,000	1.1325***	1.1281***	1.0904**
250,000 or More	1.3670***	1.3550***	1.1666***
TIME(Eighteen Months)			
Six Months	.4276***	.4398***	.5715***
Twelve Months	.8394*	.8625*	.8988
Model Significance			
MODEL Chi-Square	2969.142***	2967.338***	3750.574***
Degrees of Freedom	40	38	38
Number of observations	196629	196629	4853
Overdispersion	7.2695***	7.2571***	.2009***

*p <.10 **p <.05 ***p <.01 n/s = not significant

Note: 1. Base categories given in parentheses.

2. Exponential coefficients less than 1 indicates a decreased in victimization relative to the reference category, and those greater than 1 indicates increased victimization.

Table 26.

Comparing Percent Change for Each Characteristic Versus It's Base Category for Models 1.2 and 2.2.

Percent (%) Increase or Decrease Compared to the Base Category		
Variable	**Model 1.2 - Logistic Regression[1]**	**Model 2.2 - Negative Binomial Regression[2]**
Vulnerability		
AGE[3]	-3.38***	-3.67***
RACE(White)		
Black	-5.27	-8.31*
Asian	-37.65***	-38.79***
HISPANIC	-15.58***	-
MARITAL STATUS(Married)		
Single	48.19***	25.89***
Divorced/Separated	152.81***	115.71***
Widowed	43.92***	-59.36***
TIME AT ADDRESS(11+ Years)		
Less than 6 Months	143.26***	58.89***
6-11 Months	58.7***	6.53
1-2 Years	22.28***	-11.73***
3-5 Years	2.31	-22.59***
6-10 Years	6.65	-17.24***
NEIGHBORHOOD WATCH	20.83***	-
SECURITY DEVICE	18.44***	4.16**
PERSONS OVER 12 YRS OLD[4]	-5.08***	-6.01***
CHILDREN UNDER 12	17.4***	15.23***
Opportunity		
PUBLIC TRANSPORTATION(Never)		
Daily/At Least Once a Week	54.55***	7.97**
Less Than Once a Week	28.14***	-1.17
SHOPPING(Never)		
Daily	59.92***	3.37
Once a Week or Less Often	14.81	-24.99***
EVENINGS OUT(Never)		
Daily	42.61***	19.19***
Once a Week or Less Often	4.67	-16.06***
EMPLOYMENT(Full Time)		
Part Time	37.76***	52.57***
No Work	-4.12	0.6
School Pupil	18.45***	29.52***
College Student	-98.47	-48.84***

Table 26. continued

Percent (%) Increase or Decrease Compared to the Base Category		
Variable	**Model 1.2 - Logistic Regression[1]**	**Model 2.2 - Negative Binomial Regression[2]**
Attractiveness		
MALE	45.26***	36.36***
EDUCATION STATUS(Elementary)		
High School	-	-6.67***
College	-	6.76***
INCOME($10,000-$49,999)		
Less than $10,000	19.5***	18.17***
$50,000 or More	-7.36*	-0.85
No Response	-6.09	-9.95**
MOTOR VEHICLES(None)		
1-3 Vehicles	-3.45	-15.29***
4 or More	27.22***	6.83*
TENURE (Rented)	-	17.77
Area Characteristics and Reference Period		
URBAN	29.8***	33.07***
POPULATION DENSITY(< 24,999)		
25,000-249,000	12.65***	12.81***
250,000 or More	30.89***	35.5***
TIME(Eighteen Months)		
Six Months	-51.51***	-56.02***
Twelve Months	-9.78	-13.75*
Model Significance		
MODEL Chi-Square	3644.818***	2967.338***
Degrees of Freedom	37	38
Number of observations	196629	196629

*p <.10 **p <.05 ***p <.01

[1]Percent increases or decreases for each characteristic in this model represents a change in the risk of becoming a victim compared to the base category.

[2]Percent increases or decreases for each characteristic in this model represents a change in the mean number of victimization compared to the base category.

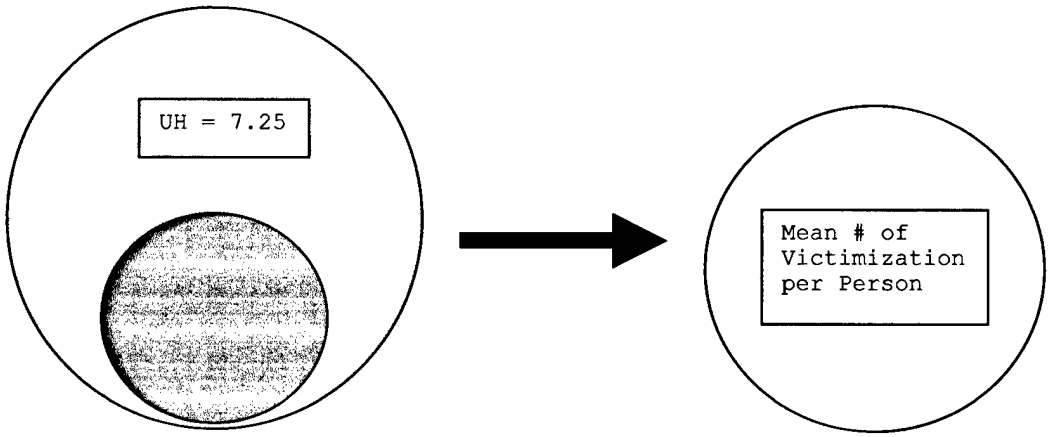
[3]Percent change is for each unit increase in age.

[4]Percent change is for each unit increase in persons over 12 years old.

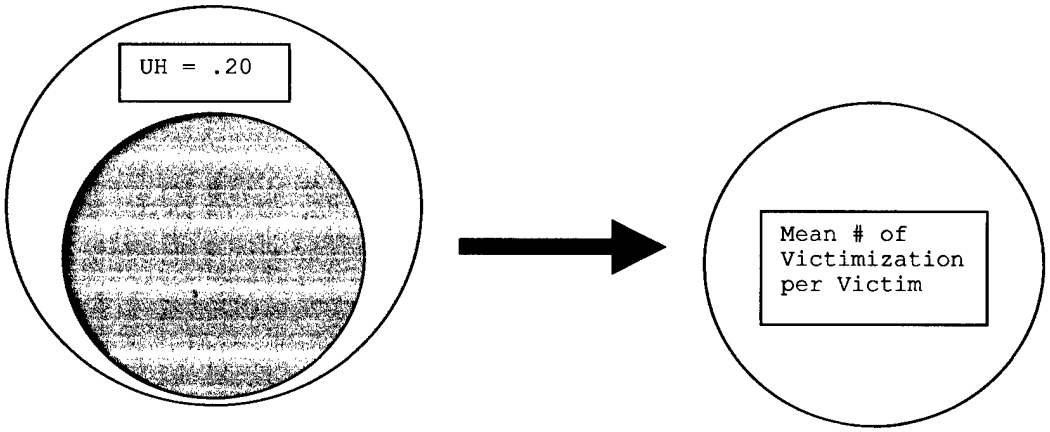
Figure 1.

Individual Characteristics that Explains
Personal Victimization

Model 2.2



Model 2.3



Shaded Areas Represents Unexplained Heterogeneity (UH)

Explanatory Variables included in the Models

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