ECONOMIC FACTORS & INTIMATE VIOLENCE

A Thesis presented

by

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DEDICATION

To my grandfather, Benjamin Einhorn, for teaching me of economics and perseverance, and to my parents, who have made my education possible.

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"Many times a day I realize how much my own outer and inner life is built upon the labors of my fellow man...and how earnestly I must exert myself in order to give in return as much as I have received and am still receiving."

- Albert Einstein

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INTRODUCTION

Intimacy. For most, this word conjures up images of love and caring, warmth and friendship. But for others, there is another side to their intimate relationships -- violence.

Intimate violence has long been considered a taboo subject, a matter not to be discussed with anyone outside of the family. In the last twenty years, however, intimate violence has come to be seen not as a personal matter, but as a nation-wide social problem. Headlines, talk shows, and official studies have begun to investigate and report on intimate violence, calling attention to the occurrence of spousal abuse, date rape, battering of sexual partners, and child abuse.

As the public has become increasingly aware of the prevalence of these problems in our society, intimate violence has become the subject of scholarly attention. Researchers have searched for the sociological, psychological, historical, and political causes of intimate violence. However, few people have empirically examined the connection between economic factors and intimate violence.

The goal of this paper is to analyze the ways in which economic variables affect intimate violence. I have chosen to concentrate exclusively on intimate violence in which women are abused by their spouses or lovers. By excluding male victims, I do not mean to imply that men are not also subjected to acts of violence by their partners; the fact that men are abused is well-documented. However, as Richard Gelles and Murray Straus, two of the nation's leading family violence researchers, point out, the "real issues are initiation of violence, outcomes, and consequences...By and large, women used violence to protect themselves." ¹ Moreover, according to the National Crime Survey, which will serve as the main source of data for this paper, roughly 95% of the victims of domestic violence are

¹ Richard J. Gelles and Murray A. Straus. Intimate Violence. New York: Simon and Schuster. 1988. pp. 104-105.

women. ² My decision to focus only on the plight of abused women is not based on estimates of incidence levels alone, but on a belief that it is women, not men, who are more likely to be trapped into abusive relationships by economic constraints.

Why study intimate violence?

The basic rationale for studying intimate violence is simple: intimate violence presents a grave threat to women in the United States. In 1984, the U. S. Surgeon General reported that a woman in the United States is more likely to be assaulted, injured, raped, or killed by a male partner than by any other type of assailant. ³ Research conducted at medical facilities suggests that battering of wives results in more injuries requiring medical treatment than do ape, auto accidents, and muggings combined; in 1986, the Federal Bureau of Investigation reported that abused women comprise approximately 20% of women treated by hospital emergency services. ⁴ As recently as August 1990, the American Medical Association released an even more alarming figure, claiming that of the women who visit emergency departments, 22 - 35% have abuse-related symptoms. ⁵ And even more disturbing is the fact that intimate violence results not only in injury, but in death--30% of female homicide victims in the United States die at the hands of their husbands or boyfriends. This translates into four deaths per day as a direct result of intimate violence. ⁶

Yet despite the great danger that intimate violence presents to women in the United States, very little is known about the number of cases or the victims involved. And though

² Bureau of Justice Statistics. *Report to the Nation on Crime and Justice: The Data.* Washington, D.C.: Office of Justice Programs, U.S. Department of Justice. November 1986.

³ A. Browne and K.R. Williams. "Resource Availability for Woman at Risk: Its Relationship to Rates of Female Partner Homicide." Paper presented at the American Society of Criminology Meeting, Montreal, Canada. November 11-14, 1987.

⁴ E. Stark et al. "Medicine and Patriarchal Violence: The Social Construction of a Private Event." International Journal of Health Services. 9(3):461-493, 1979.

⁵ "Study: Many Doctors Ignore Widespread Abuse of Women." The Miami Herald. August 22, 1990. p. 5A.

⁶ National Woman Abuse Prevention Project. Understanding Domestic Violence: Fact Sheets. Washington, D.C.: National Woman Abuse Prevention Project. p.20.

the claim is frequently made that economic dependence plays a large role in tying women to abusive relationships, few researchers have attempted to support this hypothesis with empirical evidence. This leads to an obvious question: why has such an important issue received so little attention? For the most part, the answer seems to lie in the formidable obstacles to collecting information on intimate violence victims, and the consequent dearth of data on the subject. Furthermore, as we will see, it is extremely difficult to work with the data which are available. Nevertheless, the links between economic factors and intimate violence merit far more attention than they have received.

The Approach of this Paper

This paper will explore the relationship between economic factors and intimate violence by studying the socioeconomic characteristics of its victims. With this research I hope to help fill gaps in current knowledge on the topic by addressing questions including the following: What is the economic position of abused women? Is the incidence of intimate violence affected by the relative financial position of its victims and their abusers? Does a change in the earnings of women, or of their husbands or lovers, affect the probability that abuse will occur or the probability that the woman will remain in an abusive relationship?

My empirical work in searching for answers to these questions is focused on data from the National Crime Survey. The National Crime Survey (NCS), conducted by the U.S. Department of Justice, collects information on nation-wide crime victimizations. Using data from over 450,000 NCS interviews conducted between January 1979 and June 1983, I compare a range of economic and demographic characteristics of abuse victims to the characteristics of non-victims. These data provide an opportunity to study an extremely large, nationally-representative sample of women, and thus to draw conclusions about the overall relationship between economics and intimate violence in the United States.

3

In order to further evaluate my results, I then turn to the Omaha Domestic Violence Police Experiment. This data set consists of interviews of 521 battered women in Omaha, Nebraska. Because this data set does not reflect a nationally-representative population as the NCS does, it cannot be used to assess the effect of economic factors on intimate violence on a national scale. Unlike the NCS, however, these data are specifically designed to study domestic violence and thus include more detailed information about the differences in the financial positions of victims and offenders in abusive relationships. These data therefore enable precise analysis of the impact of relative economic status on intimate violence.

This paper is divided into five chapters. Chapter 1 presents the social background against which intimate violence occurs and reviews the previous empirical research on this topic. Chapter 2 derives a theoretical model of the probability that intimate violence will occur. Chapter 3 describes the National Crime Survey and discusses the possibility that underreporting of intimate violence will lead to biased conclusions. Chapter 4 reports empirical results from the NCS data, describing the relationships between economic factors and intimate violence. Chapter 5 uses the Omaha data set to test directly the effect of relative financial status on the probability that a woman will leave an abusive partner. There is a brief concluding section.

CHAPTER 1: BACKGROUND

I. Why Does Intimate Violence Occur?: The Social Background

The word "violence" commonly brings to mind scenes of barroom fights, anonymous muggings, and assaults on city streets. Most violence in the United States, however, takes place not between strangers, but within families. ¹ For many of the very characteristics that make the family a warm, supportive, and intimate environment also serve to place it at great risk of violence. Family members, as well as lovers, frequently spend a great deal of time together and are interdependent, providing for a high emotional intensity in their relationship and for a correspondingly high level of frustration due to unfulfilled expectations. Couples are often forced to make "zero sum" choices about activities and lifestyles, have an extensive knowledge of each other's strengths and weaknesses, and feel as if they have an implicit right to influence one another. In addition, privacy from outside interference in such relationships is highly valued and few structural arrangements exist for third-parties to arbitrate disputes between couples. ²

Intimate violence is also encouraged by the existence of a cultural norm which makes it acceptable for family members to hit each other. As Dr. Murray Straus, founder of the Family Research Laboratory at the University of New Hampshire, and Dr. Richard Gelles, a leading family violence researcher point out:

In our society, a person's earliest experiences with violence come in the home-- spankings and physical punishments from parents. We learn that there is always going to be a certain amount of violence that accompanies intimacy. Moreover, we learn that children

¹ Gerald T. Hotaling and Murray A. Straus. "Culture, Social Organization, and Irony in the Study of Family Violence," in Murray A. Straus and Gerald T. Hotaling, (Eds.) *The Social Causes of Husband-Wife Violence*. Minneapolis: University of Minnesota Press, 1980. p.11.

² The ideas in this paragraph are adapted from discussions of characteristics which place families at high risk for violence in these chapters of *The Social Causes of Husband-Wife Violence*: "Culture, Social Organization, and Irony in the Study of Family Violence," p.17., "Attribution Processes in Husband-Wife Violence," p. 153., "Stress and Family Violence," p. 113.

"deserve" to be hit, that 'sparing the rod spoils the child.' We grow to accept violence as a way of solving social problems. 3

In the United States and Great Britain, 93% of all parents use physical punishment to discipline their children, and at least half of these families continue to do so through the senior year of high school. ⁴ In fact, most Americans believe that there is a moral obligation for parents to use physical punishment as a means of controlling their children when other means fail. ⁵ Children are therefore taught early in life that those who love them hit, and that violence is an acceptable reaction to family difficulties, lessons that may remain with them for the rest of their lives and naturally carry over into their intimate relationships.

Historically, violence as a method of discipline has not only been widely accepted when dealing with children, but with wives as well. Until fairly recently, women were treated both socially and legally as the property of their husbands. For centuries, women had few legal rights of their own and laws explicitly granted husbands the right to chastise errant wives. And even though the position of women in our society has steadily improved, there is considerable evidence that the underlying spirit of these attitudes still lingers. ⁶ For example, in 1974, a random sample of people living in Baltimore was given descriptions of 140 wide-ranging crimes and asked to rate the degree of the seriousness of the offense. In this study, "forcible rape after breaking into a home" was rated the 4th worst crime, while "forcible rape of a former spouse" was rated the 62nd, barely making the top half of the offense list. As sociologists Finkelhor and Yllo conclude, our social climate permits husbands to feel that they can use violence against their wives

³ Intimate Violence p. 19-20.

⁴ Murray A. Straus. "The Marriage License as a Hitting License: Evidence from Popular Culture, Law, and Social Science" in *The Social Causes of Husband-Wife Violence*, p.40.

⁵ "Culture, Social Organization, and Irony in the Study of Family Violence." p. 13.

⁶ "The Marriage License as a Hitting License: Evidence from Popular Culture, Law, and Social Science." p.44.

with impunity. ⁷ And like most traditional ideas, the notion that men have society's implied permission to physically control their wives or girlfriends dies hard. ⁸

Intimate violence is not only fostered by traditional attitudes toward marriage, but by the hierarchical, male-dominant nature of Western society. ⁹ The pervasive influence of patriarchy in society has resulted in the widespread acceptance of the ideology of male dominance. This ideology, even in today's world, has not been overcome. As one scholar notes:

The structures of patriarchy have eroded over the past 20 years as they have been challenged and rejected by the woman's rights movement. The ideology of male dominance, however, continues and remains an important aspect in the development of male identity. 10

Other scholars support this view, noting that progress toward sexual equality has been markedly slower than seemed likely in the early 1970's. ¹¹

Traditional sexism, the dynamics of partner relationships, and the acceptability of family violence in our society thus provide the background against which intimate violence takes place. Yet the question still remains: why would a man willingly inflict pain on the woman he supposedly loves? A wide variety of answers to this question exist: the stress of everyday life, feelings of anger, vulnerability, powerlessness and inadequacy, imitation of violent parents or role models, and the widespread acceptance of violence as a method of control. On a basic level, however, one reason why men batter is simple: because they can. Economic dependence, often only briefly mentioned by family violence researchers,

⁷ David Finkelhor and Kersti Yllo. "Rape in Marriage, A Sociological View" in David Finkelhor, Richard Gelles, Gerald T. Hotaling, and Murray A. Straus, (Eds.) *The Dark Side of Families* Beverly Hills, California: Sage Publications, Inc., 1983. p.128-129.

⁸ Ginny NiCarthy. Getting Free: A Handbook for Women in Abusive Relationships. 1982.

⁹ Murray A. Straus. "Sexual Inequality and Wife Beating" in *The Social Causes of Husband-Wife Violence* p.87.

¹⁰ Kathleen J. Ferraro. "An Existential Approach to Battering" in Gerald T. Hotaling, David Finkelhor, John T, Kirkpatrick, and Murray A. Straus, (Eds.) Family Abuse and Its Consequences. New Directions in Research. Newbury Park: Sage Publications, 1985. p. 127.

^{11 &}quot;Sexual Inequality and Wife Beating." p.91.

can leave a woman no other choice but to continue her relationship with an abusive partner. My hypothesis is that economic factors are an integral part of intimate violence.

II. Economics & Intimate Violence: Previous Research

Is there a connection between intimate violence and economics? The National Woman Abuse Prevention Project (NWAPP), in *Fact Sheet: Battered Women and Economics*, writes:

Women often remain trapped in abusive relationships because of simple economics. Like all women, battered women may become the victims of the "feminization of poverty" should they attempt to support themselves and their children on their own. A woman with children who leaves an abusive partner is likely to face severe economic hardship; battered women know this when they are making choices about their lives. ¹²

Similar thoughts are echoed throughout literature on family violence whenever economics is mentioned. For many, the assumption that the fate of battered women is tied to economics seems indisputable. As Gelles and Straus point out: "Men typically enjoy more social and economic status than do women...men can hit their wives without fear that their wives can extract a social or economic cost." ¹³ But as stated in my introduction, the empirical research completed up until now has failed to give us a conclusive picture of the economic situation of battered women.

Before examining the previous empirical work which has been done on this subject, an important distinction must be drawn: the distinction between absolute economic status and relative economic position. Studies of absolute economic status are concerned with identifying the economic position of abused women in society, searching for answers to questions such as: are battered women rich or poor? employed or unemployed? educated or uneducated? Issues of relative economic status focus not on the overall financial

¹² Understanding Domestic Violence: Fact Sheets. p.3.

¹³ Family Violence. Bureau of Justice Statistics, Special Report. Washington, D.C.: U.S. Department of Justice. April 1984. p.31.

position of the battered woman and her family's income, but on her position relative to that of her partner, examining what fraction of the couple's income actually belongs to the victim. For regardless of the combined economic level of the couple, financial dependence may make it more difficult for a woman to terminate an abusive relationship.

A. Absolute Economic Status: Are Battered Women Rich or Poor?

Historically, the abuse of women has been considered an exclusive problem of the socioeconomically disadvantaged. As national attention has turned to intimate violence, however, the belief that it affects women of all socioeconomic levels has gained acceptance. Recent literature on domestic violence is rife with statements claiming that domestic violence occurs amongst all socioeconomic classes, affecting the wealthy as well as the poor. Researchers, social workers, and physicians attest to this fact, citing cases of abuse in all sectors of society. ¹⁴

Although not the exclusive problem of the poor, intimate violence is generally believed to affect low income families to a greater extent. As Gelles and Straus point out, all of their work and the majority of other clinical and survey investigations suggest that domestic violence is more likely to occur in lower income or minority households. ¹⁵ Still, most researchers, including Gelles and Straus, believe that this is at least partly because abuse amongst the poor is more likely to come to public attention, and because the poor are more likely to be labelled "abused." ¹⁶ Victims without the financial resources necessary to secure private assistance are more likely to seek public medical care, legal aid, or shelter than are wealthy victims. Women who live in crowded apartments in inner cities

¹⁴ Murray A. Straus, Richard J, Gelles, and Suzanne K. Steinmetz. Behind Closed Doors: Violence in the American Family. New York: Anchor Press, 1980. p.144.

¹⁵ Family Violence p.43.

¹⁶ Family Violence. p.43./ Understanding Domestic Violence: Fact Sheets. p.17. / Lenore E. Walker. The Battered Woman. NY, NY: Harper & Row Publishers. / National Institute of Justice. Research in Brief: Confronting Domestic Violence: The Role of Criminal Court Judges. Washington, D.C. : U.S. Department of Justice. November 1986.

are also more likely to come to the attention of the police than are those who live in suburban homes. As one physician reports, a patient treated for abuse in a public hospital emergency room is five times more likely to be reported as abused than a patient seen by a private doctor. ¹⁷ It is thus unclear whether poor women are more likely to be abused, or are simply more likely to be identified as abused.

B. Relative Economic Status

Previous research has not only failed to give us a conclusive picture of the absolute economic status of battered women, but has failed to reach a definitive conclusion about how relative economic status affects the incidence of abuse as well. Little empirical research, especially on a national level, has focused on the economic situation of battered women. Some studies, however, have suggested that a relationship between relative economic status and intimate violence exists. In this section, I will briefly review some of these studies.

In 1980, Lewis Okun conducted a statistical study to answer one of the questions most frequently posed about battered women: why do they stay? Okun surveyed 187 residents of SAFE HOUSE, a battered women's shelter in Washtenaw County, Michigan, to determine which of them returned to their abusers after leaving the shelter. As Okun's writes, "a very strong relationship was derived between the outcome of the shelter residents' relationships and the relative economic position of the battered woman and her violent mate." For the 33 couples in which the battered woman was producing more income than her mate, the rate of immediate termination of cohabitation was 54.5%, compared to a rate of 27.7% among couples in which the batterer had an income equal to or higher than that of the victim. Okun also found that for the 50 men surveyed who were not producing any income, the rate of termination of the relationship was 48%, compared to a

¹⁷ Behind Closed Doors : Violence in the American Family. p. 145.

26.6% rate of breakup for couples involving assailant partners who were employed. ¹⁸ Despite the small sample Okun used for his work, these empirical results demonstrate that women who are financially dependent are more likely to return to an abusive partner, even after spending time at a shelter. However, Okun himself cautions about applying his results to the situation of other abused women. As he writes, "The results of this study of course apply reliably only to the population of battered women taking refuge at SAFE House." ¹⁹

Another study which reported on the effect of relative economic position on the lives of battered women, was based on a sample of 125 abused women in Santa Barbara County, California. Analysis of this data demonstrated that in certain scenarios, economics is a significant factor in the incidence of intimate violence. For low-income couples in which both partners are employed, increases in the male's income is correlated with increases in violence, while increases in the females' income have a negative but basically insignificant effect on violence. In high income couples in which the male is the main provider, increases in the income of either partner are associated with a decrease in violence. But for high income families where the woman has a higher income, increases in her earnings serve to increase violence, a finding which contradicts the results of Okun's work. ²⁰

Studies such as these, while they do attempt to examine empirically the effect of economics on intimate violence, are based on small, specific sample groups and can therefore give only limited insight into the overall connection between economics and abuse. The dearth of nation-wide data on abused women has naturally made analysis of the

¹⁸ Lewis Okun. "Termination or Resumption of Cohabitation in Woman Battering Relationships: A Statistical Study" in Gerald T. Hotaling, David Finkelhor, John T. Kirkpatrick, and Murray A. Straus (Eds.) Coping with Family Violence: Research & Policy Perspectives. Newbury Park: Sage Publications. p. 112-113.

¹⁹ Termination or Resumption of Cohabitation in Woman Battering Relationships: A Statistical Study. p. 116.

²⁰ Helen V. Tauchen, Ann D. Witte, and Sharon K. Long. Domestic Violence: A Nonrandom Affair. Wellesley College Working Paper #133. May 1989.

impact of economics on intimate violence at a national level extremely rare. A study conducted by Murray Straus and Debra Kalmuss, however, did look at the effects of economics based on a nationally representative sample and reported on the importance of relative economic position. ²¹

Using the data collected in the First National Family Violence Survey, Straus and Kalmuss set out to analyze the impact of marital dependency, both objective and subjective, on intimate violence. Straus and Kalmuss measured the woman's objective dependency as a sum of scores on three variables: whether she was employed, whether she had children age five or younger at home, and whether her husband brought in 75% or more of their combined income. The woman's subjective dependency quantified her perceptions about whether she or her husband would be harmed more if they broke up in five areas: financial, sexual, loss of friends, angry relatives, and loneliness. They concluded that more dependent women are on their husbands, the more likely they are to be victims of physical abuse. As they write:

wives who are highly dependent on marriage are less able to discourage, avoid, or put an end to abuse than are women in marriages where the balance of resources between husbands and wives is more nearly equal...marital dependency reinforces the likelihood that women will tolerate physical abuse from their husbands...However, wives' subjective marital dependency was significantly related to minor, but not severe violence, and wives' objective marital dependency followed the opposite pattern. ²²

Their research thus suggests that women who are financially dependent on their husbands are more likely to be subjected to severe violence at the hands of their mates. Their research, however, is based on a one-time survey of only 2,146 women; further research is necessary to strengthen the validity of the conclusion that economic factors affect intimate violence.

²¹Debra S. Kalmuss and Murray A. Straus. "Wife's Marital Dependency & Wife Abuse." Journal of Marriage and the Family. May 1982.

^{22 &}quot;Wife's Marital Dependency & Wife Abuse." pp. 277 - 286.

CHAPTER 2: THEORETICAL MODEL

In this chapter I discuss the theoretical implications of the relationship between economics and intimate violence. I begin by developing a simple theoretical model of an abusive situation as the result of two utility-maximizing choices: the man's choice to abuse his partner, and the woman's choice to remain with her abuser. Through analysis of this individual decision model, I predict the effect that economic factors will have on the probability that abuse will occur. I then relax the simplifying assumptions upon which this model is based in order to broaden my examination of the mechanisms by which economic factors may be linked to intimate violence.

I. INDIVIDUAL DECISION MODEL

A. Conceptual Framework

Before I begin to outline this individual decision model it is important to identify the conceptual framework upon which it is based: the belief that human behavior can be modeled as a rational, utility-maximizing choice. Viewing human action in this manner is widely accepted when analyzing decisions which are thought to be purely "economic", such as the choice between consumption and savings. When it comes to behavior which is perceived as belonging to the "social" realm, however, the validity of this approach is not as well-documented or as widely maintained. Yet a growing number of theorists in various disciplines accept that many human actions can be perceived as stemming from rational, utility-maximizing choices.

One of the most ardent (and perhaps one of the most extreme) proponents of this view of human behavior is Gary S. Becker, author of *The Economic Approach to Human Behavior*. Becker claims that every human action is undertaken to maximize utility based

on a stable set of preferences, and thus that all human behavior can be viewed through an economic approach. ¹ As Becker points out, this approach does not distinguish between decisions involving strong emotions and those with little emotional involvement nor does it assume that individuals "...are necessarily conscious of their efforts to maximize or can verbalize or otherwise describe in an informative way reasons for the systematic patterns in their behavior." ² Thus, this approach does not imply that psychological and sociological factors do not affect decisions, nor does it rule out the possibility that actions are based on emotional responses. Instead, Becker's framework allows us to conceptualize behavior as the aggregate result of all the factors humans take into consideration.

Becker not only provides a broad conceptual framework for modeling human behavior as rational and utility-maximizing, but applies this "economic" approach to decisions closely related to intimate violence -- the choice to commit a crime and the choice to marry. As he states:

According to the economic approach, a person decides to marry when the utility expected from marriage exceeds that expected from remaining single or from additional search for a more suitable mate. Similarly, a married person terminates his (or her) marriage when the utility anticipated from becoming single or marrying someone else exceeds the loss in utility from separation. ³

Likewise, individuals become criminals when the expected benefits of illegal activities exceed the expected costs. ⁴ These models of marriage and crime do not, as cautioned by Becker, "...assume perfect knowledge, lightening-fast calculation, or any of the other caricatures of economic theory." ⁵ This conceptual framework can thus be used to model

¹ Gary S. Becker. *The Economic Approach to Human Behavior*. Chicago: The University of Chicago Press, p. 5.

² The Economic Approach to Human Behavior. p. 7.

³The Economic Approach to Human Behavior. p. 10.

⁴The Economic Approach to Human Behavior. p. 46.

⁵The Economic Approach to Human Behavior. p. 46.

the real-life decisions of ordinary individuals, including the decision to commit an act of intimate violence.⁶

B. The Model

In accordance with this conceptual framework of rational choice, this model views the probability of abuse as determined by the probability of: (1) the potential offender's choice to abuse, and (2) the potential victim's choice to remain in the relationship. (See Appendix A for complete derivation of these probability equations). For simplicity's sake, this model will initially be restricted to one time period and will rely upon several assumptions: the utility accrued from violence is exogenous to economic variables, the intimate partners have independent utility functions, no children are involved, and there is a fixed intra-household allocation of goods.

1) The Choice To Abuse

I assume that the man's utility is a positive function of income (Y), non-income resources and assets (R), and an exogenous variable denoting the non-economic services and emotional benefits he accrues from their relationship (S), as well as a function of the utility he gains directly from acts of violence (V_m) , which I assume to be additively separate.⁷

$$U_m = U[Y,R,S] + V_m \tag{1}$$

⁶ Applying the assumption of rationally determined behavior to the "emotional" decision to commit an act of intimate violence, may appear problematic. This assumption has been accepted, however, by previous family violence researchers and is necessary to model the economic determinants of the occurrence of intimate violence. (Ann Dryden Witte and Sharon K. Long. *Domestic Violence: A Nonrandom Affair.* Wellesley College Working Paper #133, May 1989.) It is important to note that non-economic determinants of violence are not excluded by the model I will develop in this chapter, but are captured by the utility function.

⁷ This is a simplifying assumption which will be relaxed in Section II of this chapter.

For some men, violence will yield positive utility, serving as an outlet for their aggressions and frustrations, increasing their feelings of power over their victims and themselves, or generating sadistic pleasure. For others, no benefit will be gained from abusing their partner at all. For still others, violence will only be beneficial at particularly aggressive moments; at other times, they will regret their violent outbursts. The sign and magnitude of (Vm), therefore, will be considered random for the purposes of this simple model.

Based upon this utility function, the man will make the initial decision whether or not to abuse his partner. Subsequently, the woman will decide to maintain or to terminate her relationship with him, a decision which will be influenced by the occurrence of abuse. When the man makes the decision to abuse, therefore, he takes into account the probability that she will leave if he abuses her. I assume here that the male partner knows her utility function as well as what financial resources she possesses. He does not, however, know exactly how much disutility she will get from acts of violence (Vf), but assuming this value has a normal distribution, he can estimate the probability that she will leave in the case of abuse, [P(L;A)] and he can then weigh this into his decision of whether or not to use violence.

As the man is a utility-maximizing agent, the probability that he will abuse his wife or girlfriend is equivalent to the probability that his expected utility from abuse is greater than his expected utility from not abusing:

$$P(abuse) = P \left[EU(A) - EU(NA) \ge 0 \right]$$
(2)

Substituting in equations for these expected utilities,

P (abuse) =

$P[V_{m} \ge \{U[Y_{m}+Y_{f}, R_{m}+R_{f}, S] - U[Y_{m}, R_{m}, 0]\}[P(L; A)-P(L; NA)]\}$ (3)

where [P(L;NA)] is equivalent to the probability that she leaves in the case of no abuse and where household income is composed of the male's income (Y_m) and the female's income (Y_f) , and household resources are composed of the male's resources (R_m) and the female's resources (R_f) . This model assumes that both partners benefit from the household's entire quantity of income and resources, the allocation of which is fixed and is unrelated to violence, an assumption I will relax in Section II of this chapter. ⁸

If the utility the man accrues from violence exceeds the expected loss in utility from income, assets, and services he will suffer if she leaves multiplied by the probability that violence will cause her to leave, the man will make the choice to abuse his partner. The probability that (V_m) will exceed this value is therefore equivalent to the probability that he will abuse.

2) The Choice to Stay

As is demonstrated above, the man's choice to abuse is not only dependent upon the utility he accrues from violence and other variables, but upon the probability that his potential victim will end their intimate relationship. For by choosing to inflict violence upon his intimate partner, the man realizes that he is taking a chance that she will leave him, that due to the disutility she accrues from violence he will no longer be providing her with the reservation level of utility she needs to stay.

Just as with the man's utility, I assume that the woman's utility is a positive function of income (Y), non-income resources and assets (R), an exogenous variable

⁸ This model assumes that both partners benefit from the household's entire quantity of income and resources, assigning Ym, Yf, Rm, Rf to both partners simultaneously. In reality, this will only be true for public goods in the relationship, such as income spent on shared housing, or perhaps for income spent on one individual's consumption which gives both partner's utility, such as clothing which a wife buys her husband because it gives her pleasure for him to be well-dressed. For other goods, which only benefit one partner, this assumption will not hold true and Y and R will be divided by an intra-household allocation process. The mechanisms of this intra-household allocation of goods, as well as the possibility that violence will be used to affect it, will be discussed in Section II of this chapter.

denoting the non-economic benefits she accrues from their relationship (Z), as well as an additively separate negative function of the disutility she gains from acts of violence, (Vf).⁹

$$U_f = U[Y, R, Z] + V_f \tag{4}$$

As she is assumed to be a utility-maximizing agent, the probability that she will leave is equal to the probability that her utility if she leaves is greater than if she stays:

$$P(\text{leave}) = P \left[U(\text{leave}) \ge U(\text{stay}) \right]$$
(5)

Her utility will not only be dependent upon whether she leaves or stays, however, but upon whether he is abusing her or not. There will thus be a different probability that she leaves in the case of abuse than in the case of no abuse: ¹⁰

$$P(\text{leave; abuse}) = P[U(\text{stay; abuse}) \le U(\text{leave})]$$

$$P(L;A) = P[V_f \le U[Y_f, R_f, 0] - U[Y_f + Y_m, R_f + R_m, Z]]$$
(6)

$$P(\text{leave; no abuse}) = P[U(\text{stay; no abuse}) \le U(\text{leave})]$$

$$P(L;\text{NA}) = P[0 \le U[Y_f, R_f, 0] - U[Y_f + Y_m, R_f + R_m, Z]]$$
(7)

In accordance with the assumption that she gets positive services and non-economic benefits from the marriage, or that Z > 0, it must be true that

⁹ Unlike with the man's utility decision, where the sign of (Vm) remains unspecified in order to allow for individual preferences as well as for aggressive and non-aggressive moods, I assume here that the woman always accrues disutility from violence, so that (Vf) will always be negative.

¹⁰ The notion that individuals will leave a relationship when they are not accruing more utility than they would independently is well-supported in theoretical work on marriage decisions. (Marilyn Manser and Murray Brown. "Marriage and Household Decision-Making: A Bargaining Analysis." *International Economic Review.* Vol. 21, No. 1. February, 1980. pp. 31 - 35) Manser and Brown describe individuals involved in marriages as having specific "threat points," points at which they receive more utility independently than they do by remaining in the relationship. In accordance with this notion, the probability that a woman will leave in the case of abuse can be viewed as the probability that violence will push her to this threat point.

P(E;NA) = 0

In this simple model reflecting one set time period, therefore, a woman will not terminate a relationship in the case of no abuse. ¹¹ A more complete model would not limit her decision to reflecting a set utility function and would allow both the utility function and Z to change over time, thus incorporating the fact that women's preferences can change and that they often terminate relationships even when they are not being abused. This possibility is not included here for tractability's sake, as it complicates the model without further clarifying the effect of economic factors on the decision to abuse.

C. Economic Factors & The Probability of Abuse

In accordance with these models of the choice to abuse and of the choice to stay, economic factors will affect the probability that abuse will occur through two mechanisms: (1) by affecting the difference in the utility he accrues when she stays and when she leaves, (Ω) , and (2) by affecting the probability that she will leave, P(L;A).

 $P(abuse)=P[V_m \ge \{ U[Y_m+Y_f, R_m+R_f, S] - U[Y_m, R_m, 0] \} [P(L;A)]$ (9) (1) -> $\Omega = \{ U[Y_m + Y_f, R_m + R_f, S] - U[Y_m, R_m, 0] \}$ (2) -> $P(L;A) = P[V_f \le U[Y_f, R_f, 0] - U[Y_f + Y_m, R_f + R_m, Z]]$

In order to demonstrate how economic factors affect the probability of abuse, I will first discuss each mechanism separately, holding the other constant.

¹¹ In a model limited to one time period, as this one is, this idea receives support from the Becker model of the marriage decision. (Gary S. Becker. A Treatise on the Family. Cambridge, Massachusetts: Harvard University Press, 1981.) In accordance with Becker's model, I am viewing the fact that the woman is involved with her current partner as evidence that she is gaining utility from the relationship. For the time period of this simple model, her utility function remains constant; only an exogenous variable, such as violence, can cause her to leave.

1) Economic Factors & the Man's Utility Function

Holding [P(L;A)] constant, the probability of abuse decreases as (Ω) increases. Assuming a decreasing marginal utility of income, changes in income will have the following effects:

> • $\partial \Omega / \partial Y_m \le 0$ P(abuse) increased • $\partial \Omega / \partial Y_f \ge 0$ P(abuse) decreased s.t. [Yf > 0]

2) Economic Factors & the Probability that She Will Leave

Assuming that (Ω) is constant, the probability that abuse will occur decreases as P(L;A) increases. Maintaining the assumption of declining marginal utility of income,

• $\partial P(L;A)/\partial Y_f \ge 0$ P(abuse) decreased • $\partial (P(L;A)/\partial Y_m \le 0$ P(abuse) increased

3) The Net Effect of Economic Factors

Economic variables thus affect both mechanisms in the same direction. If the man's financial resources increase, abuse will be more likely to occur both as a result of the decrease in (Ω) and of the decrease in P(L;A). If the woman's financial resources increase, abuse will be less likely to occur due to the increase in both (Ω) and in P(L;A). This model thus predicts a positive relationship between male economic status and the probability of abuse and a negative relationship between female economic status and the probability of abuse.

• As Ym increases -> P(abuse) increases

As Yf increases -> P(abuse) decreases

A decrease in female economic dependence will thus increase the probability that a woman will terminate an abusive relationship, a theory labeled the Feminist Resource Theory by Lewis Okun. ¹² As demonstrated, the lower a woman's resources compared to her partner's, the more likely it becomes that her utility-maximizing decision will be to remain with an abuser.

II. EXPANDING THE MODEL: Relaxing Simplifying Assumptions

A. The Ultimate Resource Theory

The Feminist Resource Theory model predicts a negative relationship between female economic resources and the incidence of violence. In the long run, most theorists agree that economic equality for women and the subsequent increase in their resources will decrease abuse, not only by giving women alternatives to their role as victim, but by decreasing men's perceived right to abuse their wives and the unresponsiveness of social institutions to their problems. ¹³ In the short run, however, some theorists believe that an increase in women's resources may actually increase the incidence of battering:

Given that men benefit from the current system of sex stratification, it is unlikely that they will voluntarily give up their dominant positions...(and) an independent woman is in a better position to challenge her husband's right to dominate. The relative equality of resources between an independent wife and her husband undermines his use of resource superiority as a defense against such a challenge. Instead, he may use force to assert and maintain his dominance. 14

¹² "Termination or Resumption of Cohabitation in Woman Battering Relationships: A Statistical Study." p. 116.

¹³ "Wife's Marital Dependency & Wife Abuse." p.278.

^{14 &}quot;Wife's Marital Dependency & Wife Abuse." p. 278.

This motivation for the use of violence is thought to be especially pervasive in societies which are individualistic and achievement-oriented. In such societies, the norms supporting the ideology of male superiority are weak or ambiguous, as men are not merely entitled to a dominant position as a result of their gender, but are expected to be successful on an individual level as well. Men must therefore validate their position by attaining resources such as money, power, or high employment status. For a man who lacks such resources, violence may be used as the "ultimate resource" to assert what he believes is his rightful position. ¹⁵

In accordance with the Ultimate Resource Theory, the assumption that the utility the man accrues from violence is unrelated to economic factors would have to be relaxed and the utility the man accrues from violence (Vm) defined as a function of the difference between their incomes. The probability of abuse in this case would be denoted:

 $P(abuse) = P[V_m \ge \{ U[(Y_m + Y_f) s, (R_m + R_f) s, S] - U[Y_m, R_m, 0] \} [P(L;A)]$ s.t. $V_m = f[Y_m - Y_f]$

According to this model, an increase in female economic resources will simultaneously increase both his utility if she stays and the utility he accrues from violence, and the net effect will be ambiguous. Similarly, the net effect of an increase in male income is ambiguous, as it increases his utility but decreases the utility he will accrue from acts of violence.

B. The Presence of Children

Just as the relationship between income and the man's utility implied by the Ultimate Resource Theory causes the impact of economic factors on the probability of

¹⁵ Craig M. Allen and Murray A. Straus. "Resources, Power and Husband-Wife Violence" in *The Social Causes of Husband-Wife Violence*. p. 188.

abuse to be ambiguous, so does the incorporation of children into the simple model. The presence of children will serve to increase a woman's marginal utility of income as she will have to provide for them financially, making her more dependent upon any financial support she is receiving from an intimate partner. Children also serve to decrease her flexibility of lifestyle and thus her options in terms of employment. In addition, married women with children may feel compelled to stay with their husbands despite abuse so that their children will have a "normal" family life. The presence of children thus decreases the probability that a woman will leave as a result of violence, which leads to a predicted increase in abuse.

From the male's point of view, however, children function to decrease the probability of abuse. If a man has children, the value of the non-economic services his partner provides for him (S), which are likely to include taking care of the children, increases. In the case that she leaves and he no longer can live with his children, the costs of her leaving are augmented as well. ¹⁶ In the case that she were to leave without taking the children, the costs to him of her leaving might be even greater as he would be compelled to perform all of the household duties associated with caring for children alone. The net effect of incorporating children into the model is thus ambiguous; children simultaneously increase the probability of abuse through decreasing the probability that she will leave, and decrease the probability of abuse by augmenting the loss he faces as a consequence of her leaving.

C. Marriage as an Ongoing Bargaining Process

The simple model can be expanded to include more than one time period, relaxing the assumption of fixed intra-household allocation of resources to present marriage as subject to a continuous process of bargaining, a process which may involve the use of

¹⁶ This assumes that the father accrues utility from his children.

violence. My simple model assumes that goods are commonly used by all, implicitly accepting the neoclassical model of the family whereby goods are allocated amongst members in accordance with a common set of "family preferences" and only pooled income is of any consequence. ¹⁷ In reality, however, much of a household's income must be divided between family members, each of whom have independent utility functions and preferences.

Extensive theoretical work has been done on intra-household allocation of goods. Manser and Brown, model marriage as a relationship between two people who undergo a continuous process of bargaining, allocating goods between them in accordance with twoperson cooperative game theory. ¹⁸ The intimate partners involved, who generate more utility together than they do individually, participate in an ongoing game in which rents are divided between them. In order to remain in the relationship, each must receive at least a minimal level of utility, defined as their threat point; any rents which yield utility above their threat points are subject to allocation through bargaining.

Viewing marriage as an ongoing bargaining process in this manner allows us to understand why men who do not gain pleasure from performing acts of violence may abuse their wives or girlfriends, a phenomenon which is not explainable with the simple individual decision model alone. For in accordance with this model, violence may be used by the male for two purposes: (1) to increase his share of the available rents, and (2) to change the woman's threat point in the relationship. In serving the first of these purposes, violence may be used to force the woman to give more of the household's rents to the man. The fact that this occurs is noted throughout the literature on family violence -- men frequently claim to use violence to force their victims to obey them, make their victims more attentive, or coerce them into producing more household goods.

¹⁷ T. Paul Schultz. "Testing the Neoclassical Model of Family Labor Supply and Fertility." The Journal of Human Resources. Vol. 25, Number 4. Fall, 1990. p. 603.

^{18 &}quot;Marriage and Household Decision-Making: A Bargaining Analysis." p.38.

Men may also employ violence to attach a penalty to leaving the relationship and thus lower the woman's threat point; statements such as "If you leave, I will kill you," especially when accompanied by violence, can serve to lower the level of utility a woman will need to be convinced to remain with an abuser. Using violence in this manner is likely to be more common amongst men of low relative financial position, serving as a last resort for men with no other method of convincing their partners to stay. This view of marriage therefore predicts that men without financial resources of their own to bargain with which to bargain will resort to violence to obtain more utility from their relationships; suggesting, much like the Ultimate Resource Theory does, that women with greater financial resources relative to their husbands may thus be subjected to more, not less, abuse.

III. Theoretical Conclusions

As demonstrated by the theoretical models discussed in this chapter, theory does not make unambiguous predictions about how relative economic status affects the incidence of abuse. In accordance with the assumptions of the simple individual decision model, a negative relationship between the relative position of women and abuse is predicted; relaxing the assumptions upon which this model is based, however, sheds doubt on this prediction. It is important to note that the expected effects of these theories are not necessarily mutually exclusive; it is likely that many of the theoretical interactions described here are taking place at once.

The goal of this research is to empirically examine the relationship between economics and intimate violence; hopefully, my conclusions will show which , if any, of these predicted theoretical effects has a greater impact on the occurrence of abuse. I now turn to a discussion of primary data set upon which my empirical results will be based.

CHAPTER 3: THE DATA

I. Background: The Availability of Data

Intimate violence has been viewed historically not as a subject for empirical research, but as a personal matter surrounded by secrecy and shame. Before the mid 1970's, so little attention was paid to this problem that no estimates of incidence levels even existed. ¹ As the plight of abused women has come to be viewed as a social problem of national concern, however, there have been more frequent attempts to collect information on domestic violence. Yet data on the subject is still scant. According to Valerie Lahoud, an information specialist at the National Institute of Justice, our lack of knowledge about intimate violence reflects both the low level of real concern about the problem among criminal justice investigators, and the difficulties inherent in collecting information on family violence. ²

Despite the increased attention recently paid to intimate violence, identifying the victims remains a formidable task. Underreporting due to embarrassment, fear of reprisal, and the lingering traditional notion that such problems should remain within the family remains a widespread obstacle to research. Research is further hindered by the difficulty of defining exactly what constitutes intimate violence. As the Bureau of Justice Statistics reports:

One basic difficulty in developing accurate statistical information on family violence is defining what is to be measured. There is little disagreement about extreme cases when a family member is killed or seriously injured by another family member. There is disagreement, however, about the kinds of behaviors that are regarded as acceptable for disciplining children and resolving conflicts among or between family members. For example, when does spanking change from an act of discipline to an act of child abuse?...studies have produced widely varying estimates of the magnitude of the problem of family violence. A major reason for the divergence of such estimates, aside from any methodological issues, is the perspective from which the problem is examined. ³

¹ Intimate Violence. p. 100.

² Telephone Interview. November 20, 1990.

³ Family Violence, pp. 1-2.

Hindered by such difficulties, researchers have failed to produce conclusive statistical estimates of intimate violence, especially on the national level. At the local level, there are some data available from professionals who work with victims of family violence. Yet it is difficult to use local figures to compile national statistics because local estimates are strongly affected by the extent to which family violence programs are available, the number of professional workers assigned to an area, and the amount of attention paid to the problem. The jurisdictions which report the highest incidence of family violence therefore tend to be the ones addressing the problem to the greatest extent, making accurate incidence levels very difficult to estimate. ⁴ Upon completion of six months of hearings on family violence across the country in 1984, Lois Haight Herrington of the Attorney General's Task Force on Family Violence stated that she did not believe *anything* was known about the overall incidence of family violence in the United States. ⁵

On a national level, there are three main sources of information on the victims of intimate violence: the First and Second National Family Violence Surveys, the FBI's Uniform Crime Report, and the Department of Justice's National Crime Survey. The First and Second National Family Violence Surveys were conducted by Richard J. Gelles and Murray A. Straus to measure the levels of family violence in 1975 and 1985 respectively. These surveys provide the highest known estimate of the incidence levels of domestic violence, yet their usefulness for studying the economics of intimate violence is limited by their small sample sizes and by the fact that they are one-time studies, making it impossible to examine the effect of changes in economic status on the incidence of abuse.

The only ongoing sources of national crime statistics in the United States are the Uniform Crime Report and the National Crime Survey. The Uniform Crime Report (UCR) is compiled by the Federal Bureau of Investigation based on police records across the

⁴ Family Violence. p. 2.

⁵ The New York Times May 20, 1984.

nation. As a source of information on family violence, however, the UCR is severely limited by several factors. First, not all crime is reported to the police. In 1982, for example, researchers concluded that only 1/3 of all crime was brought to the attention of law enforcement authorities, and domestic violence is believed to be among the crimes legally reported least frequently. Secondly, the FBI collects information only on the crimes of homicide, rape, robbery, burglary, larceny, and arson, excluding crimes such as assault which frequently constitute family violence. Finally, and most important, the FBI notes relationships between the victim and the offender only for the crime of homicide. ⁶ The Uniform Crime Report is thus a poor source for comprehensive information on intimate violence.

The National Crime Survey (NCS), conducted by the U.S. Department of Justice's Bureau of Justice Statistics, is designed to gather information on all crime in the U.S., including that which is not reported to the police. Based on a nationally-representative sample of households, the NCS serves as the most comprehensive source of information on crime victimization in the United States. And unlike the UCR, the NCS compiles detailed statistics on all crimes as well as on the relationship between victims and offenders in all cases. The NCS also collects information about the respondents' education level, employment status, occupation, and family income. NCS data can therefore be used to analyze the economic position of abused women and the effects of economic factors on abuse. As the NCS surveys families repeatedly, this data also provides panel data on victims of abuse. The main empirical work in this paper will therefore use data provided by the NCS.

⁶ Family Violence, p.2.

II. The National Crime Survey 7

The NCS is administered to a nationally-representative sample of 59,000 housing units at six month intervals for a period of 3 1/2 years, regardless of whether the occupants of the housing unit change or not. ⁸ Each person age 14 and older in the housing unit is interviewed privately, either in person or over the telephone, to determine if they have been a victim of any crimes in the past six months. In cases where a parent or guardian insists that a child not be interviewed, a person is physically or mentally incapable of being interviewed, or a person is away for the entire interview period, a proxy interview based upon an interview of another household member is conducted. (More detailed information about the procedure of NCS interviews and the actual questions asked which pertain to intimate violence are given in Appendix B).

These NCS interviews provide the only source of information which can be used to examine the continuing effect of economic factors on nation-wide intimate violence victimizations. Yet the NCS, like most family violence data, is far from a complete or an ideal source of information. The NCS is presented to interviewees not as a survey of family violence, but of crime. When using the NCS, a woman can only be identified as a victim of intimate violence if she meets two criteria: (1) she reports that she was a victim of completed/attempted rape, completed/attempted robbery with or without injury, completed/attempted aggravated assault with or without a weapon, or completed/attempted simple assault with or without injury, and (2) the offender was a spouse, ex-spouse, boyfriend, or ex-boyfriend. ⁹ A significant limitation of these data, therefore, is that only women who view the acts of violence committed against them as "crimes" will be identified

⁷ The data and tabulations utilized in this paper were made available in part by the Inter-university Consortium for Political and Social Research. The data for the NATIONAL CRIME SURVEYS: 1979-1987 {REVISED QUESTIONNAIRE} were originally collected by the Bureau of Justice Statistics. Neither the collector of the original data nor the Consortium bear any responsibility for the analyses or interpretations presented here.

⁸ The sample was originally composed of 72,000 housing units. In June 1984, the sample was reduced to 59,000 housing units.

⁹ The working definition I am using for intimate violence is the same as that used by the Bureau of Justice Statistics for their reports on Family Violence. (*Family Violence*.)
as victims of intimate violence, augmenting the problem of underreporting. According to Dr. Murray Straus, years of research on family violence have led him to conclude that women who perceive their abuse as criminal, and will therefore be identified as victims by the NCS, tend to be those who are physically injured or who are victims of serious abuse.

A. Using the NCS to Study Individuals

The National Crime Survey is used by the Bureau of Justice Statistics (BJS) primarily to study incidents of crime, not characteristics of individuals. In order to identify and report on *victims* of intimate violence, instead of on intimate violence *victimizations*, I had to compile a person-level file which would enable me to study individuals.

Data from the NCS are available from the Inter-university Consortium for Political and Social Research (ICPSR) organized into a hierarchical format of varying record lengths which corresponds to the variation in the number of members of each household and the number of crime incidents each household reports. In this hierarchical data set there are household identification numbers, household information records, personal records, and incident records. The household information records contain information about the characteristics of the household as a unit, the personal records contain information on individual characteristics, and the incident records hold descriptions of incidents of crimes. As illustrated in the ICPSR Code Book, the records for a cluster of two housing units in the hierarchical file might look as follows:

Record Type or Contents
Household (HH) 1 ID
HH 1
Person 1 of HH 1
Incident 1 for Person 1 of HH
HH 2 ID
HH 2
Person 1 of HH 2

¹⁰ Telephone interview, February 2, 1991.

8	Person 2 of HH 2
9	Incident 1 for Person 2 of HH 2
10	Incident 2 for Person 2 of HH 2

In order to identify victims of intimate violence and focus on their personal characteristics, it was necessary to construct an individual-level rectangular file, compiling information from the household, personal, and incident records into a file which contains one observation per individual per interview. I built this person-level file by separating each record and placing it into a data set containing all of the records of its type (household, personal, or incident). By converting the household identification information provided by the ICPSR into a 23-digit control number, I was able to uniquely identify the person and the exact interview period to whom each record applies and merge the three data sets into one. For respondents who were victims of more than one incident of crime in one interview period, I first merged these incident reports into one full incident report containing information on all of the respondent's victimizations. The final data set based on the example above would thus look as follows:

Obse	ervation nber	Person Identified	Contents
1	Person	1 of HH 1	HH 1, Person 1, Incident 1
2	Person	1 of HH 2	HH 2, Person 1, (no incident report)
3	Person	2 of HH 2	HH 2, Person 2, Incidents 1 + 2

This task was greatly complicated by the vast amount of data in the Survey. The selection of NCS data I used, taken from interviews conducted between January 1979 and June 1983, contains 1,909,834 personal records, 1,049,943 household records, and 209,779 incident records. By eliminating men and children from the files created, I was able to reduce this to a single data set of 450,299 observations, with each observation containing all of the relevant information for each woman interviewed in each interview

period. ¹¹ When weighted to represent the entire U.S. population, this data set identifies 127,419 occurrences of intimate violence out of a population of 82,738,900 women over the age of 17, recording an abuse rate of 0.154%. ¹²

As previously noted, the NCS interviews a nationally-representative sample of housing units every six months for a period of $3 \frac{1}{2}$ years. As the selected housing units rotate in and out of the sample and individuals move in and out of their homes, the number of times a single individual is interviewed ranges from 1 to 6. When data from more than one six-month period are compiled for analysis, therefore, although the information from each interview is representative of a single individual, it will often be a repeat interview of an individual already included in the sample. The individual-level data set I compiled thus contains between 1 to 6 observations of a single woman, with the exact number depending upon how many times each woman was interviewed. The Bureau of Justice Statistics (BJS), when compiling this data and using it for their own crime statistics, is primarily interested in incidents of crime, not in the victims themselves, and BJS reports do not distinguish between reports on separate individuals and repeated reports on the same individual. My primary goal, however, is not to examine information on the specifics of each occurrence of intimate violence, but to study the victims themselves. Women who are abused tend to be victimized repeatedly, making it likely that many of the instances of abuse reported involved the same individuals. Because every woman is not interviewed the same number of times, using the complete data set to study intimate violence victims would cause some women to be overrepresented compared to others.

¹¹I originally planned to include interviews from January 1979 to January 1986 in my analysis, years which provide the most recent collection of data that were compiled with a single coding process by the ICPSR. The size of the file I originally created, however, was too large for the Science Center VAX to handle without completely shutting off all other users, so I cut the data down to the size described here.

¹² This figure is calculated using the NCS final person weight, which adjusts the sample population to represent the entire U.S. population.

To ensure that each woman is represented equally when comparing victims to nonvictims, a data set which contains only one interview per person must be used. In order to retain information about as many people as possible, I originally compiled a data set including only the first interview for each woman. However, this data set oversamples people who move between households frequently. As the NCS interviews selected housing units repeatedly regardless of who the inhabitants were, a housing unit with the same occupants for the entire 3 1/2 year sampling period will only be included once in this data set. A housing unit with continually-shifting inhabitants, however, will be included as many times as its occupants change. This pattern of oversampling is a serious concern in the study of abused women, as people who move frequently tend to be younger and poorer than the rest of the population, characteristics which are also associated with the occurrence of intimate violence. As expected, this data set reports an abuse rate which is substantially higher than the complete data set does, identifying 0.255% or the respondents as victims of intimate violence.

In order to compile a data set which neither unequally represents individuals nor oversamples people who move frequently, one must further reduce the data to include only observations from the first time that a housing unit, not a person, is surveyed. In this way, only the first sampling rotation is included and the results will be based on a nationally-representative sample. Using this *first rotation* data set, an incident rate of 0.15% is reported. It is interesting to note that this incident rate is almost identical to that recorded by the complete file, lending credibility to the Bureau of Justice Statistic's method of reporting on the entire data set regardless of unequal sampling of individuals. To ensure that my analysis of the relationship between economic factors and intimate violence samples victim characteristics equally, however, I will use this *first rotation* data set to compare victims to nonvictims.

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B. Underreporting

As expected, the data on intimate violence provided by the NCS reflects severe underreporting. Although few national statistics on the occurrence of intimate violence are available, the incidence level of 0.15% identified by the NCS falls far short of the actual level of violence occurring between spouses and lovers. But what is the actual incidence rate of intimate violence? The highest known estimate is provided by the First National Family Violence Survey, conducted in 1976. Based on interviews of 2,146 families, this survey found that 1 out of 6 wives is struck by her husband during the course of marriage and that in a 12 month period, 38 out of every 1,000 women was a victim of severe violence. The Second National Family Violence Survey, based on interviews of 6,003 individuals in 1985, reported that severe domestic violence affected 30 out of every 1,000 women. ¹³ When the NCS results are annualized to account for a 12-month period, the estimates of abuse levels provided by the National Family Violence Surveys are shown to be 10 times higher, suggesting that underreporting is a serious concern when studying the NCS.

The validity of any analysis of intimate violence based on the NCS is called into question by this underreporting. The Bureau of Justice, in defending their use of this data to report national family violence statistics, argues that such analysis is worthwhile despite underreporting with the following statement:

Since the National Crime Survey screening questions are designed to measure behaviors that people regard as crimes, estimates of family violence from the survey reflect only those forms of abuse that victims are willing to label as criminal and report to interviewers. Despite its limitations, the survey is useful in describing statistically the general characteristics of such family violence.¹⁴

¹³ Intimate Violence pp. 104-113.

¹⁴ Family Violence. p.3.

The Bureau of Justice thus claims that they are not reporting on all family violence, but only on that which is perceived as criminal, a distinction which is thought to explain a great deal of NCS underreporting.

Similarly, the conclusions I will be able to draw about economics and intimate violence may only reflect abuse perceived by victims as criminal activity. As victims who perceive abusive behavior in this manner represent only a fraction of intimate violence victims (as displayed by the gap between NCS incidence rates and those of the National Family Violence Surveys), the results in this paper may only apply to this specific group of abused women, who are likely to be victims of serious abuse, as previously noted. But is this subset of intimate violence victims distinguishable from other victims by characteristics which affect economic status? For example, are wealthy women less likely to identify themselves as victims of crime? Or, is socioeconomic class correlated to propensity to report victimizations of crime to NCS interviewers?

The legitimacy of applying my findings to all intimate violence victims will depend on the answers to these questions. For if victims identified by the NCS display economic and social characteristics which differ from other victims, my analysis will only be applicable to this small percentage of abused women. If, on the other hand, NCS underreporting is not related to economic variables, my conclusions will reflect the impact of economics on a greater proportion of intimate violence victims.

In the next section of this chapter, I present descriptive characteristics of women identified by the NCS as victims of intimate violence and compare them to women whom the NCS classifies as not abused. I also examine victim/offender relationships and the frequency of abuse. In the final section of this chapter, I examine the relationship between NCS underreporting and economic characteristics by comparing characteristics of the victims identified by the NCS to those of the victims identified in the First National Family Violence Survey.

III. The Victims

A. Descriptive Statistics

Descriptive statistics of victims and nonvictims of intimate violence in the NCS are presented in Table 3.1. As is evident, comparison of these two groups demonstrates some substantial differences between their respective socioeconomic characteristics. The greatest difference in the mean values of these variables, as displayed in the last column which gives the percentage of the difference in means relative to the means of the nonabused group, is that the average abused woman is over three times more likely to be unemployed than those who are not abused. In addition, abused women are 20% more likely to be employed. In keeping with these findings, abused women are 40% less likely to be out of the labor force. By noting the fact that abused women have substantially lower family incomes and are more likely to fall under the poverty line, one possible explanation for these figures becomes clear -- abused women are significantly poorer than their nonabused contemporaries, and do not have the luxury of remaining out of the labor force.

The second largest difference between victims and nonvictims, as displayed by this table, is that abused women are almost 50% more likely to be Afro-Americans than are women who are not abused. This difference may reflect an income distinction rather than a sociological phenomenon, a possibility my regression results will further explore. These descriptive statistics also show that abuse victims tend to be younger than nonvictims, with a thirteen-year gap in the mean ages of the two groups. Women identified as abused in this survey are also less likely to be married than those who are not identified as abused, a distinction which may reflect underreporting on the part of married women, who are probably less likely to view violence from their current husbands as crime and less inclined to report abuse to an interviewer.

These descriptive statistics also point to several characteristics which do not seem to be particularly relevant to the occurrence of intimate violence: living in an urban area, the

Descriptive Statistics of Victims & Nonvictims				
variable	<u>ABUSED</u> mean (Xa)	MOT ABUSED mean (Xna)	% Difference in Means* (Xa - Xna)/Xna	
family income	12848.89	18443.45	-30.33	
poor 1	0.023	0.017	35.29	
employed	0.592	0.493	20.08	
unemployed	0.126	0.039	223.08	
out of labor force	0.282	0.469	-39.87	
hours worked last	37.453	34.797	7.63	
week ² married	0.474	0.633	-25.12	
not married	0.526	0.367	43.32	
urban ³	0.899	0.854	5.27	
age	30.589	43.854	-30.25	
number of people	3.136	3.061	2.45	
white	0.811	0.867	-6.46	
black	0.171	0.115	48.70	
other race	0.018	0.018	0.00	
family income level:				
under \$9,999	51.7%	33.1%		
\$10,000 - \$19,999	28.7%	31.3%		
\$20,000 and over	19.7%	34.9%		
highest grade attended:	1.000	10.00		
elementary school	4.0%	12.9%		
some high school	16.4%	4.1%		
high school graduat	te 49.7%	40.9%		
college	29.9%	31.9%		

TABLE 3.1

*Based upon 95% confidence intervals for the differences in the means reported in this table, in no case is the sample mean significantly different from the population mean. This table does not include standard errors because in all cases except for family income level, the standard errors would be equal to 0 at the specified number of significant digits. For family income, the standard error is 43.31 for abused women and 62.72 for nonabused women.

 2 This is conditional on employment, and will be equal to 0 if the woman is not currently working.

¹ This variable denotes those women who fall under the poverty line.

³ This dummy variable denotes those women living in urban areas as defined by the 1970 or 1980 Census, which includes places of 2,500 or more inhabitants incorporated as cities, boroughs, villages, and towns (except towns in New England, New York and Wisconsin); the densely settled urban fringe, whether incorporated or unincorporated, or urbanized areas; and unincorporated places of 2,500 or more inhabitants.

number of people living in the household, and the number of hours the woman worked in the past week. These statistics also fail to demonstrate a consistent difference in education levels between abused women and nonabused women, as a greater percentage of the nonabused have elementary school educations only, while a larger percentage of abused women both dropped out of high school and completed high school.

B. Characteristics of Violence

Table 3.2 presents characteristics of violence. As is shown, most of the victims were abused by their husbands or boyfriends with a small percentage harmed by their exhusbands. Interestingly, a majority of the victims reported that intimate violence had only occurred once in the six-month period preceding their interview.

IV. NCS Underreporting and Socioeconomic Characteristics

Will results based on this data be biased by underreporting?

In this section, I will attempt to determine if there is a relationship between NCS underreporting and socioeconomic status by comparing characteristics of the victims identified by the NCS to those of the victims identified in the 1975 National Family Violence Survey. Based on 2,143 interviews, this survey found that 3.8% of women surveyed were victims of violence in the 12 months preceding their interview, most likely because the National Family Violence Survey (NFVS) was presented to interviewees as a survey of violence in families, not of crime. As the NFVS recorded the highest incidence estimate to date, I will use it as a basis of comparison to test for underreporting biases in the NCS. It is important to note, however, that both surveys may be biased by socioeconomic variables in the same manner, a possibility which cannot be tested for with any information that is currently available. Comparing NFVS victims to NCS victims,

TABLE 3.2

IO CH NO.

Characteristics of Violence

relationship of offender to victim:

spouse	40.7%
ex-spouse	22.6%
boyfriend	36.7%

frequency of abus # of times abuse occu	se: urred in 6-month period:
1	62.2%
2-10	29.6%
11-20	5.8%
21-over	2.4%

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¹⁰ Solution (1997) and the second of the propertiest for an interaction of the second of the se

however, can identify any biases correlated with the large extent of underreporting specific to the NCS.

Table 3.3 presents comparative relative propensities of abuse for victims identified by the NCS and by the First National Family Violence Survey (NFVS). ¹⁵ As is evident, this table shows that there is little difference between the victims identified by these two surveys in terms of racial distinction, dwelling in urban or rural areas, and likelihood of being out of the labor force. NCS victims are, however, more likely to be unemployed than are the victims identified by the NFVS. It is possible, therefore, that my finding that unemployment is far greater among abused women than among nonabused women based on NCS data, as shown in Table 3.1, at least partially reflects a tendency of employed women to underreport intimate violence in the NCS. The difference between NCS and NFVS victims in terms of unemployment, however, is not great enough to explain the extremely large gap between unemployment rates for abused and nonabused women reported by the NCS.

As is shown by these figures, victims identified by the NCS tend to be better educated and wealthier than those identified by the NFVS. This suggests that NCS underreporting may be greater amongst the poor and the uneducated. This possibility, although it may be difficult to reconcile with the likelihood of underreporting as greater amongst the employed, reveals that my results are biased towards identifying wealthy and educated women as more likely to be abused than they actually are. As the NCS reveals that it is *poor* women who are more likely to be abused, however, this possible bias only serves to strengthen the validity of any finding relating poverty to abuse in my analysis.

Underreporting in the NCS therefore may be correlated with employment, high family income levels, and high education levels. This conclusion only presents a problem

¹⁵ Admittedly, this method of comparing the difference in socioeconomic characteristics between victims identified by these two surveys is not ideal, but as I do not have the means or the standard deviations for the NFVS figures, it will have to suffice.

TABLE 3.3

Comparison of National Family Violence Survey (NFVS) Victims to NCS Victims

Relative Propensity to be Identified as Abused	NFVS	NCS	Difference (NFVS - NCS)	
black/white	2.20	1.59	0.61	
urban / rural	2.40	1.52	0.88	
employment status: unemployed / employed	0.50	2.70	-2.20	
out of labor force / employed	0.31	0.50	-0.19	
education level: elementary school / college	2.00	0.60	1.40	
some high school / college	3.50	2.20	1.30	
high school / college	2.00	2.31	-0.31	
family income:0 (\$5,999 & under)/(\$20,000 &	under)5.50	2.9	2.60	
(\$6,000-\$11,999)/(\$20,000 &	under)3.00	2.20	0.80	
(\$12,000-\$19,999)/(\$20,00 &	t under)1.00	1.72	-0.72	

with my data in terms of unemployment, as the fact that the NCS reveals victims as so much more likely to be unemployed may be at least partially due to an underreporting bias. On the other hand, this comparison between NCS and NFVS victims actually strengthens the validity of my preliminary finding that poor women are more likely to be abused. Bearing these possible biases due to underreporting in mind, I now turn to regression analysis to further test the effect of economic variables on the probability of abuse.

CHAPTER 4: THE RESULTS

I. The Probit Model

In this chapter, I will try to predict the probability that the man will make the choice to abuse, the outcome of which will be a discrete variable reflecting abuse or no abuse. One natural approach to this would be to use a standard linear regression with a dependent variable of 1 in the case of abuse, and 0 in the case of no abuse. This approach, however, would be problematic as the standard linear regression model assumes that values of the dependent variable can range between plus and minus infinity. The probit model, however, explicitly restricts the predicted value of the dependent variable to fall between 0 and 1. In addition, the probit model avoids the problem of heteroscedacity which arises when linear models are used to estimate a discrete dependent variable.

In general, the probit and the standard linear regression model yield similar predictions around the mean value of the dependent variable. To test this, I ran both standard linear regressions and probits in my preliminary empirical work and found that the results were largely the same. Probits, however, tend to be more reliable when predicting extreme values of a dependent variable. As I will be testing the probability of abuse, which is a rare event in these data, probits are likely to be more sensitive to changes in the independent variables.

Refering back to the theoretical model outlined in Chapter 2,

 $P(abuse) = P[V_m \ge \{ U[Y_m + Y_f, R_m + R_f, S] - U[Y_m, R_m, 0] \} P(L;A)]$ (1) $\Omega = \{ U[Y_m + Y_f, R_m + R_f, S] - U[Y_m, R_m, 0] \}$ $P(L;A) = P[V_f \le U[Y_f, R_f, 0] - U[Y_f + Y_m, R_f + R_m, Z]]$

Assuming that $\Omega^* P(L:A)$ is approximately a linear function of Y, R, and other observable characteristics,

$$V_m \ge -a - bX \tag{2}$$

If Vm has a normal distribution:

$$P(abuse) = 1 \cdot \phi(-a - bX) = \phi(a + bX) \quad (3)$$

$$P(not abuse) = \phi(a - bX) = 1 \cdot \phi(a + bX)$$

where ϕ is equivalent to the cumulative density function of a normally distributed random variable.

In this chapter I use the probit model to measure the effects of economic factors on the probability that abuse will occur, in terms of both absolute economic status and the relative financial position of the male and female in the relationship. The effect of absolute economic status, measured by total family income and thus including both the male's and the female's earnings, is ambiguous according to the theoretical model I outlined in Chapter 2. ¹ Studying absolute financial position is crucial, however, as it answers one of the most basic questions posed about economics and intimate violence -- are battered women rich or poor?

Analyzing the effects of relative income will test the predictions of my theoretical model more explicitly. Unfortunately, the National Crime Survey does not provide us with separate income figures for husbands and wives, or for boyfriends and girlfriends, but only with a figure for family income. Whose earnings this family income figure reflects is thus largely ambiguous. In order to estimate the effect of relative income with this data, I will employ two strategies. First, I will analyze the effect of economic factors on the

¹ This ambiguity is due to the fact that my simple theoretical model predicts a positive relationship between the male's income and abuse and a negative relationship between the female's income and abuse, making the net effect of the combined sum of their incomes ambiguous.

complete set of women, using variables denoting their employment status and educational level as proxies for their personal income and earnings potential. As these are positively correlated, the sign of the coefficient of the proxy variables should be the same as the sign that the coefficient on a variable denoting the woman's income would have. Holding total family income constant, the proxy variable will roughly capture changes in her relative income status. My second strategy for estimating the effects of relative income will be to limit the data to married women. With this subset of women, I can identify the educational levels of their male partners as well, and use the difference in their educational levels as a more complete proxy for their relative economic position.

II. Empirical Results - Full Data Set

Tables 4.1 and 4.2 give regression results from the probit model based on the complete set of women interviewed by the NCS. ² Model I demonstrates the effect of absolute economic status, as measured by family income level, on the probability of abuse. Models II - IV attempt to measure the relationship between relative financial position and abuse by holding family income constant and using the woman's employment status and educational level as proxies for her relative economic status.

A. Absolute Economic Status

As demonstrated in Table 4.1, the level of family income is significantly negatively related to the probability that abuse will occur. Poor women are therefore more likely to be abused, a finding which is in keeping with the previous research on battered women. Table 4.1A shows the impact of changes in this measure of absolute economic status on the probability of abuse; taking a base line case of an employed, white, married woman with mean family income, a 20% increase in family income will decrease the relative probability

 $^{^2}$ These results are based on the *rotation only* data set which, as explained in Chapter 3, ensures that individual women are equally represented.

Dependent Variable = Abused 1				
variables in this table pertain to	Model I	Model II	Model III	
	Estimate	Estimate	Estimate	
Parameter	(std error) (std.error)) (std. error)	
intercept	-2.808*	-1.937*	-2.054*	
	(0.042)	(0.242)	(0.254)	
family income	-0.010*	-0.010*	-0.010*	
age	(0.003)	-0.025*	-0.019*	
		(0.006)	(0.007)	
employed		-0.107		
amplexed#ees		(0.153)		
employed-age		(0.006)		
unemployed		(0.004)	0.161	
			(0.314)	
unemployed*age			-0.002	
			(0.011)	
out of labor force			0.040	
			(0.163)	
out of labor force*age			-0.005	
		0.070	(0.005)	
married 2		-0.0/8	-0.06/	
married*age		(0.163)	(0.164)	
marrieu age		(0.004	(0.005)	
urban		0.049	0.045	
		(0.086)	(0.086)	
# children < 12 years old		0.079*	0.081*	
living in household ³		(0.027)	(0.027)	
Afro-American		0.016	0.007	
		(0.080)	(0.080)	
other non-white race		0.018	0.020	
		(0.191)	(0.191)	
highest grade attended		-0.025*	-0.024*	
gradažaga		(0.012)	(0.012)	
graue age		(0.0004)	(0.0004)	
	n = 88.939	n = 88,103	n = 88.103	
	n(abused) = 133	n(abused) = 133	n(abused) = 133	
log likelihood function	-1000.39	-929.624	-927.943	

TABLE 4.1 **Regression Results from the Probit Model**

* Denotes estimates significant at 95% confidence level.

Dummy variable: abused = 1 if intimate violence victim, 0 if not
 Dummy variable: married = 1 if married, 0 if not
 The significance of this does not change when interacted with age.

TABLE 4.1A Model II

IMPACT OF CHANGES IN SIGNIFICANT VARIABLES ON PROBABILITY OF ABUSE Family Income & Presence of Children

How do changes in family income and the presence of children affect the relative probability of abuse?

	20 year-old victim	40 year-old victim	
	% Δ relative probability of abuse: *		
20% increase in family income:	-33.5%	-34.1%	
O children to 1 child:	+49.4%	+50.3%	

* These figures show the magnitude of a specific change in an independent variable on the relative probability of abuse. These figures reflect the case of an employed, white, married woman living in an urban area. The base case (the case which is used as the base case for calculating the relative probabilities) assumes no children, mean income, and mean educational attainment. Calculating these figures using other victim characteristics (single, African-American, unemployed, etc.) does not alter the change in relative probabilities evaluated here to any significant degree.

of abuse by approximately 34%. One explanation for this may be that wealthy women are less likely to report abuse than poor women. As noted in Chapter 3, however, comparing NCS victims to the National Family Violence Survey data demonstrates that any underreporting bias specific to the NCS would be expected to go in the opposite direction and *understate* the poverty of NCS victims. It is possible, however, that wealthy women have more to lose by reporting abuse and are less likely to do so in both of these surveys.

Why are poor women more likely to be abused? One possible answer is that at low levels of family income the marginal utility of income is high and an intimate violence victim cannot afford to give up even the smallest level of financial support from her partner. ³ In this case, the woman is "trapped" in an abusive relationship, and the probability that she will leave due to violence is low. Another possible rationale for this result is that low economic status actually causes abuse, that lack of basic resources results in high levels of marital tension and violence is used as a release of frustration. Still another reason for this phenomenon may be that there is a difference between the social norms of people of high financial status and people of low status, and that violence is more acceptable to the latter; in other words, socialization and income go hand in hand.

B. Relative Economic Position

As the NCS only reports levels of family income and not individual earnings, measuring the effect of relative financial position can only be done by using the female's employment status and educational level. Unfortunately, the NCS does not provide us with information on the male's employment and education for all of the interviewees, so I will

³ I attempted to test if there was a stronger relationship between the probability of abuse and family income at low levels of income by splitting the data at the median income level and regressing abuse against income for high and low income groups separately. The results of this, however, did not display a significant difference in the relationship of family income to abuse between the "high income" group and the "low income" group, most likely because the mean family income of the women surveyed by the NCS is low (\$15,000 per year). The majority of the respondents, including those that were in my "high income" group, actually display low levels of income. As the number of true high income respondents as well as the incidence level of abuse amongst these people is so low, too few observations of abuse are identified in this group to run regressions on true high income women alone.

have to use the female's employment status and education alone as a proxy for relative income, measures which are admittedly imprecise. As employment status and education, as well as many of the other independent variables I am testing, are highly correlated with age, these models are computed by interacting these variables with age in order to control for the possible nonlinear effects of age on abuse.

Models II and II demonstrate that holding family income constant, using employment status as a proxy for the woman's relative income does not yield significant results. Model II demonstrates this by comparing women who are employed to those who are not through use of a dummy variable for employment. Model III breaks down the group of women who are not working further by distinguishing women who are unemployed from those who are out of the labor force, demonstrating insignificant effects on the probability of abuse as well.

Employment status, however, only captures current earnings and may not reflect the true extent of a woman's financial dependence on her partner. For some women may have high reservation wages and will choose not to work, but may be financially secure due to the knowledge that they have a high earnings potential, which may be captured more accurately in their level of educational attainment. To measure a woman's relative financial position more accurately, therefore, her educational level is incorporated into the model while holding employment status and family income constant. As displayed in Models II -IV, using educational level as a proxy for the woman's financial position in this manner demonstrates a significant relationship between relative economic status and abuse; as the Feminist Resource Theory predicts, women of higher relative financial position are less likely to be abused. ⁴

⁴ It is interesting to note that the significance of these results depends on the inclusion of the interaction variable denoting educational level*age. For women who are younger tend not only to be abused more frequently, but to be better educated as well. Without controlling for the nonlinear effects of age on abuse through interacting age and educational level, therefore, the effect of educational level of abuse is masked.

Models II and III show that the woman's educational level observed as a continuous variable is significantly negatively related to abuse. In Model IV, (Table 4.2) I further test the effect of education by comparing women who have attended college to those with elementary school-level educations, to high school dropouts, and to high school graduates, with the impact of changing from one of these groups to the next displayed in Table 4.2A. These results demonstrate that at a 90% confidence level, women who are high school dropouts or graduates are more likely to be abused than those who attended college.

As is evident, however, this negative relationship between educational level and abuse does not apply to women who have only attended elementary school as well. But as noted in Chapter 3, comparing NCS victims to NFVS victims demonstrated that the NCS is biased against identifying women with elementary school level educations as abused, which may account for the insignificant results demonstrated here. Furthermore, as attending school is mandatory in the United States until high school age, women who have such low levels of education are likely to be immigrants, in which case the low levels of abuse for this group would be reflecting cultural effects.

C. Other Socioeconomic Characteristics

As expected based on the great disparity between the mean ages of abuse victims and nonvictims reported in Chapter 3, the age of the woman is significantly negatively related to abuse. This result is not surprising in light of the well-documented fact that overall violence is greatest amongst the young. Homicide and violent-crime rates are highest for those between the ages of 18 and 24, and individuals have been shown to be psychologically more violence-prone in their younger years. ⁵ Relationships involving younger couples may also be more susceptible to violence as the earlier years of marriage and intimacy involve greater adjustments and changes in the lives of the individuals. As

⁵ Behind Closed Doors. p. 143.

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TABLE 4.2 Regression Results from the Probit Model EDUCATION BREAKDOWN

Dependent Variable = Abused 4

Parameter *	Model IV ** Estimate (std. error)
elementary school	- 0.082 (0.370)
elementary school*age	-0.003 (0.240)
high school dropout	0.398 (0.240)
high school dropout*age	-0.011 (0.007)
high school completed	0.287 (0.178)
high school completed*age	-0.007 (0.005)
log likelihood function	-927.148

*Educational levels pertain to characteristics of victim, with college level education as the reference group.

**This model contains all of the same variables as Table 4.1, Model III: family income, age, unemployment, unemployment*age, out of the labor force, out of the labor force*age, married, married*age, urban, children less than 12, Afro-American, and other non-white race.

⁴ Dummy variable: abused = 1 if intimate violence victim, 0 if not

TABLE 4.2A Model IV

IMPACT OF CHANGES IN EDUCATIONAL STATUS ON PROBABILITY OF ABUSE

How do changes in educational status affect the relative probability of abuse?

	20 year-old victim	40 year-old victim
	% Δ relative prob	bability of abuse: *
elementary school to high school dropout:	+332%	+116%
high school dropout to high school graduate:	-29.7%	-46.5%
elementary school to high school graduate:	+204%	+115%

* These figures show the magnitude of a specific change in educational status on the relative probability of abuse. These figures reflect the case of an employed, white, married woman with no children and with the mean family income living in an urban area. Calculating these figures using other victim characteristics (single, African-American, unemployed, etc.) does not alter the change in relative probabilities evaluated here to any significant degree..

pointed out by Straus, Gelles, and Steinmetz, violent relationships are more likely to break up as time goes on; by the time a woman is older, she is not as likely to remain involved in an abusive relationship. 6

These results also display a positive relationship between having young children and the probability of abuse, with the presence of one child increasing the probability of abuse by approximately 50% as shown in Table 4.1A. As discussed in Chapter 2, from a theoretical perspective alone, the predicted effects of children on the probability of abuse are ambiguous, as children can be expected to increase abuse by decreasing the risk that the woman will leave, as well as to decrease abuse by increasing the man's expected costs in the case that she leaves. This result, therefore, serves to clear up the ambiguity of theoretical predictions by demonstrating that the net effect of children is to increase the probability of abuse. This suggests that children serve to tie women to abusive relationships through increasing the costs the woman faces if she leaves.

Models II and III display that there is neither a significant relationship between living in an urban or a rural area and the probability of abuse, nor between the race of the victim and the abuse. Furthermore, no significant effect is demonstrated between marital status and abuse, a finding which is surprising as it is logical that married women spend more time with their husbands and are thus physically present for abuse more often, as well as being less likely to terminate a relationship than an abuse victim is with a boyfriend. The most likely explanation of this result is that it is due to underreporting of abuse amongst married women, who are probably not inclined to view violence from their husbands as a crime and are likely to be more afraid of the possible consequences of reporting abuse. ⁷

III. Empirical Results - Married Women Only

⁶ Behind Closed Doors p. 143.

⁷ Please see data discussion in Chapter 3. As shown in Table 3.3. , 40.7% of the abused women reported by the NCS were battered by their husbands.

In order to further explore the impact of relative economic status on the probability of abuse, I now turn to regression analysis using married couples only, the results of which are displayed in Tables 4.3 - 4.4. Limiting the sample to this subset enables us to identify and control for the age and race of the male partner and to identify the male's educational level, which can be used as a proxy for relative economic position. ⁸ Studying married women alone thus allows us to control for some of the husband's socioeconomic characteristics as well, which was not possible when using the full data set, and may thus permit a more rigorous examination of the effect of relative economic position on the probability of abuse.

Model I attempts to measure relative income for married women by using the wife's employment status and educational level as a proxy for her financial position after controlling for family income. Model II further tests this by using the man's educational level as a measure of relative financial position. ⁹ Models III and IV measure relative financial position by including both partner's educational levels. Models V and VI further test these measures of educational level by breaking educational attainment into discrete dummy variables.

As is evident in Tables 4.3 and 4.4, the results I obtain using this data set are largely insignificant, despite the fact that this data set provides more complete information on relative financial position. Family income, educational level, age, and the presence of children, all of which displayed significant results when analyzing the complete data set, no longer yield significant results, except in the case of Model I where family income and the woman's age retain their significance. However, this model does not control for the man's educational level, and as noted in the last column of the table, contains 62 observations

⁸ This information is only available for the male partners of married women because the NCS surveys households, not couples. Only if the couple lives together, therefore, is the male surveyed with the woman, and only if the male is the husband is the relationship between the male and female noted. In cases where a non-spouse male is living with a woman, only "nonrelative" is recorded by the NCS, and one cannot assume that this person is necessarily a boyfriend.

⁹ Unfortunately, information on the man's employment status is not provided in this data set.

TABLE 4.3

MARRIED COUPLES ONLY Regression Results from the Probit Model

Dependent Variable = Abused 5					
	Model I Estimate	Model II Estimate	Model III Estimate	Model IV Estimate	
Parameter	(std. error)	(std. error)	(std. error)	(std. error)	
intercept	-2.025*	-3.219*	-3.431*	-3.423	
	(0.416)	(0.579)	(0.710)	(0.700)	
family income	-0.016*	0.001	-0.001	-0.001	
	(0.004)	(0.003)	(0.005)	(0.005)	
employed	0.064				
(wife)	(0.257)				
employed*age	0.004				
(wife)	(0.007)				
grade	-0.020		0.036	0.036	
(wife)	(0.023)		(0.040)	(0.039)	
grade*age	0.001		-0.000	0.000	
(wife)	(0.001)		(0.001)	(0.001)	
grade	(0.001)	-0.005	-0.019	-0.018	
(husband)		(0.030)	(0.037)	(0.037)	
grade*age		-0.000	0.000	-0.000	
(husband)		(0.001)	(0.001)	(0.001)	
age	-0.031*	(0.001)	-0.004	-0.004	
(wife)	(0.011)		(0.022)	(0.021)	
age	(0.011)	-0 008	-0.006	-0.005	
(husband)		(0.012)	(0.019)	(0.018)	
urban	0 114	0 147	0 148	0 145	
bioun	(0.118)	(0.204)	(0 210)	(0.206)	
# children < 12 yrs old	0.011	0.052	0.021	0.026	
living in household	(0.146)	(0.255)	(0.271)	(0.271)	
children*age (wife)	0.001	0.001	0.001	0.001	
children age (wile)	(0.001)	(0.007)	(0.009)	(0.001)	
Non white	0.142	(0.007)	(0.000)	(0.001)	
(wife)	(0.143		(0.1(2))		
Non white	(0.115)	0 244	(0.162)	0 224#	
(hushand)		(0.171)		(0.174)	
(nusbanu)		(0.1/1)		(0.1/4)	
	n = 56,376	n = 49.031	n = 48.948	n = 48.956	
	n(ad) = 62	n(a) = 20	n(a) = 20	n(a) = 20	
log likelihood	-449.778	-197.522	-165.930	-167.540	

* Denotes estimates significant at 95% confidence level.

⁵ Dummy variable: abused = 1 if intimate violence victim, 0 if not

TABLE 4.4

MARRIED COUPLES ONLY Regression Results from the Probit Model EDUCATION BREAKDOWN

Dependent Variable = Abused ⁶ Controlling for family income, number of children, race

Parameter	HUSBAND: Model IV Estimate (std. error)	WIFE: Model V Estimate (std. error)	
intercent	2 119*	2 406*	_
intercept	(0.402)	(0.266)	
age	-0.010	-0.010	
	(0.009)	(0.006)	
elementary school	0.361	-0.300	
	(0.678)	(0.666)	
elementary school*age	-0.006	-0.003	
	(0.015)	(0.015)	
high school dropout	0.501	0.583	
	(0.652)	(0.373)	
high school dropout*age	-0.013	-0.018	
	(0.018)	(0.011)	
high school graduate	-0.132	0.133	
	(0.485)	(0.296)	
high school graduate*age	0.002	-0.007	
	(0.012)	(0.008)	
	n = 49,125	n = 56,487	
	n(abused) = 21	n(abused) = 62	
log likelihood function	-174.670	-448.786	

* Denotes estimates significant at 95% confidence level.

⁶ Dummy variable: abused = 1 if intimate violence victim, 0 if not

which record abuse. Models II - V, which include information about the man's educational level as well, have approximately 7,000 fewer observations and only record 20 cases of abuse. ¹⁰ As these models test an extremely rare event, the estimations of the resulting coefficients are much less precise. This phenomenon, common when studying rare event cases, does not rule out the significance of the variables tested, but points to the lack of evidence available to produce reliable estimates.

It is interesting to note that when analyzing educational level, estimates of the coefficients are insignificant, but remain relatively similar to those reported in the analysis of the complete data set. Table 4.1 Model II, based on the complete data set, displays an estimate of -0.024 for the coefficient of the woman's educational level, while Table 4.3 Model II displays a coefficient of -0.020 for married women only. What has caused the results to be insignificant for married women, therefore, is that the standard errors have grown substantially, reflecting the fact that this data set includes so few cases of abuse and cannot estimate the coefficients precisely. Likewise, the breakdown of educational level into discrete variables for married women, shown in Model V (Table 4.4), displays coefficients which are consistent in sign and in the order of their magnitudes to those for the full data set, with the coefficient for high school dropouts displaying the greatest positive relationship with abuse, that for high school educations as negatively related.

Although the effect of educational level on abuse is insignificant for married couples, analyzing this subset of the sample does display significant results with regard to race. When the educational level of only one partner in the relationship is included in a model, as shown in Models I and II as well as in my results from the complete data set which only includes information on the woman, race is an insignificant determinant of abuse. When controlling for the educational attainment of both partners, however, race

¹⁰ This appears to reflect a correlation between women who do not report their husband's educational levels and the occurrence of abuse.

demonstrates a significant effect on the probability of abuse. Models III and IV demonstrate that non-whites are more likely to be involved in abusive relationships, both as victims and as offenders. As these models roughly control for socioeconomic differentials between racial groups by including the educational levels of both partners, these results may be suggesting that there is a higher propensity to abuse amongst non-whites, a finding in keeping with previous research on the relationship between race and family violence. ¹¹ As this result is based on a sample of only 20 abused wives, however, more data is clearly needed before a definitive conclusion about the effect of race on the probability of abuse can be drawn.

V. Controlling For Personal Characteristics

The empirical results from the probit model thus demonstrate that significant relationships between economic factors and the probability of abuse exist. It is possible, however, that the personal characteristics of women which make them susceptible to violence also affect their economic position. In this case, the conclusion that battered women are poor, for example, would not be demonstrating that poverty itself increases the probability of abuse, but that the characteristics which make a woman susceptible to poverty also make her susceptible to abuse.

To demonstrate this potential problem, suppose that abuse for an individual, i, at a specific time, t, is a function of a constant (a), economic factors, (Y), and a variable denoting unmeasurable personal characteristics, (X):

abuse
$$i, t = a + bi Y_{i,t} + X_i + error_{i,t}$$
 (1)

¹¹ Based on data from the National Family Violence Surveys, Straus, Gelles, and Steinmetz found that wife abuse is 400% higher among Afro-Americans than among whites. (*Behind Closed Doors.* p. 134.)

The characteristics denoted by (X) reflect things such as social attitudes or growing up in a violent home, which are correlated with the propensity to be abused. These characteristics, however, may also include specific character traits, such as low assertiveness, which may not only affect the propensity to be abused but success in the labor market as well. The value of (X) in this case will be correlated with both abuse and with economic performance, (Y), and may result in biased estimates of the effect of economic factors on abuse.

Assuming that (X) is constant, however, we can use a "fixed effects" model to eliminate it from the equation, and thus control for personal characteristics of the individuals involved. This model involves calculating the mean of each variable for each individual:

$$abuse_i = a + b_i \overline{Y}_i + \overline{X}_i + error_i$$
 (2)

As X is assumed to be constant,

$$X_i = X_i \tag{3}$$

Substituting X_i into equation (2) and then subtracting this equation from equation (1) eliminates the

effect of X on abuse, and thus the potential bias from personal characteristics:

abuse
$$i, t$$
 - abuse $i = bi(Y_{i,t} - Y_i) + (error_{i,t} - error_i)$ (4)

It is important to note that this will only eliminate potential bias from characteristics which are fixed through time and thus remain constant. Characteristics which are subject to fluctuations are not captured by this model; the possibility of bias due to factors which may not be constant through time and are potentially related both to abuse and economic performance, such as motivation and assertiveness, remains.

VI. Empirical Results

As previously discussed, the NCS surveys the same women repeatedly for up to 3 1/2 years, allowing us to use this "fixed effects" model to control for possible correlations between unmeasurable personal characteristics and financial position. Table 4.5 displays the "fixed effects" model results as calculated with ordinary least squares regressions, which can be used because the predicted value of the dependent variable does not have to be restricted to between 0 and 1 when using this model. As is evident, this fixed effects model serves to corroborate my previous findings with regards to the effect of the presence of children and marital status. As is evident, Models II and III demonstrate that controlling for personal characteristics, married women are less likely to be identified as abused and the presence of children makes abuse significantly more likely to occur, providing further support for the validity of these relationships.

In terms of absolute economic status, the results serve to bolster the validity of my previous conclusions as well. As demonstrated in all three of these models, as family income increases, the probability of abuse decreases; when the biases of fixed personal characteristics are controlled for, therefore, poor women are more likely to be abused, suggesting that the state of poverty itself may be a determinant of intimate violence. It is important to note that although the magnitude of these income effects appears to be very small, the probability of abuse in this sample in the first place is very small; the only substantial effects which can be expected, therefore, are changes in the relative probability of abuse. A 20% increase in income, for example, will only decrease the probability of

TABLE 4.5

CONTROLLING FOR PERSONAL CHARACTERISTICS Regression Results

Dependent Variable = X(abused) **Variables pertain to characteristics of victim

	Model I Estimate	Model II Estimate	Model III Estimate
Parameter	(standard error)	(standard error)	(standard error)
income	-0.00003* (0.00001)	-0.00003* (0.00001)	-0.00003* (0.00001)
employed		0.00064* (0.00022)	
unemployed			- 0.0003 (0.00037)
out of labor forc	e		- 0.0007* (0.00023)
married		-0.0016* (0.00054)	-0.0016* (0.00054)
# children (age)	ess than twelve)	0.00056* (0.00021)	0.00057* (0.00021)
	n = 450,299	n=450,299	n = 450,299
Adjusted R-sq	0.0000	0.0001	0.0001

* Denotes estimates significant at 95% confidence level.

Note: The standard errors in this table have been adjusted to account for the degrees of freedom used by computing means for each individual. The regression output from the computer does not adjust for the degrees of freedom lost through this procedure, so I multiplied each standard error by an adjustment factor.

abuse by 0.11%, but will decrease the relative probability of abuse by 8%. ¹² The total explanatory power of these models, however, is quite low, as is apparent from the extremely low values of R-squared. This result, however, is not surprising I am modeling abuse as dependent upon marital status, children, and employment alone, variables which clearly do not "explain" the occurrence of abuse as well as analyzing the occurrence of an extremely rare event.

As educational level is generally constant over time for adults, the only proxy for relative financial status that can be tested with this model is the employment status of the woman. As is evident, Model II and III demonstrate when controlling for family income, employment is significantly positively related to abuse, a relationship which was not demonstrated in the previous models. Likewise, a significantly negative relationship is shown between being out of the labor force and the probability of abuse. These results suggest that women who work are more likely to be abused. It is striking, however, that this model does not also display a significant negative relationship between unemployment and the probability of abuse. Overall, however, these models suggest that the effect of relative financial position on abuse has the opposite effect than that of the other models, demonstrating that as the economic status of women relative to that of their intimate partners improves, the probability that they will be abused actually increases.

Why would the results based on the fixed effects model be different than those of the probit models with respect to the impact of relative economic position on the probability of abuse? Two possible answers to this question may be given: (1) that the difference is due to the fixed effects model's elimination of the bias of personal characteristics, and (2) that the two models are actually measuring different things. As the probit model displays that women of low relative financial position are more likely to be abused, it is possible that this result is reflecting correlations between personal characteristics (i.e. lack of self

¹² This was calculated by comparing a base case of family income evaluated at the mean level and increasing it by 20%.

esteem) which increase a woman's propensity to be abused and cause her to be financially unsuccessful. To the extent that such personal characteristics are constant over time, this model may have eliminated the biases they cause with respect to estimates of the significance of relative economic position.

It is also possible, however, that the discrepancies between the two models' results are actually pointing to the fact that they are capturing effects of different things. For the probit model displays the significance of relative income as based upon educational level, while the fixed effects model uses employment status as a proxy for relative income. As discussed previously, employment status serves as a more accurate measure of current financial position, while educational level captures earnings potential to a greater extent. These two models, therefore, may actually be demonstrating that the opposing theoretical predictions discussed in Chapter 2 are occurring simultaneously, that relative financial success for women is both positively related to abuse, as predicted by the Feminist Resource Theory, and negatively related to abuse, as men with fewer economic resources use violence as a bargaining tool or as the "ultimate resource" to maintain threatened positions of dominance in relationships. When the measure of relative financial position is capturing current economic status, therefore, the negative effects outweigh the positive; when long-term earnings potential is being observed to a greater extent, the Feminist Resource Theory appears to hold true.

In order to further examine the effect of relative economic position on intimate violence, therefore, I now turn to data collected by the Omaha Domestic Violence Police Experiment.

CHAPTER 5: THE OMAHA DOMESTIC VIOLENCE POLICE EXPERIMENT

The Omaha Domestic Violence Police Experiment was conducted between March 1986 and September 1987 to test the results of an experiment conducted in Minneapolis in 1984. The Minneapolis experiment, a landmark study in domestic violence research, was designed to assess the impact of different police responses to domestic disturbances and concluded that arrest or separation, rather than mediation, provided the most successful deterrent against future occurrence of intimate violence. The Omaha study, seeking to corroborate this finding, randomly assigned couples who notified the police during a domestic disturbance to five experimental treatments: mediation, separation, arrest, warrant, or no warrant.

Inclusion in the experiment therefore required that one partner in the assault, ostensibly the victim, called the police to the scene of the crime. In addition, the following conditions had to be satisfied for the couple to be involved in the study: (1) the establishment of probable cause for arrest for misdemeanor assault, (2) that both parties to the assault were 18 years old or older and had lived together sometime during the preceding year, and (3) that neither party to the assault had a prior arrest warrant on file. Cases of serious abuse (felony assault) were excluded, yielding a population of 577 couples on which the experiment was performed. As I am focusing exclusively on intimate violence in which women are victims, I further excluded the 56 cases which involved a male victim.

To determine the effect of the police action taken, interviews were conducted with the victims one week, six months, and 12 months after the incident. These interviews included detailed questions about the economic position of both partners, making analysis of the effect of economic variables on intimate violence possible. This study, however, only provides information about a very specific group of women, all of whom are Omaha residents, victims of abuse, and who called the police during the incident of violence. This data cannot, therefore, be used to examine the effects of economic factors on the probability that abuse will occur nor does it permit overall conclusions about intimate violence victims to be drawn, as is possible with the NCS data. Given the common situation of geographical location, intimate violence victimization, and notifying the police -- as well as the precise measures of relative income collected in these interviews -- this data does provide an opportunity to directly analyze the relationship between relative economic position and the probability that a woman will terminate an abusive relationship.

I. The Victims

As displayed in Table 5.1, the Omaha Experiment involved 521 female victims, 163 of whom terminated their abusive relationship within 12 months of the incident, yielding a termination rate of approximately 31%. In the course of the victims' initial interview, conducted one week after the domestic disturbance, the victims were questioned directly about financial dependence. Their answers, also shown in Table 5.1, demonstrate that almost all of the victims (87.5%) who were currently living with their abusers had considered terminating the relationship at least once before. Furthermore, although the majority of these victims claim to be only somewhat dependent or not dependent at all upon the offender for financial needs, 39.2% of those who have considered leaving claim to have stayed because of a lack of money to support themselves.

Table 5.2 presents descriptive statistics of the victims and the offenders, as well as a measure of the percentage difference between the means of each group. These figures are based on the victim's initial interview to ensure that the result of the woman's decision to leave or to stay is not biasing the results. A decision to leave a husband or boyfriend may also involve a change in financial position or employment, which does not present a problem if financial information from the time of the first interview exclusively is analyzed. I will thus be measuring how economic factors at the time of the incident affect the probability that the woman will terminate her relationship within the next 12 months.
TABLE 5.1

Omaha Data Set

521 victims

163 terminated relationship (within 12 months) 31.29 % termination rate

Victim Responses (at time of the Incident)

Q: How dependent are you upon the offender for financial needs?

Totally dependent	9.7%
Very dependent	9.7%
Moderately dependent	11.6%
Somewhat dependent	20.8%
Not dependent at all	48.2%

Q: If still living with the offender, have you ever considered leaving him? Yes 87.5% No 12.5%

Q: If yes, why did you say? (can answer yes to more than o

iswer yes to more than one):		
Afraid of what he'll do to me	19.4%	
Lack of money to support myself	39.2%	
Afraid of being lonely	30.6%	
My love for him/her	59.9%	
Children (they care for him, etc.)	14.9%	
Victim feels needed by / sorry for offender	6.8%	
Commitment to making relationship work	10.4%	
Victim hopes offender will change	13.5%	
Problems with leaving (no place to		
go, offender won't go, etc.)	8.6%	

variable	<u>VICTIM</u> mean (Xv standard deviation)	OFFENDER mean (Xo) (standard deviation)	% Difference in Means* (victim relative to offender) (Xv - Xo) / Xo
age	29.58	31.469	-5.98
	(1.191)	(8.544)	
grade	11.938 (2.231)	11.934 (2.428)	0.03
white	0.584 (0.493)	0.520 (0.500)	12.31
Afro-American	0.351 (0.4778)	0.414 (0.493)	-15.22
monthly pay	420.00 (450.365)	625.00 (574,739)	-32.80
total monthly ² income	437.524 (455.230)	651.944 (570.555)	-32.89
welfare ³	0.344 (0.476)	0.109 (0.313)	215.60
# of times substance abuse in 1st 6 mths	29.559 (54.728)	104.260 (106.8996)	-71.65

TABLE 5.2 Descriptive Statistics of Victims & Offenders 1

variables describing victim's family/living situation: # dependent children 1.335

	(1.347)
# employed people	0.436
living with victim	(0.648)

*Based upon 95% confidence intervals for the differences in the means reported in this table, in no case is the sample mean significantly different from the population mean.

¹ Variables pertain to 6 months prior to incident

⁴ Denotes total number of times alcohol, marijuana, and hard drugs used in 6 months prior to incident

 $^{^2}$ This includes income from work and welfare payments and from other sources, excluding any income received from partner in the intimate relationship.

³ Dummy variable: 1 if receiving welfare, including food stamps, Medicaid, and other public assistance, 0 if not

As is evident in this table, there is a negligible difference in the mean age and educational levels of the victims and offenders, as well as in the percentage falling into distinct racial groups. A much larger difference between the mean income levels exists, with the incomes of the offenders, measured both as monthly earnings and as monthly earnings combined with welfare payments, over 32% higher than that of the victims. On average, the victims are much more likely to receive welfare and much less frequent users of alcohol, marijuana, and hard drugs than are offenders. ¹ This table also notes that the victims have an average number of one dependent child each, and a small percentage have other employed people, excluding the offender, living with them as well. As is displayed by these descriptive statistics, the couples included in this experiment are largely low-income couples, with over 34% of the women and 10% of the men recipients of welfare or public assistance and mean total yearly incomes of only \$5,244 and \$7,812 respectively.

II. The Incident

Information about the victim/offender relationship, the frequency of abuse, and the characteristics of the incident is displayed in Table 5.3. 53.4% of the victims in this study were abused by their husbands, which is slightly larger than the percentage of women abused by husbands in the NCS data, and almost 80% of the victims had been abused at least once before in the past six months. By examining the incident under observation itself, the physical danger this abuse poses to its victims is clear -- 81% were physically injured by their husbands or lovers, 27.3% of whom were harmed badly enough to seek medical attention for their injuries.

As briefly discussed earlier, at the time of the incident each couple was randomly assigned to one of five experimental groups, depending upon whether the offender was

¹ The number of times the victims and offenders use such substances is included in this table as an interesting, if tangential, statistic, especially as violence is commonly associated with substance abuse. In regression analysis, however, I found that this measurement of substance abuse had an insignificant affect on the probability that the woman will terminate the relationship and it is therefore not included in the regression results reported in this chapter.

TABLE 5.3

Characteristics of Violence

relationship of offender to victim:

spouse	53.4%
ex-spouse	2.5%
boyfriend	44.1%

frequency of abuse: # of times abuse occurred in 6-month period preceding incident:

0	21.9%
1-10	41.6%
11-20	14.2%
21-over	22.3%

Characteristics of the Incident

Experiment / Disposition Code:

60.2%
20.1%
19.7%
20.4%
39.8%
17.4%
22.4%

Injuries:

physically injured 81.0% not physically injured 19.0%

Description of Injuries:

Knocked down	54.5%
Bruised / scratched	82.5%
Cut/bleeding	40.6%
Unconscious	4.9%
Broken Bones	9.1%
Head injuries	36.0%
Choked	4.9%
Pulled hair	4.9%
Hit, kicked	7.0%
Sprained muscles	4.9%
Other	2.8%

Doctor / Emergency Room: Yes 27.3% No 72.7%

Admitted to Hospital: Yes 7.7%

No	92.3%

present when the police arrived at their home or not. In 60% of the cases, the offender was present and these cases were approximately evenly divided between mediation, separation, or arrest. For the other 40% of the offenders, who were not present when the police arrived, the experiment consisted of issuing a warrant for their arrest or of not taking any action at all.

With this understanding of the victims and the characteristics of violence involved in this experiment, I am now prepared to turn to regression analysis to examine the effect of economic factors on the probability that a victim of intimate violence will leave her abuser.

III. The Model

In accordance with my theoretical model, the probability that a woman will leave given that she is abused is equivalent to:

$$P(L;A) = P \left[V_{f} \le U \left[Y_{f}, R_{f}, 0 \right] - U \left[Y_{f} + Y_{m}, R_{f} + R_{m}, Z \right] \right]$$
(1)

$$\Omega_{1} = U \left[Y_{f}, R_{f}, 0 \right] - U \left[Y_{f} + Y_{m}, R_{f} + R_{m}, Z \right]$$

As discussed in Chapter 2, this yields the unambiguous prediction that the greater the economic status of the male relative to that of the female, the lower the probability that she will leave will be.

Testing the validity of this prediction involves a discrete dependent variable, reflecting either the case where she leaves or the case where she does not. Just as in Chapter 4, therefore, I will use the probit model. I assume here that Ω_1 is an approximately linear function of Y, R, and other observable characteristics:

$$V_{f} \le -a - bX \tag{2}$$

Assuming that (Vf) is normally distributed,

$$P(\text{leave; A}) = \phi(a + bX)$$
(3)

$$P(\text{stay; A}) = 1 - \phi(a + bX)$$

IV. Empirical Results

Table 5.4 displays the regression results from the probit model testing the effect of relative income on the probability that the woman will leave. ² As demonstrated in Models I and II, the difference in the total monthly incomes of the offender and the victim, measured as the offender's income less that of the victim, has a significant negative effect on the probability that she will leave. Model II, by controlling for other socioeconomic characteristics as well as for the impact of the experimental police action in Model II, demonstrates the robustness of this result. As predicted by the theoretical model derived in Chapter 2, these results indicate that the higher the man's income relative to the woman's is, the less likely a woman will be to terminate an abusive relationship.

A negative relationship thus exists between the difference in the couple's incomes and the probability that the victim will terminate the relationship. According to my theoretical model, this result could be due to a positive relationship between the victim's income and the probability of leaving, a negative relationship between the offender's income and the probability of leaving, or both acting simultaneously. Model III tests which of these relationships is causing the net result by substituting the total monthly earnings of both partners for the variable denoting the difference in incomes used in Models I and II. As is evident, only the offender's income has a significant impact on the probability she

 $^{^2}$ In order to ensure that the police experiment does not bias my results, these models control for police action. As is evident, this variable is negatively related to the probability that she will leave in the case of abuse. These models also interact variables correlated with age with age, as done in chapter 4.

TABLE 5.4

RELATIVE INCOME Regression Results from the Probit Model Dependent variable = L eft 5

Parameter	Model I estimate	Model II	Model III
1 diameter	(std. error)	(std. error)	(std. error)
Intercept	-0.411*	-0.185	-0.006
	(0.093)	(0.438)	(0.456)
Difference in incomes	-0.395*	-0.430*	
(Yo-Yv)	(0.152)	(0.163)	
Income offender			-0.551*
			(0.185)
Income victim			0.148
			(0.255)
# Children victim has		-0.009	0.016
		(0.087)	(0.089)
# Employed people in		0.099	0.123
victim's home		(0.138)	(0.140)
Age victim		0.001	0.003
-8		(0.012)	(0.012)
Married		-0.115	-0.108
		(0.205)	(0, 207)
Non-white victim		-0.200	-0.201
Tion white them		(0, 217)	(0.218)
Police action 6		0 353	-0 382*
Tonce action -		(0 180)	(0 101)
		(0.109)	(0.191)
number of observations 7	n = 100	n = 100	n = 100
number of coservations	n(left) = 66	n(left) = 66	n(left) = 66
	n (ieit) - 00	$\Pi(\Pi(\Pi) = 00$	$\Pi(ICII) = 00$
Log likelihood function	-122.986	-120.510	-119.459

* Denotes estimates significant at 95% confidence level. Note: Interacting marital status and children with age does not alter the significance of these results.

⁵ Left = 1 if terminated relationship, 0 if maintained

⁶ Dummy variable for police action: 1 if arrest, separate, or warrant for arrest, 0 for mediate without action, or no warrant

 $^{^7}$ This regression only includes 199 observations as the rest of the respondents did not answer the questions on income levels. As I received this data set before its official release date, no one at the National Institute of Justice has worked with it yet and I do not know if they will conclude that this is a mistake in the data set and add in the missing variables or whether they are just not available. (For their purpose in studying the effect of the experimental police action taken, however, this variable is not as important as it is for mine.)

TABLE 5.4A Model #III

RELATIVE INCOME

Impact of Increases in Income on the Probability that the Victim will Leave

How do changes in the income of the offender and the victim affect the relative probability of the victim terminating the relationship? Evaluated for women of different age, marital status, and racial distinction **

		20 year-old victim	40 year-old victim
		% Δ relative probabilit	y that she will leave: *
20% increas	se in income of offender	<u>r:</u>	
Characteristics	s of victim:	0.00/	7.00/
white:	married	-8.0%	-7.9%
	single	-8.3%	-9.1%
Non-white:	married	-7.0%	-7.2%
	single	-7.5%	-7.0%
20% increas	e in income of victim:		
White:	married	6.4%	7.0%
	single	6.3%	6.1%
Non-white:	married	5.7%	5.9%
	single	5.0%	5.4%

* These figures show the magnitude of a specific change in an independent variable on the relative probability that the woman will terminate the relationship.

** All other characteristics are evaluated at the population means, with the income of the partner not under observation held constant.

will leave; as the offender's income decreases, the woman becomes less likely to leave. Changes in the woman's income, on the other hand, do not have a significant effect. One possible explanation for this lies in the fact that the sample group is composed largely of individuals of low economic status; increases in income for poor women are likely to be small and may not be sufficient to afford them the financial independence necessary to leave. And as low-income women are likely to have high marginal utilities of income, increases in their partner's earnings may give them enough utility to persuade them to remain in their abusive relationships.

I now turn to an examination of the impact of relative educational level on the probability that a woman will leave. Even though this data set provides a precise measure of the difference in their current incomes, analyzing the effect of relative educational status is still worthwhile as it provides a rough estimate of earnings potential. For, as previously discussed, a large earnings potential may not be captured in an individual's current income, but may be reflected by a high level of education. As I did with the NCS data, I therefore use relative levels of educational attainment as a proxy for relative economic status with these data as well.

As displayed in Table 5.5, the educational status of the victim and offender is not significantly related to the probability that the woman will leave, although the effect of the victim's education does display a positive coefficient. The most likely explanation for this is that due to this study's small sample size and the fact that the mean educational levels of the victim and offenders, as shown in Table 5.2, are almost identical, this data does not provide enough variance between educational levels of intimate partners to adequately test relative educational status. ³ Likewise, these data fail to demonstrate that age, marital status, or the number of children the woman has are significantly related to the probability that a woman will terminate a violent relationship, failing to add further evidence to the

³ I also attempted to break education down into discrete groups of elementary school, high school, and college level educations as I did in chapter 4, but this yielded insignificant results as well.

TABLE 5.5

RELATIVE EDUCATIONAL STATUS Regression Results from the Probit Model

Dependent variable = Left 8

Description	Model I	Model II	Model III
Parameter	(std. error)	(std. error)	(std. error)
Intercept	-0.847	-0.073	-0.388
and the second	(1.461)	(1.251)	(1.840)
Education victim	0.031		0.071
	(0.023)		(0.130)
Education*age victim	-0.004		-0.004
	(0.004)		(0.004)
Education offender		-0.002	-0.037
		(0.105)	(0.109)
Education*age offender	r	0.001	0.002
		(0.003)	(0.003)
# Children victim has	-0.053	-0.049	-0.054
	(0.004)	(0.053)	(0.054)
# Employed people in	0.501	0.074	0.088
victim's home	(0.099)	(0.104)	(0.106)
Age victim	0.040	(01101)	0.040
	(0.046)		(0.049)
Age offender	(01010)		-0.028
inge errender			(0.036)
Married	-0.268	-0 212	-0 214
indiffed	(0.136)	(0.142)	(0 144)
Non-white victim	0.055	(0.142)	-0 429
Tron white therm	(0.134)		(0.227)
Non-white offender	(0.154)	0 250	0 612*
iton-white offender		(0.141)	(0.230)
Police action	-0 217	-0 240	0 242
I once action	(0.127)	(0 131)	(0.132)
	(0.127)	(0.151)	(0.152)
	n = 423	n = 399	n = 399
	n (left) = 153	n(left) = 140	n(left) = 140
Log likelihood	-270.407	-252.319	-248.706

* Denotes estimates significant at 95% confidence level. Note: Interacting marital status and children with age does not alter the significance of these results.

⁸ Left = 1 if terminated relationship, 0 if maintained

NCS results with regards to these variables. Model III (Table 5.4) does display a significant result in terms of race, showing that non-white offenders run a higher risk of having their relationships terminated. Upon closer inspection, however, this same model displays non-white victims as less likely to leave, suggesting that the effects of race here are actually reflecting multicollinearity.

It is interesting, though perhaps tangential to my purposes, to note that Model III, Table 5.4 shows that police action, included mainly as a control for any bias which the police experiment may cause in my results, is significantly negatively related to the probability that the woman will terminate the relationship. As the Minneapolis experiment which this study was designed to test found that police action (including arrest, separation, or issuing a warrant instead of mediation or no warrant issued) provides a deterrent against future domestic assault, this result is not surprising. For by decreasing the probability that the man will continue to abuse, police action decreases the probability that the woman will choose to leave her intimate partner.

CONCLUSION

The results reported in this paper demonstrate that a significant relationship between absolute economic status and intimate violence exists. Based on National Crime Survey data, the absolute financial status of women has been shown to be negatively related to abuse--poor women are more likely to be victims of intimate violence. This finding is not only statistically significant in probit model analysis, but when tested with a fixed effects model as well, demonstrating the robustness of this finding by eliminating possible biases of fixed personal characteristics. The state of poverty, at least to some degree, is a determinant of abuse.

The findings of this paper also indicate that relative economic status is significantly related to intimate violence, affecting both the probability that a woman will terminate an abusive relationship, and the probability that abuse will occur. As demonstrated with data from the Omaha Domestic Violence Police Experiment, the probability that a woman will leave an abusive partner is positively related to her current earnings--as a victim's income relative to that of her abuser increases, the probability that she will leave increases as well. Women with low relative economic position are thus more likely to be victims of repeated acts of intimate violence.

With respect to the effect of relative economic position on the probability that abuse will occur, however, the results in this paper are ambiguous. Based on the fixed effects model, NCS data displays that a high relative economic position of women as measured by employment status is positively related to the probability of abuse; the probit model results show that when using educational level as a proxy for the relative economic position of women, the opposite effect is found. These results thus point to the fact that both a positive and a negative relationship between relative financial status and the occurrence of abuse exist concurrently--determining which relationship has the greater effect remains a task for further research. The viability of conducting further research, however, will depend upon the availability of data. As this paper has shown, the NCS, the only data source which can presently be used to study nation-wide intimate violence victims, suffers from underreporting and fails to provide information on the relative earnings of individuals. These shortcomings make rigorous analyses of the impact of relative economic status on the occurrence of abuse subject to imprecision. In order to facilitate the study of intimate violence, the NCS could be broadened to include questions about family violence. Alternatively, or better, additionally, the FBI's Uniform Crime Report could be expanded to record the relationship between victims and offenders for all crimes, instead of only for homicide as is the case today. Both of these options provide a relatively inexpensive method of increasing the base of information on intimate violence in the United States, especially when compared to the costs of funding a new nation-wide victimization survey.

Despite the need for further research and for more complete data with which to validate and clarify the results of this paper, however, I believe that my findings do point to the significance of the relationship between economic factors and the occurrence of abuse. In terms of absolute economic status, these results indicate the need for financial assistance for battered women. And to the extent that this research has indicated that women with higher financial position relative to that of their partners terminate abusive relationships more frequently, it is suggested that the overall consequences of greater economic equality for women will be to help alleviate the situation of the abused.

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APPENDIX A

THE DERIVATION OF THE THEORETICAL MODEL

This appendix will show the mathematical derivations of the theoretical model presented in Chapter 2. The numbered equations presented in this Appendix correspond to the equations in Chapter 2. All intermediary equations are identified by letters.

1) The Choice to Abuse

The man's initial utility function is denoted:

$$U_m = U[Y,R,S] + V_m \tag{1}$$

As a utility-maximizing agent, the man will abuse his wife or girlfriend if his expected utility from abuse is greater than his expected utility from not abusing:

 $\frac{EU(A)}{expected utility (abuse)} \ge \frac{EU(NA)}{expected utility (not abuse)}$ (A)

 $\begin{array}{rcl} EU(A) &=& V_m + & U_m(stays)Pr(stays;A) &+& U_m(leaves)Pr(leaves;A) \\ EU(A) &=& V_m + U \left[Y_m + Y_f, \ R_m + R_f, \ S \right] \left[1 - P(L;A) \right] &+& U[Y_m, R_m, 0] \left[P(L;A) \right] (B) \\ \end{array}$ $\begin{array}{rcl} EU(NA) &=& V_m + & U_m(stays)Pr(stays;NA) &+& U_m(leaves)Pr(leaves;NA) \\ EU(NA) &=& 0 &+& U[Y_m + Y_f, \ R_m + R_f, \ S \right] \left[1 - P(L;NA) \right] &+& U[Y_m, R_m, 0] \left[P(L;NA) \right] (C) \end{array}$

 Y_m = male's income Rm = male's resources Yf = female's income Rf = female's resources

Substituting in these formulas for expected utility, I derive a formula denoting the probability that he will abuse:

$$P(abuse) = P \left[EU(A) - EU(NA) \ge 0 \right]$$
(2)

 $P(abuse) = P[\{V_m + U[Y_m + Y_f, R_m + R_f, S][1-P(L;A)] + U[Y_m, R_m, 0][P(L;A)]\}$

 $\left\{ U[Y_m + Y_f, R_m + R_f, S] [1-P(L;NA)] + U[Y_m, R_m, 0] [P(L;NA)] \right\} \ge 0 \right] (D)$

This simplifies to:

 $P(abuse)=P[V_m \ge \{U[Y_m+Y_f, R_m+R_f, S] - U[Y_m,R_m,0]\} [P(L;A) - P(L;NA)]](3)$

2) The Choice to Stay

The woman's utility function is denoted:

$$U_f = U[Y, R, Z] + V_f \tag{4}$$

As she is assumed to be a utility-maximizing agent, she will only leave if the utility she accrues without him is greater than that accrued with him. The probability that she will leave is therefore equal to the probability that her utility if she leaves is greater than if she stays:

$$P(\text{leave}) = P \quad U(\text{leave}) \ge U(\text{stay}) \tag{5}$$

Her utility will not only be dependent upon whether she leaves or stays, however, but upon whether he is abusing her or not. There will thus be a different probability that she leaves in the case of abuse than in the case of no abuse:

$$P(L;A) = P[V_{f} \le U[Y_{f},R_{f},0] - U[Y_{f}+Y_{m},R_{f}+R_{m},Z]]$$
(6)

P(leave; no abuse)	=	P [U(stay, no abuse) < U(leave)]	
P(L;NA)	=	$P\left[U\left[Y_{f}+Y_{m}, R_{f}+R_{m}, Z\right]+0 \leq U\left[Y_{f}, R_{f}, 0\right]\right]$	(F)
P(L;NA)	=	$P\left[0 \le U\left[Y_{f}, R_{f}, 0\right] - U\left[Y_{f}+Y_{m}, R_{f}+R_{m}, Z\right]\right]$	(7)

As previously stated,

$$\partial U/\partial Y > 0$$
, $\partial U/\partial R > 0$, $\partial U/\partial Z > 0$

In accordance with the assumption that she gets positive services and non-economic benefits from the marriage, that $(\mathbb{Z}) > 0$, it must be true that

$$U[Y_{f+}Y_{m}, R_{f+}R_{m}, Z] > U[Y_{f}, R_{f}, 0]$$
 (G)

Refering back to equation (7), this yields the conclusion that

$$P(L;NA) = 0^{-1}$$
 (8)

Accepting the validity of equation (8) for the purposes of this model, the difference in the probabilities that she will leave in the case of abuse and in the case of no abuse is simple to derive:

$$[P(L;A) - P(L;NA)] = [P(L;A) - 0] = P(L;A)$$
(H)

Substituting this in equation (7), I conclude that the probability of abuse is equivalent to:

¹ Please see the discussion of equation (8) in Chapter 2.

$P(abuse) = P[V_m \ge \{ U[Y_m + Y_f, R_m + R_f, S] - U[Y_m, R_m, 0] \} [P(L;A)]$ (9) $P(L;A) = P[V_f \le U[Y_f, R_f, 0] - U[Y_f + Y_m, R_f + R_m, Z]]$

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APPENDIX B

NATIONAL CRIME SURVEY INTERVIEWS

The National Crime Survey interviewing process for a household begins by asking a single respondent questions pertaining to the entire household, such as number of family members and level of family income. Individual Screen Questions are then asked of each household member over the age of 14 to determine if he/she was a victim of a crime. These screen questions read as follows:

Individual Screen Questions

The following questions refer only to things that happened to YOU during the last 6 months -

- 1. Did you have your pocket picked/purse snatched?
- Did anyone take something directly from you by using force, such as by a s tickup, mugging or threat?
- 3. Did anyone TRY to rob you by using force or threatening to harm you?
- 4. Did anyone beat you up, attack you or hit you with something, such as a rock or bottle?
- 5. Were you knifed, shot at, or attacked with some other weapon by anyone at all?
- 6. Did anyone THREATEN to beat you up or THREATEN you with a knife, gun, or some other weapon, NOT including telephone threats?
- 7. Did anyone TRY to attack you in some other way?
- 8. During the last six months, did anyone steal things that belonged to you from inside ANY car or truck, such as packages or clothing?
- 9. Was anything stolen from you while you were away from home, for instance at work, in a theater or restaurant, or while traveling?
- 10. Was anything else stolen from you during the last 6 months?
- 11. Did you find evidence that someone ATTEMPTED to steal something that belonged to you?
- 12. Did you call the police during the last 6 months to report something which you thought was a crime?
- 13. Did anything happen to YOU during the last 6 months which you thought was a crime, but did NOT report to the police?

If the answers to these questions reveal that the respondent was victimized, an incident report is filled out by posing further questions to the respondent. Occasionally, respondents volunteer information about victimizations of another household member which were not mentioned by the victim. In these cases, the interviewer questions the victim once again and fills out an incident report. If the respondent was a victim of more than one crime, and the crimes have distinguishable characteristics, a separate incident

report is filled out for each victimization. If a person is victimized repeatedly, but each victimization is essentially the same, a single incident report is filled out and the number of times the crime occurred is noted. The incident report questions which identify a crime as intimate violence are asked as follows:

Incident Report Questions 1

1. You said that during the last six months - (Refer to appropriate screen question for description of crime.)

2. Altogether, how many times did this happen during the last six months?

3. Where did this incident take place?

4. Did the offender(s) have a right to be there, such as a guest or a repairperson?

5. Did the person(s) have a weapon such as a gun or knife, or something he was

using as a weapon, such as a bottle or wrench?

- 6. Did the person(s) hit you, knock you down, or actually attack you in any way?
 - 7. Did the person(s) threaten you with harm in any way?

8. How were you threatened?

9. What actually happened?

10. How did the person attack you?

11a. Was the crime committed by only one or more than one person?

- b. Was the person someone you knew or a stranger you had never seen before?
- c. How well did you know the person by sight only, casual acquaintance or well known?

 d. What was the person's relationship to you? (Spouse, ex-spouse, parent, own child, brother/sister, other relative, boyfriend/ex-boyfriend, girlfriend/ex-girlfriend,

friend/ex-friend, other nonrelative)

¹ The numbers of these questions in the NCS Incident Report are not the same as the numbers which appear here as I have not included questions which do not pertaining to intimate violence nor those which serve to collect details which are not important for the purposes of this paper, such as the time of day of the crime. The sequential order in which the questions are asked, less the ones I have omitted, is identical here to the NCS Incident Report.