THE DETERMINANTS OF HOUSEHOLD VIOLENCE

by

Jennifer Wienke

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Approved by:

_____
Dr. Stephen Billings

_____
Dr. Lisa Schulkind

_____
Dr. Jaclyn Piatak

_____
Dr. Shannon Reid

ABSTRACT

JENNIFER WIENKE. The determinants of household violence. (Under the direction of DR. STEPHEN BILLINGS)

Family violence is a pervasive social issue, which warrants attention from policy makers. Theories such as nested ecological theory and general strain theory suggest that family violence increases during times of economic hardship. Even so, historical data from the most recent recession do not suggest an increase in family violence during this period of increased unemployment. Other theories, such as status inconsistency theory and household bargaining theory focus on intimate partner violence. These theories suggest that considering an intimate partner's combination of employment statuses best predicts intimate partner violence. This dissertation utilizes crime data from the National Crime Victimization Survey (NCVS) as well as unemployment data from the Current Population Survey (CPS) to test the relationship between employment status and family violence. The results suggest that when a family experiences unemployment, they are more likely to experience family violence, repeat family violence, and a co-occurrence of family violence. Additionally, compared to employed couples, unemployed couples are most likely to experience violence. The results primarily support nested ecological theory and general strain theory, although additional results do support household bargaining theory and status inconsistency theory for low and high levels of education individuals respectively.

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CHAPTER 1: INTRODUCTION

The United States Department of Justice estimates that 11% of all reported and unreported crimes in the United States are acts of family violence (Harlow et al., 2005). Approximately half (49%) of family violence crimes include violence between intimate partners, 11% include child abuse by a parent or guardian, and 40% include other types of family violence such as sibling or parental abuse. Approximately 40% of family violence incidents lead to victim injuries. Even if a victim does not sustain injuries, he or she may suffer emotional, financial, and social consequences (Harlow et al., 2005).

Society also pays a high price for family violence. The financial costs of just intimate partner violence in the United States exceed $5.3 billion annually (Center for Disease Control, 2003). When considering child abuse, Fang et al. (2012) estimated that the average lifetime cost for every victim of nonfatal child abuse is $210,012, and the total lifetime cost of all new cases of child abuse in one year is approximately $124 billion. These costs include, but are not limited to, mental and physical health care, loss productivity, court systems functioning, and abuser incarceration. Researchers tend to give less attention to other types of family violence, such as sibling and parental abuse, which makes it difficult to determine their economic impact. Even so, Button and Gealt (2010) found that becoming a victim of sibling abuse increases the likelihood of engaging in high-risk behaviors such as substance abuse and aggression. Additionally,

Kennair and Mellor (2007) found that being a victim of parental abuse could sometimes lead to lifelong negative psychological and physical outcomes.

Policymakers face several reasons to address family violence. Enacting measures aimed to decrease the rates of family violence could lead to an increased quality of life for countless potential victims. While policymakers should acknowledge these benefits, decreasing family violence could also permit society to reallocate limited funds to other social issues. Research identifies several factors that may increase the likelihood of family violence. These factors include a genetic predisposition towards violence (Archer, 2013), abnormal brain development or trauma (Stern, 2004), mental health disorders (Trevillion et al., 2012), and drug and alcohol abuse (Caetano et al., 2005).[1] Other researchers (Warner and Fowler, 2003) suggest that a lack of social support or exposure to violence as a child (Litrownik et al., 2003) can increase the likelihood of family violence. Lastly, some researchers suggests that financial instability, including unemployment, may trigger violence (Benson and Fox, 2004; Peterson, 2011).

While all these factors may influence rates of family violence, this research focuses on unemployment. Even though previous research analyzes the relationship between unemployment and family violence, few researchers identify the effect of the most recent economic recession. One may expect to see a positive relationship between unemployment and family violence. Schneider et al. (2014) summed up conventional thought with the following statement:

[1] Mental health disorders include bipolar disorder, depression, anxiety, post-traumatic stress disorder (PTSD), and various personality disorders. Howard et al. (2010) suggests reverse causality and identifies how family violence can lead to mental health disorders.

Economic hardship and/or uncertainty leads to relationship conflict, as well as with the idea that recession-induced delays in divorce could trap some women in violent/controlling relationships.

While one may expect family violence to increase during times of economic uncertainty, an analysis of family violence rates as reported by the Bureau of Justice Statistics (BJS) suggests this may not be the case. Figure 1 identifies the annual unemployment rate as reported by the Bureau of Labor Statistics (BLS) as well as the annual rate of family violence as reported by the Bureau of Justice Statistics (Truman et al., 2014). The shaded region identifies the most recent economic recession as reported by the National Bureau of Economic Research.[2]

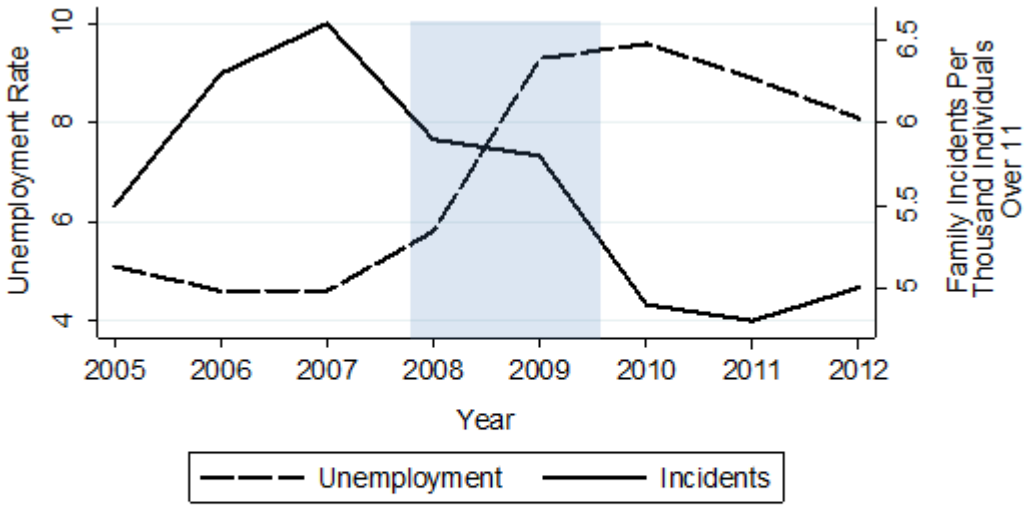

FIGURE 1: Annual unemployment and violent family incidents

notes: The figure identifies the monthly unemployment rate as reported by the Bureau of Labor Statistics. The rate of family incidents identifies the number of family incidents per thousand respondents as reported by the Bureau of Justice Statistics.

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[2] The most recent economic recession began in December of 2007 and ended in June of 2009. For more information, see Goodman and Mance (2011).

Figure 1 does not reveal an increased rate of family violence during the most recent recession. In fact, the figure reveals the opposite relationship. This figure drives the primary research question, which is as follows: What is the impact of unemployment on family violence? To answer this question, this research utilizes data from the National Crime Victimization Survey (NCVS) as well as the Current Population Survey (CPS).[3] The NCVS surveys a nationally representative sample of residential addresses in the United States. The NCVS primarily aims to identify both reported and non-reported crimes. Data from the CPS identifies unemployment rates. This analysis incorporates data from 2005-2012 and includes time-fixed effects OLS regressions with robust standard errors clustered at the individual level.[4]

Several established theories shape this analysis. These theories include nested ecological theory (Belsky, 1980; Brownridge and Halli, 2002; Stith et al., 2004) general strain theory (Agnew and Huguley, 1989; Fox et al., 2002; Moon et al., 2009), status inconsistency theory (Hornung et al., 1981; Yick, 2001; Franklin and Menaker, 2014), and household bargaining theory (Manser and Brown, 1980; Stevenson and Wolfers, 2006; Paterson, 2011). Nested ecological theory explores how individuals relate to their environment. In doing so, the theory identifies several factors that may lead to family violence. One of these factors is unemployment. General strain theory explains how unemployment can lead to deviant behavior, including family violence. While general strain theory asserts that unemployment can lead to family violence, the theory acknowledges that strains do not always lead to violence. Status inconsistency theory as

[3] Both data sources are freely available.
[4] Some analyses also include entity fixed effects. See chapter 3 for more information on methodology.

well as household bargaining theory addresses this issue by also considering family dynamics. These theories focus specifically on intimate partner violence. Both theories suggest that when considering how unemployment affects family violence, researchers should consider the combination of employment statues of individuals in intimate relationships. Status inconsistency theory suggests that couples who experience a combination of employment statuses unsupported by society face a higher risk for violence. This theory identifies the strongest effects for the case of couples with an employed female and an unemployed male. Alternatively, household bargaining theory suggests that when an individual loses his or her job, he or she loses bargaining power in a relationship, especially if he or she has an employed partner. This lack of bargaining power may motivate an individual to conceal violent behavior. Some researchers (Anderberg et al., 2015) suggest that unemployment risk, as identified by the unemployment rate, has a greater impact on household bargaining, and thus family violence. As a result, this analysis considers how both unemployment status as well as the unemployment rate affects intimate partner violence.

This research considers several hypotheses. The first hypothesis predicts that household unemployment will increase the likelihood of crime victimization, family violence, repeat family violence and family violence co-occurrence.[5] Hypothesis 2 suggests that the combination of a male and female partner's employment status influences the likelihood of intimate partner violence.[6] This hypothesis is non-directional because established theories make contrasting predictions as to how male and female employment status may affect intimate partner violence. Lastly, hypothesis

[5] Family violence co-occurrence occurs in household with multiple victims and or perpetrators.
[6] This analysis tests existing theory, which primarily focuses on heterosexual couples. As a result, this analysis does not include homosexual couples.

3 predicts that an increasing male unemployment rate will decrease rates of intimate partner violence, while an increasing female unemployment rate will have the opposite effect.[7]

The results supported the first hypothesis. Household unemployment increased the likelihood of any type crime victimization, family victimization, repeat family violence, and family violence co-occurrence. The results also supported hypothesis 2. Compared to fully employed couples, fully unemployed couples experienced the highest rates of violence. The results did not support hypothesis 3. The male and female unemployment rates did not significantly affect family violence. Overall, the initial results provided support for nested ecological theory and general strain theory but did not support status inconsistency theory or household bargaining theory.

Additional analysis identified how differential partner employment statuses affected family violence for high and low education individuals.[8] These supplementary results found male unemployment coupled with female employment actually decreased intimate partner violence for low education respondents and had an opposite effect for high education respondents. This result suggests that household bargaining may play a larger role for low education individuals, while higher education individuals may respond more to status inconsistencies. This result also may partially explain inconsistencies in existing theory and research. It is possible that resources in low education households are scarce. As a result, the loss of a job in these households may have a larger impact on bargaining than in other households. Here, the large loss in bargaining power resulting from a job loss may motivate an individual to conceal

[7] Hypothesis 3 primarily aims to determine if this analysis can replicate Anderberg's analysis of the effects of the male and female unemployment rates in the United Kingdom.
[8] Low levels of education include high school graduates and below.

violent behavior. On the other hand, households with higher levels of education may face more pressure to conform to social expectations. In these cases, unemployment may trigger violence, especially when coupled with partner employment.

These results also have important policy implications. This dissertation considers existing family policy, including the Violence Against Women Act (VAWA) of 1994. The VAWA enacted several measures to assist domestic violence victims such as developing a domestic violence hotline and providing funding for agencies that offer victim services. Other organizations such as the Domestic Violence Awareness Project (DVAP) develop domestic violence awareness programs. Additionally, local agencies sometime create domestic violence task units trained to respond to the most severe domestic violence calls. To address unemployment, policy makers developed the Workforce Investment Act (WIA) of 1998 and the Workforce Innovation and Opportunity Act (WIOA) of 2014. These acts aim to provide comprehensive resources for job seekers as well as performance indicators. This research suggests that these policies and initiatives may benefit from targeting at risk individuals as identified by established theory. These individuals include those facing financial instability. Additionally, policymakers may want to consider a household's income and educational attainment when developing targeted policy.

The next chapter considers previous scholarship. Using existing theory, the chapter also derives the hypotheses aimed to identify how unemployment influences family violence. Chapter 3 describes the data sources. The chapter also includes the operationalization of relevant variables as well as the model tested. Chapter 4 presents the results. The chapter also includes a discussion and possible limitations, as well as

suggestions for future research. Lastly, chapter 5 considers potential policy implications stemming from this analysis.

CHAPTER 2: LITERATURE REVIEW

2.1 Theoretical Background

To identify determinants of family violence, researchers may want to consider utilizing an interdisciplinary approach. Within each discipline, researchers developed several theories aimed to explain how different factors influence family violence. This research considers four theories, which are as follows: nested ecological theory, general strain theory, status inconsistency theory, and household bargaining theory. These theories originate in sociology, criminology, gender studies, and economics.[9] Considering multiple theories, as opposed to just one theory in isolation, may better explain the dynamics of family violence. Additionally, while this research initially considers how several factors influence family violence, it ultimately focuses on the effect of unemployment. All of the included theories offer a unique explanation as to how unemployment may influence family violence.

The first theory considered is nested ecological theory. Nested ecological theory suggests that several factors on macro micro levels interact with one another to influence family violence. While nested ecological theory identifies these factors, it does not explain how each factor individually affects family violence. General strain theory fills in this gap by identifying how individuals respond to specific situations

[9] Other theories and models identifying factors leading to family violence include the exposure theory (Tauchen et al., 1991; Benson et al., 2003; Aizer, 2010), family stress model (Brown 1980; Farrington, 1986; Straus and Gelles, 1986), social control theory (Hirschi, 1969; Agnew and Huguley, 1989), and frustration/aggression theory (Berkowitz, 1989; Buss and Perry, 1992). While these theories provide valuable information, they are less relevant to this study compared to the included theories.

(strains), and how these strains may lead to violence. One thing general strain theory does not do is explain why some individuals internalize strains in a manner that leads to violence, while others refrain from engaging in violent behavior. Status inconsistency theory and household bargaining theory aim to explain why some individuals react differently to strains. Specifically, these two theories identify how individuals internalize unemployment in a manner that may lead to intimate partner violence. Status inconsistency theory suggests that unemployment can trigger violence when a couple's combination of employment statuses does not conform to social expectations. This inconsistency can happen for couples with male unemployment and female employment. On the other hand, household bargaining suggests that when an individual becomes unemployed, they lose bargaining power in a relationship. This loss of bargaining power may motivate individuals to conceal violent behavior, especially for males.

To identify risk factors for family violence, this analysis first considers nested ecological theory (Belsky, 1980; Brownridge and Halli, 2002; Stith et al., 2004). Belsky (1980) originally developed this sociological theory, which has its roots in Bronfenbrenner's (1977) ecological systems theory. Nested ecological theory is a meta-theory that combines individual, interactional, and social theories (Freysteinsdóttir, 2005). The theory identifies how four different types of systems influence individual behavior. Each system nests within the preceding systems and includes the macrosystem, exosystem, microsystem, and mesosystem. The macrosystem identifies culturally held beliefs. The exosystem identifies social systems that can discourage or

promote violence. Next, the microsystem focuses primarily on the family unit. Lastly, the mesosystem identifies a potential victim's individual development.

Belsky originally used nested ecological theory to identify factors that increased the risk of child abuse. Risk factors at the macro level include a cultural acceptance of physical discipline. At the exo level, he found that a lack of social support systems and government policy aimed to address family violence as well as a high unemployment rate could increase child abuse rates. Risk factors at the micro level include family financial stress, parent drug and alcohol use, and the existence of other types of household abuse such as intimate partner violence. Lastly, Belsky identified underdeveloped parent/child attachment as risk factors at the meso level (Belsky, 1980; Freysteinsdóttir, 2005).

While Belsky used the nested ecological theory to identify risk factors for child abuse, other researchers (Cottrell and Monk, 2004) applied the theory to identify risk factors for other types of family violence. Through an analysis of semi-structured interviews and focus groups consisting of youths, parents, and service providers in Canada, Cottrell and Monk identified risk factors for parental abuse. These factors include media violence and gender inequality (macrosystem), poverty (exosystem), parent unemployment and conflict or violence in a household (microsystem), and individual drug and alcohol abuse (mesosystem).[10] This study identified some of the same risk factors for parental abuse that Belsky (1980) identified as risk factors for child abuse. For example, both studies found that unemployment, the existence of other

[10] Cottrell and Monk relabeled the meso level as the ontogenetic level to identify risk factors relating to individual development.

types of family violence, and drug and alcohol abuse are all risk factors for child and parental abuse.

Eriksen and Jensen (2006) expanded on nested ecological theory to identify factors that increase the likelihood of sibling violence. They analyzed interviews of 944 married couples with at least two children under the age of 18.[11] Interestingly, Eriksen and Jensen found that some household level factors, such as parent unemployment, actually did not increase the likelihood of sibling violence. Alternatively, their analysis did find that parent drug and alcohol use increased rates of sibling violence. Additionally, children of divorced or separated parents, and even children of parents who just considered divorcing or separating engaged in more sibling violence. Eriksen and Jensen also found that being male and becoming a victim of child abuse increased the likelihood of engaging in sibling violence. One limitation of this study is that it only interviewed parents. Some parents are unaware of sibling abuse. They could also fear repercussions for revealing sibling violence, which could lead to underreporting.

While Belsky, Cottrell and Monk, and Eriksen and Jensen all focused on different types of family violence, their studies did reveal some consistent risk factors. All the studies found that existing family violence might increase the likelihood of other types of family violence. Other researchers also found a similar effect. Through an analysis of data from the National Family Violence Survey, Straus and Gelles (1990) found that individuals who reported intimate partner abuse lived in households with

[11] Eriksen and Jensen used data from Strauss' 1976 survey entitled Physical Violence in American Families. For more information on this dataset, see Brown (1980).

higher rates of child abuse. [12] Additionally, Hotaling et al. (1989) analyzed 334 surveys of college freshman who completed the Conflicts Tactics Scale. They found that households with child abuse reported more sibling abuse. [13] Appel and Holden (1998) analyzed interviews of intimate partner violence victims and found that 41% of victims also reported other types of family violence. Additionally, McCloskey (2007) found that 42% of intimate partner violence victims lived in households that experienced child abuse at least once compared to 20% of non- intimate partner violence victims.

Overall, nested ecological theory identifies some factors linked to specific types of family violence as well as factors that may increase any type of family violence. The theory also suggests that the existence of one type of family violence may increase the likelihood of other types of family violence occurring. Even with these findings, nested ecological theory is subject to limitations. Researchers may find it difficult to explicitly identify and measure some of the identified risk factors for violence (Cottrell and Monk, 2004). For example, one may encounter difficulties when attempting to measure cultural values. Additionally, nested ecological theory's emphasis on multiple levels may fail to capture the effects of more detailed dynamics (Cottrell and Monk, 2004). To understand the effects of specific factors at different levels, researchers may want to supplement nested ecological theory with other theories.

The remaining theories considered build on different components of nested ecological theory. Specifically, they narrow the focus to identify how factors at different levels may affect family violence. The first of these theories is strain theory (Merton,

[12] In 1985, the Family Research Laboratory at the University of New Hampshire conducted the National Family Violence Survey. The survey includes a cross-sectional sample of family violence victims. For more information on this survey, please see Straus and Gelles (1986).
[13] In 1979, Straus developed the Conflicts Tactics Scale to identify family violence. For more information, please see Straus and Gelles (1979).

1938; Agnew and Huguley, 1985; Fox et al., 2002; Moon et al., 2009). Merton (1938) originally developed strain theory to explain how deficiencies in social structures and support systems can lead to crime. Since then, criminologists modified the original theory to explain different types of deviant behavior.[14]

One of these modifications is Agnew's general strain theory (Agnew, 1985, 1992; Agnew and Huguley, 1989; Aseltine et al., 2000; Agnew et al., 2002; Broidy and Agnew, 1997). As opposed to viewing strains as structural conditions, general strain theory considers the impact of strains at an individual level. Specifically, the theoretical application explains how an individual's response to negative life experiences fosters deviant behavior (Aseltine et al., 2000). General strain theory suggests that three different types of strains can create negative emotions. These factors are as follows: inability to achieve a goal, losing something valued, and experiencing a negative or stressful event (Agnew, 1992). Once an individual experiences a strain, they may react in a manner that permits them to mitigate negative emotions. Some individuals may manage strains by using behavioral coping strategies such as negotiation. Other individuals may engage in behavior that is more deviant. In the latter case, individuals may respond with violence, often aimed at whoever caused the strain (Agnew 1992). Agnew (2001) conducted additional research to determine which types of strains increase the likelihood of violent behavior. He identified several factors including viewing the strain as unjust, high in magnitude, and uncontrollable.

Broidy and Agnew (1997) also found that gender might affect an individual's response to a strain. Their analysis suggests that men and women may experience

[14] Please see Ferdinand (1987) and Farnworth and Leiber (1989) for a macro-level interpretation of strain theory. This interpretation views strain as a structural condition.

different negative emotions resulting from strains. Specifically, men are more likely to experience anger while women are more likely to experience depression. They also found that strains that trigger anger lead to deviant behavior more than strains that trigger anxiety or depression. Furthermore, other researchers (Piquero and Sealock, 2000) found that anger is the negative emotion that best predicts interpersonal violence.

Eriksson and Mazerolle (2013) found that some types of strain might have a greater impact on males while others have a greater effect on females. For example, females tend to place a higher value on interpersonal relationships and will experience more strain when something or someone threatens one of their relationships. Men, on the other hand, experience more strain when something such as unemployment threatens their financial status (Aaltonen et al., 2013; Baron, 2008). As a result, proponents of strain theory would suggest that unemployment might lead to strain, which may increase the likelihood of violent behavior, especially among males.

Kyriacou et al. (1999) tested general strain theory by distributing surveys to women seeking treatment in an emergency room for injuries relating to intimate partner violence. Compared to women seeking treatment for other conditions, the former group reported higher levels of recent spousal unemployment and intermittent employment. In a cross-sectional analysis, Cunradi et al. (2011) found that among construction workers, the rate of intimate partner violence increased after layoffs of male workers. Additionally, Legerski and Cornwall (2010) conducted qualitative interviews of women whose husbands recently became unemployed. Several of these women stated that their spouses' job loss had made him more irritable and likely to lose his temper. As a result,

some of these women worried that their spouses might engage in violent acts and refrained from asking for assistance with household tasks.

Goodlin and Dunn (2009) built on these findings to identify how the strain of unemployment affects an entire household. They found that when one individual in a household loses their job, all family members become subject to experiencing strain. This effect is especially strong when the primary breadwinner loses his or her job. In these households, family members perceived the strain as exceptionally high in magnitude. As a result, when one family member became unemployed, all family members face an increased risk of engaging in family violence.

While general strain theory does explain how some individuals respond to strains in a manner that leads to deviance, it also has its limitations. Proponents of general strain theory acknowledge that not all individuals respond violently to strains. To determine how an individual will respond to a strain, one must consider the individual and social context in which the strain occurred (Wheaton, 1990; Aseltine et al., 2000). Two theories that aim to identify the context in which certain strains lead to deviant behavior are status inconsistency theory and household bargaining theory. Specifically, these two theories determine how social and household dynamics influence interpersonal violence.

Researchers in sociology and gender studies developed status inconsistency theory to explain how social norms may influence family violence (Baer et al., 1976; Hornung et al., 1981; Yick, 2001). The theory argues that society generates anticipatory expectations for individuals based on personal characteristics (Hornung et al., 1981). One such characteristic is gender. Social norms suggest that males should be able to

obtain resources necessary to support their family (Yick, 2001). One factor that may decrease a male's ability to obtain necessary or desired resources is unemployment. Unlike theories that focus on the economic impact of unemployment, status inconsistency theory identifies how unemployment may violate social expectations (Horning et al., 1981). For unemployed men, having an employed female partner compared to an unemployed female partner may even further violate social norms (Valdez-Santiago et al., 2013). Status inconsistency theory suggests that males may engage in violence as a way to compensate for a relative lack of power in a relationship (Hyman et al., 2011). As a result, male unemployment, especially when coupled with female employment, may increase the likelihood of intimate partner violence.

Hornung et al. (1981) tested status inconsistency theory by conducting a random survey of married and unmarried female adults in intimate relationships. The study identified the occupational status of both partners as well as rates of intimate partner violence. The results indicated that male and female status inconsistencies increased the likelihood of intimate partner violence. In particular, male underachievement in the workforce and higher relative female occupational status both positively correlated with intimate partner violence. Compared to employed women, non-employed homemakers experienced lower rates of intimate partner violence. Hornung et al. did acknowledge that this correlation may be due to actual lower levels of intimate partner violence or that homemakers may be less likely to report intimate partner violence when participating in surveys.

Other researchers also found support for status inconsistency theory. Macmillan and Garter (1999) used national survey data of Canadian women to determine the

relationship between unemployment and intimate partner violence. The study found that male unemployment on its own did not increase the likelihood of intimate partner violence. Instead, researchers had to consider male unemployment in relationship to their partner's employment status. Male unemployment increased the likelihood of violence among men with employed female partners. Additionally, through an analysis of data from the National Survey of Families and Households, Melzer (2002) found that when considering all partner employment combinations, couples with male unemployment and female employment experienced the highest rates of intimate partner violence.

Kaukin (2004) added to these finding by classifying couples based on three categories of status compatibility. The first type, status parity, identified couples without a dominant partner and either full employment or full unemployment. The second type, traditional status incompatibility, identified couples with an employed male partner and unemployed female partner. Lastly, status reversal identified a couple with an employed female partner and an unemployed male partner. Using data from the 1999 Canadian General Social Survey of Personal Risk, Kaukinen found that couples in the latter group had higher rates of emotional abuse. Even so, Kaukinen did not find statistically significant differing rates of physical intimate partner violence among the three types of groups. Overall, Kaukinen's findings partially support status inconsistency theory.

All of the theories discussed up until this point suggest that unemployment increases the likelihood of family violence. If so, then why did family violence rates not

rise during the most recent recession?[15] Household bargaining theory may provide an answer. This theory also identifies how partner employment status may influence intimate partner violence (Manser and Brown, 1980; McElroy and Horney, 1981; Pollak, 2003; Stevenson and Wolfers, 2006; Anderberg et al., 2015; Yilmazer and Lich, 2015). Household bargaining theory originates in Samuelson's (1956) economic family consensus model. Samuelson asserted that in households, all members focus on maximizing total household utility as opposed to individual utility. Since partners aggregate all resources into one unit, it does not matter which household members bring specific resources into the household. Manser and Brown (1980) built on Samuelson's model and created a cooperative game theory of household bargaining to explain household decision-making. This theory considers the possibility that both partners possess differing utility functions. The maximum utility point for each partner must be within the utility possibility frontier for the couple to experience gains to the marriage. In this case, the partners will decide how they will allocate resources using cooperative bargaining, which will result in a Pareto optimal outcome.

Similarly, McElroy and Horney (1981) developed a Nash household bargaining model, which treats each partner as an independent party with their own utility function. In this situation, they create a cooperative partner utility function that incorporates the individual utility function of each partner. To stay in a relationship, each partner should be able to obtain at least as much utility as they would receive if they left the relationship. McElroy and Horney identified a threat point, which is the point where an individual would obtain more utility outside his or her relationship. If an individual does

[15] See Figure 1 in the introduction.

not receive a certain level of utility in a relationship, they can threaten to leave. Partners use this threat point to bargain within a relationship.

Through an analysis of unilateral divorce reform, Stevenson and Wolfers (2006) demonstrated how individuals use threat points to bargain in relationships. Unilateral divorce permits an individual to obtain a divorce without the consent of his or her partner. Unilateral divorce also improves options for each partner outside of the relationship. Specifically, unilateral divorce lowers the threat point of divorce for victims of intimate partner violence. Stevenson and Wolfers found that between 1976 and 1985, states that adopted universal divorce laws experienced an average 33% decrease in intimate partner violence rates. This effect was large enough to suggest that these laws did not just permit violent marriages to end. The law also allowed potential victims to avoid violence by threatening divorce.

Another factor that may affect family violence through bargaining is employment. Molm and Cook (1995) identified how male unemployment affects household bargaining and violence. Some men increase their utility by engaging in violence. Employed males have more resources they can use to bargain in their relationship. As a result, employed males are better able to bargain for more violence. Unemployment takes away resources a male may use in household bargaining. As opposed to status inconsistency theory, the household bargaining model predicts that male unemployment can actually decrease the likelihood of family violence. In other words, a male may desire to engage in intimate partner violence. Doing so can often increase the likelihood that his partner attempts to leave the relationship. If her male partner can no longer support the family through work, her likelihood of leaving may

increase. To prevent a breakup, an unemployed male may conceal his violent tendencies (Molm and Cook, 1995).

If household bargaining theory holds, one would expect for an increase in male unemployment to lead to decreased rates of family violence, while an increase in the female unemployment rate would have an opposite effect. Figure 2 identifies the corresponding male and female unemployment rate during the most recent recession.[16]

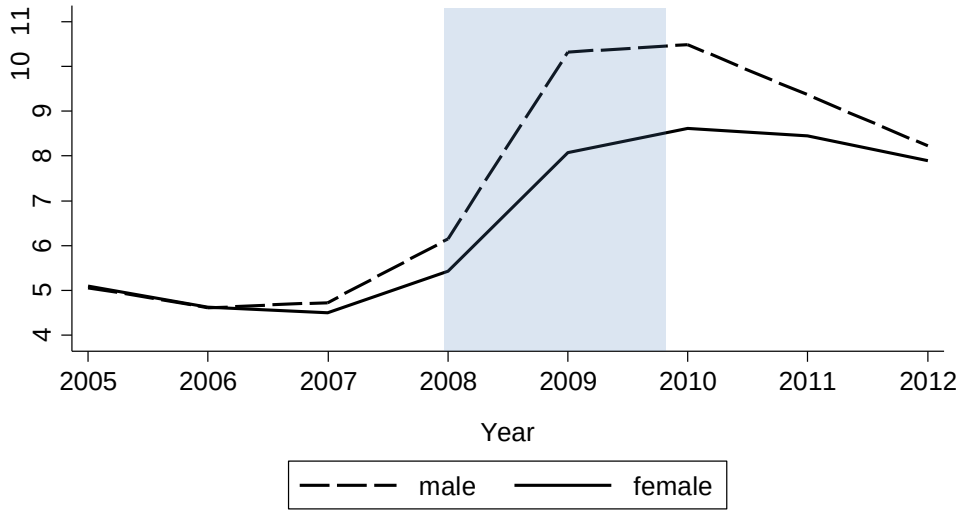

FIGURE 2: Male and female unemployment rate

notes: The figure identifies the annual unemployment rate for males and females.
Source: Current Poulation Survey

Figure 2 reveals that men relatively experienced more unemployment in the most recent recession. In fact, by August 2009, the unemployment rate for males reached 11 percent

[16] The shaded area represent the most recent economic recession, which lasted from December 2007 to June 2009.

while the unemployment rate for females only reached 8.3 percent.[17] This discrepancy represents the largest gendered unemployment gap in the postwar era.

Sahin et al. (2010) identified two possible factors leading to the unemployment gap. First, men are more likely to work in industries most impacted by the recession. These industries include manufacturing and construction. Women, on the other hand, are more likely to work in industries less impacted by the recession. These industries include healthcare and education. Sahin et al. (2010) also found that declining household liquidity prompted more men than women to rejoin the workforce. These men include individuals who briefly retreated from the workforce due to decreased job opportunities and long term unemployed men. Many of these men could not find work, which further increased male unemployment rates.

Using household bargaining theory, Anderberg et al. (2015) determined how the male and female unemployment gap affected intimate partner violence. Anderberg's analysis used data from the British Crime Survey. The British Crime Survey mirrors the American National Criminal Victimization Survey, which is the data used in this research. Anderberg's results suggested that male and female unemployment rates have differential effects on intimate partner violence. An increase in the male unemployment rate decreased the likelihood of intimate partner violence. Alternatively, an increase in the female unemployment rate increased the rate of intimate partner violence.

Both status inconsistency theory and household bargaining theory focus primarily on male initiated violence against women. Conventional norms suggest that females are more likely to become victims of intimate partner violence compared to males. The US Department of Justice (USDOJ) (2009) found that females aged 12 and

[17] As reported by the Bureau of Labor Statistics using data from the Current Population Survey.

older are over five times more likely than males to become victims of intimate partner violence. Other research suggests that males make up a greater proportion of victims than previous thought. Breiding et al. (2008) distributed the 2005 Behavioral Risk Factor Surveillance System (BRFSS) survey to identify rates of intimate personal violence. Their results suggest that 25% of women and 14% of men will become victims of intimate partner violence at some point in their life. Other research reveals similar rates of male and female victimization. Straus (1999) conducted a meta-analysis of family conflict studies and crime studies. He found that on average, crime studies indicate that men commit 90% of intimate partner violence assaults. On the other hand, family conflict studies consistently reveal almost equal rates of family assaults committed by males and females. One explanation for this difference is that male victims are less likely to experience physical injuries (Straus, 2009). As a result, they are less likely to report victimization, which is why crime studies identify a large discrepancy between rates for male and female victims.

Social norms may also attribute to underreporting for male victims of intimate partner violence. Arias and Johnson (2009) distributed questionnaires to undergraduate students to identify perceptions of male and female initiated violence. Subjects perceived female to male aggression as less serious and rated it less negatively than male to female aggression. Du Plat -Jones (2006) interviewed health care workers and found that the workers sometimes find it difficult to believe explanations of abuse from male patients. When they treated injured male patients, they often attributed the injuries to altercations with other males or work-related incidents. George and Yarwood (2001) interviewed male and female victims and found higher rates of police criticism among

male victims. When males reported victimization to the police, they often found that the police did not take their reports seriously. These perceptions may contribute to male victims' reluctance to report abuse. Drijber et al. (2013) also found that male victims often did not report victimization because they believed that the police would not take their report seriously.

This analysis does acknowledge that males can be victims of intimate partner violence. Even so, this analysis tests established theory, which primarily focuses on male initiated acts of intimate partner violence against females. Additionally, existing scholarship focuses primary on heterosexual couples.[18] As a result, when identifying risk factors for intimate partner violence, this analysis focuses primarily on female victims in heterosexual relationships. The discussion section considers possible implications of these restrictions as well as recommendations for future research.

Overall, nested ecological theories as well as strain theory suggest that unemployment increases the likelihood of family violence. Strain theory suggests that when one individual loses their job, all family members experience strain. As a result, they all face an increased risk of engaging in violence. Status inconsistency theory as well as household bargaining theory specifically focuses on intimate partner violence. They also both consider how a combination of a male and female's employment status influences the likelihood of violence. Status inconsistency theory suggests that male unemployment coupled with female employment increases the likelihood of violence while household bargaining suggests the opposite effect. Lastly, when considering

[18] The discussion section considers results that include male victims of intimate partner violence. The results suggest that females make up the majority of victims in this analysis. Due to data limitations, this analysis cannot identify same sex couples. As a result, this analysis cannot identify the effects of unemployment on intimate partner violence for homosexual couples.

intimate partner violence, existing scholarship tends to focuses on female victims in heterosexual relationships. As a result, this analysis also primarily considers these victims although the discussion section considers additional analyses as well as limitations stemming from existing theory.

2.2 Hypotheses

This research primarily aims to identify how unemployment influences family violence. Nested ecological theory and general strain theory primarily drive hypothesis 1. These two theories state that unemployment is a strain that can lead to violence. Additionally, general strain theory suggests that when one family member becomes unemployed, the entire family experiences a strain. As a result, household unemployment increases the risk of victimization for all family members. When identifying the impact of unemployment on family violence, other researchers (Goodlin and Dunn, 2009) also considered the employment status of all household members as opposed to just the victims. Hypothesis 1 is as follows:

1. Household unemployment increases the likelihood of crime victimization, family violence, repeat family violence, and family violence co-occurrence.

Hypothesis 1 makes four predictions. The first prediction suggests that family violence increases the likelihood of any type of crime victimization. While this analysis does not primarily focuses on all types of victimization, it uses this prediction as a point of reference. It is useful to determine if unemployment affects overall crime before identifying how unemployment potentially affects family violence. The next prediction suggests that household unemployment increases the likelihood of family violence. The hypothesis also predicts that household unemployment increases the likelihood of repeat family violence. Repeat violence occurs when members of a household report multiple

violent family incidents. While previous scholars suggested that unemployment could increase violence, few considered how unemployment affects the likelihood that a family experiences multiple violent incidents. One possible explanation is that most data on family violence are cross section and focus on isolated acts of violence.[19] Hypothesis 1 lastly predicts that household unemployment will increase the likelihood of family violence co-occurrence. Co-occurrence occurs in households where multiple family members reported violent family incidents or one family member reported multiple incidents with different perpetrators. As with repeat family violence, little existing research identifies risk factors for family violence co-occurrence.

The next hypothesis considers how the combination of partner employment statuses influences intimate partner violence. Status inconsistency theory and household bargaining theory primarily drive hypothesis 2. Status inconsistency theory suggests that violence is highest when employment statuses violate social norms. Specifically, male unemployment coupled with female employment may increase the likelihood of violence. Household bargaining theory suggests that when an individual loses his or her job, they lose bargaining power in a relationship. This loss of bargaining power is especially true if their partner is working and motivates an individual to conceal violent behavior. This effect is especially strong for males. As a result, male unemployment coupled with female employment will decrease intimate partner violence. Because status inconsistency theory and household bargaining theory make opposite predictions, hypothesis 2 is non-directional and is as follows:

2. An intimate couple's combination of employment statuses influences the likelihood of intimate partner violence against women.

[19] This analysis includes panel data, which identifies multiple episodes of violence within a household. For more information on the data set used, see chapter 3.

Exiting theory focuses primarily on female victims in heterosexual relationships so female victims are also the focus of hypothesis 2.

Lastly, hypothesis 3 also tests household bargaining theory and considers the effect of the unemployment rate. Anderberg et al. (2015) suggested that unemployment risk, identified by the unemployment rate, better predicts intimate partner violence compared to unemployment status. Hypothesis 3 is as follows:

3. An increasing in the male unemployment rate decreases intimate partner violence, while an increase in the female unemployment rate has the opposite effect.

Anderberg found support for this hypothesis as well as household bargaining theory using British data on unemployment and family violence during the most recent economic recession. This analysis attempts to see if this effect holds using an American dataset.

The next chapter operationalizes relevant variables and generates a model used to test these hypotheses.

CHAPTER 3: METHODOLOGY

3.1 Data and Variable Operationalization.

This research includes two data sources. The first source is the National Crime Victimization Survey (NCVS). The second source is the Current Population Survey (CPS). Chapter 3 describes each dataset as well as the operationalization of relevant variables. The chapter also identifies the model used to test the hypotheses generated in chapter 2.

3.1A National Crime Victimization Survey[20]

The U.S. Census Bureau and the Bureau of Justice Statistics (BJS) have jointly administered the NCVS since 1972. The data are freely available from the Inter-University Consortium for Political and Social Research (ICPSR).[21] The NCVS incorporates a nationally representative sample of residential addresses in the United States. The survey excludes individuals living in-group quarters such as prisons, nursing homes, or military barracks. The NCVS generates its sample from the decennial census and phases in selections from the most recent yearly census.[22] Every month, the Census Bureau selects households to survey using a stratified, multistage cluster rotating panel sample design. This method allows the NCVS to identify certain household

[20] For detailed information the NCVS design, please see the NCVS Technical Documentation Report. (Bureau of Justice Statistics, 2014).
[21] NCVS data are freely available.
[22] The US Census Bureau has conducted the decennial census in every year that has ended with a '0' since 1970.

characteristics such as region of residence and basic household member demographics before field representatives conduct any interviews.

NCVS data are available at the person, incident, household, and address level. The address and household level files contain information about each household surveyed.[23] The person level file contains demographic information for each individual interviewed. The incident level files contain information about each reported crime. The NCVS gives each individual and household a unique identification number, which facilitates data file merging.

NCVS field representatives interview all residents over the age of 11 in selected households 7 times over a 3-year period. Field representatives conduct interviews 1 and 5 face-to-face. They complete the rest of the interviews over the phone. If the field representative cannot reach a respondent by phone after several attempts, they can attempt to complete the interview in person. If a respondent does not speak English, the field representatives can use translators to complete an interview. At the initial interview, field representatives designate one individual in each household as the reference person. The reference person is the individual that either owns or rents the living quarters. Usually the reference person is at least 18 years old. If there are no individuals in the household that are at least 18 years old, the reference person is the individual most responsible for household expenses. If only one person resides in the household, they are automatically the reference person. The field representative

[23] The NCVS uses a specific address to identify each selected household. The household interviewed at the first interview obtain a value of '1'. If members of a household move out but at least one original household member remains, the household maintains a '1'. If none of the original household members remain and new residents move in, the new household members receive a value of '2'. The same thing must happen for household members to receive a value of '3' and so on. If all members move out and no new residents move in, the NCVS classifies each of the remaining interviews as a 'non-interview'.

interviews the reference person to identify certain household characteristics, such as family structure and annual household income.

After obtaining household-level information from the reference person, the field representative then interviews each eligible household member. In these interviews, the field representative obtains additional demographic information not captured by the US Census.[24] They also identify whether a respondent experienced any crime victimizations in the 6 months leading up to the interview. If the respondent reports victimization, the field representative asks several additional questions aimed to capture details of each identified crime. Figure 3 identifies the crime victimization rate by year per 1,000 respondents.[25]

[24] The field representatives also verify information obtained from the census. The NCVS does note any discrepancies. The NCVS classifies the demographics identified by the census as original values and demographics identified by respondents as allocated values.

[25] This analysis uses the crime rate per 1,000 respondents because few respondents reported crime victimization. This is especially true for acts of family violence.

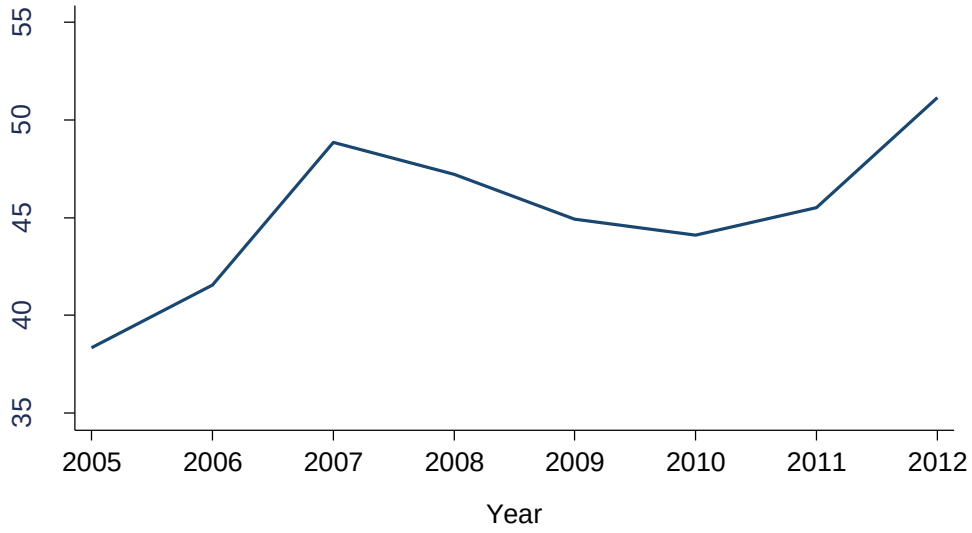

FIGURE 3: Crime victimizations by year per thousand respondents

notes: The figure identifies the rate of crime victimizations by year per thousand respondents.
Source: National Crime Victmization Survey

The NCVS instructs field representatives to make every effort to interview all eligible household members. To obtain responses for a non-interviewed respondent, field representatives sometimes use proxies.[26] There are only certain circumstances that permit field representatives to use proxy responses. For instance, field representatives can use proxies when parents prohibit interviews for children aged 12 or 13. Field representatives can also use proxies when a household member is temporarily absent and does not plan to return to the home until after the interview close out date.[27] Additionally, some household members possess physical or mental limitations that prevent an interview. To use a proxy in these cases, the limitation must exist throughout

[26] For a complete description on the use of proxy responses, please the NCVS Technical Documentation, page 33 (Bureau of Justice Statistics, 2014).
[27] If a field representative cannot complete an interview by an assigned date, they can schedule a make-up interview up to three weeks after the originally scheduled date. In addition, anytime a household member cannot complete a scheduled interview, the field representative also verifies that the individual is still actually part of the household.

the duration of the seven interviews. Certain health issues such as the cold or flu, drug use, and drunkenness do not permit the use of proxies.[28]

Overall, the NCVS is one of the most robust data sources on crime victimization in the United States (Rand, 2006). The NCVS maintains a relatively high response rate. Table 1 identifies the household and person response rates for all years included in this analysis.

TABLE 1: Annual National Crime Victimization Survey household and individual response rate

Year	Households Interviewed	Response Rate	Individuals Interviewed	Response Rate
2005	115,107	91%	181,009	84%
2006	115,315	91%	179,717	86%
2007	110,407	90%	170,869	86%
2008	101,818	90%	155,704	86%
2009	102,104	92%	157,796	87%
2010	106,971	92%	167,444	88%
2011	106,373	90%	162,867	88%
2012	127,441	87%	187,684	87%

Notes: This table identifies the annual NCVS response rate for households and individuals. These figures are freely available in the annual NCVS codebooks, available at

Another strength of the NCVS is it includes both reported and unreported crimes. One of the greatest obstacles to analyzing family violence stems from underreporting. The Bureau of Justice Statistics estimates that 40% of family violence goes unreported (Harlow et. al, 2005). Data sources that only include reported family incidents may vastly underestimate the actual prevalence of family violence. Additionally, the NCVS includes data on both crime victims and non-crime victims. This inclusion of non-

[28] Other instances that do not permit the use of a proxy include having a non-English speaking respondent with no translator available or simple interview refusal. In these cases, field representatives code the interview as a non-response.

victims makes it possible to compare the two groups and identify factors that may increase the likelihood of family violence.

It is also important to consider some limitations to the NCVS. While the survey does identify both reported and non-reported crimes, it still likely underreports family violence. Many of the same reasons why victims do not report family crimes to the police can also be reasons they do not report crimes to the NCVS. These reasons include viewing family violence as a private matter as well as a desire to protect an abuser (Harlow et al., 2005). Victims may also fear retaliation from their abuser for reporting the incident to the NCVS. While field representatives do attempt to ensure privacy during in-person interviews, they cannot ensure that household members do not hear one another's responses. They also cannot ensure privacy during phone interviews. Lastly, some cases of family violence lead to the victim's death. Since the NCVS gathers information on crimes from victims, it omits these acts of violence.

The next section describes relevant NCVS variables. These variables are available in the address, household, person, and incident level files. [29]

Household Level Variables

The household level contains the following relevant variables: household identifier, year/quarter of interview, region, income, family structure, number of household members aged 12 and over, number of household members under the age of 12, and relationship between principal and reference person.[30]

[29] This analysis does not include data from the address level. To obtain descriptions of all variables, please see the NCVS Technical Documentation Report. (Bureau of Justice Statistics, 2014).

[30] The NCVS codes for each variable are as follows: Household Identifier – IDHH, Year/quarter of interview – YEARQ. Region – V2127B, Income – V2026, Family Structure – V2122, Number of household members aged 12 and over – V2071, Number of household members under 12 years old – V2072, Relationship between principal and reference person – V2032.

- Household Identifier

The NCVS gives each household a unique household identifier. The household identifier remains the same throughout all seven household interviews. The identifier facilitates merging NCVS data levels.

- Year and Month of Interview

The year and month variable identifies the year and month in which an interview occurred. The variable facilitates merging NCVS data levels as well as NCVS data with CPS data.

- Region of Residence

The NCVS identifies the region of residence for each household prior to conducting interviews. The region of residence boundaries mirror the boundaries used by the US Census Bureau.[31] These regions include the Northeast, Midwest, South, and West. This analysis generated four binary indicator variables for each region of residence. Each respondent received a value of one for exactly one of these binary indicator variables.

- Income

Household income identifies total household income earned by all household members aged 14 and older living in the household unit at some point in the 12 months leading up to the interview. Field representatives obtain household income from the household reference respondent. Field representatives only record household income during the first, third, fifth, and seventh interviews. For the second and fourth interview, field representatives use household income from the previous interview. Household income includes wages, salaries, net business income, farm or rent, pensions, dividends,

[31] For a map of US Census regions, please see US Census Bureau (2010).

interest, social security payments, alimony, public assistance, and child support. Field representatives do not record numerical income. Instead, they record the category of household income.[32] This analysis recoded income so that each respondent received a value equal to the midpoint of his or her household income category. For example, if a respondent had a household income of $40,000 to $49,999, they received a new income value of $44,999.50. Respondents missing a value for household income received an imputed value equal to the mean of the income category midpoints.[33] Respondents missing household income also received a value of one for a new binary indicator variable entitled *income_missing*. All other respondents received a value of zero for *income_missing*.

- Number of Household Members

To identify the number of household members aged 12 and over, the NCVS first defines the term household member. A household member is an individual whose usual place of residence at the time of the interview is the sample unit interviewed.[34] Household members must also have no regular place of residence elsewhere. A household member must regularly eat and sleep at the sample unit and be free to leave at any time. A household member can be a family member as well as a lodger, servant, or employee as long as they consider the sample unit their primary residence. Additionally, household members can include individuals temporarily absent during the interview. The NCVS considers members of the Armed Forces as residents if they

[32] The NCVS uses the following household income categories: less than $5,000, $5,000-$7,499, $7,500-$9,999, $10,000-$12,499, $12,500-$14,999, $15,000-$17,499,$17,500-$19,999, $20,000-$24,999, $25,00-$29,999-$30,000-$34,999,$35,000-$39,999,$40,000-$49,000, $50,000-$74,999, and above $75,000.
[33] Approximately 27% of respondents originally did not have a value for income.
[34]To view the NCVS definition of household member, please see page 507 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

usually sleep in the sample unit. The NCVS does not consider students attending school away from the home as residents unless they also usually sleep at the sample unit. Using the NCVS definition of household member as well as the ages for all household members, the field representatives record the number of household members aged 12 and over as well the number of household members under age 12. Using the variable identifying the number of household members under 12, this analysis generated a binary indicator variable identifying the presence of children under 12 in the home. This analysis also added the values for both these variables to identify the total number of residents in each home.

Reference and Principal Person Relationship

The variable identifies the relationship between the reference and principal person. These types of relationships include, but are not limited to husband, wife, son, and daughter. This analysis uses the variable to identify married respondents.

Person Level Variables

The person level contains the following relevant variables: household identifier, year/quarter of interview, month of interview, type of interview, person identifier, age, sex, Hispanic origin, race, marital status, education, and employment status.[35]

- Type of Interview

The types of interviews include the following: in-person, telephone, proxy in person, proxy telephone, and non-interview.[36] A non-interview occurs when a field

[35] The household level includes the household identifier. See the previous section for a description of these variables. The NCVS codes for rest of the variables are as follows: Type of interview – V3011, Person Identifier – IDPER, Age – V3014, Sex – V3018, Hispanic Origin – V3024, Race – V3023A, Marital Status – V3015, Education – V3020, Employment status – V3071

[36] Please see page 132 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

representative did not complete an interview. A non-interview could occur if the field representative never made contact with a household. A non-interview could also happen if the field representative did contact a household but could not contact a specific household member or use a proxy. This analysis does not include data from any non-interviews. The type of interview variable also generated a new binary indicator variable, which identified proxy responses. A value of one indicates that a proxy responder completed an interview on behalf of an unavailable respondent.[37]

- Person Identifier

The person identifier is a number that uniquely identifies each respondent eligible for participation in the NCVS.[38] The NCVS generates a person identifier for each respondent before completing any interviews. The variable remains the same for each scheduled interview of a specific respondent. The person identifier variable facilitates merging NCVS data levels.

- Age

Two variables in the NCVS dataset identify age. Original age identifies a respondent's age as listed on census data. Some individuals do not report their age in the census data. Allocated age identifies a respondent's self-identified age at the time of the NCVS interview. All respondents receive a value for allocated age, which this analysis uses as opposed to original age. Field representatives identify a respondent's allocated age by asking a respondent to identify his or her month, day, and year of birth. From this information, the field representative calculates the respondent's age at the time of the interview. The age variable generated binary indicator variables for four age

[37] The appendix contains results for models re-run without proxy responses.
[38] See section on household variables for a definition of household member.

groups, which are as follows: 18-24, 25-34, 35-44, 45-54, and 55-64. These age groups facilitate merging NCVS and CPS data. The model tested does not include age groups as control variables. Instead, the models include each respondent's numerical age.

- Sex

Two variables in the NCVS dataset identify a respondent's sex. Original sex identifies a respondent's sex as listed on census data. Allocated sex identifies a respondent's self-identified sex at the time of the interview. As with the age variable, this analysis uses allocated sex. Field representatives ask respondents if they identify as male or female.[39] Field representatives then use that response for all future interviews. This analysis recoded the sex variable so that females received a value of one and males received a value of zero.

- Race and ethnicity

Two NCVS variables identify race and ethnicity. To identify ethnicity, field representatives ask respondents if they self-identify as Hispanic or non-Hispanic. Each respondent identifies his or her ethnicity during the first completed interview. To identify race, field representatives ask respondents to identify with one of several listed races. Racial categories include White, Black, American Indian/Aleut/Eskimo, Asian/Pacific Islander, other, and different combinations of racial categories.[40] For example, one option allows a respondent to identify as Black-Asian. Other categories allow a respondent to identify as more than two, three, or four races. Each respondent can only select one of the designated categories. The race variable generated the

[39] At this time, respondents cannot identify as a sex other than male or female.
[40] To see the full list of races, please see page 144 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

following racial categories: White only, Asian only, Black only, and other. Data from the 'Hispanic' variable combined with these racial categories created five binary indicator variables identifying the following race/ethnicity combinations: Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian, Non-Hispanic other, and Hispanic. Each respondent received a value of one for exactly one of these categories.

- Marital Status

The NCVS recognizes five types of marital statuses, which are as follows: married, widowed, divorced, separated, and never married. The marital status variable identifies a respondent's self-reported marital status at the time of the interview. The married category includes common law marriages. The separated category includes respondents who are married with a legal separation. These individuals could also separate without a legal separation due to marital discord. The NCVS considers respondents separated from their spouse due to other reasons such as employment or military service as married. The never married category includes all respondents who had never been married or annulled (all) marriage(s). The marital status variable generated six binary indicator variables for each marital status.

- Education

The NCVS identifies several education levels.[41] To identify educational attainment, field representatives ask respondents to identify their highest-grade level completed at a regular school. Regular schools include public, private, or parochial schools, colleges, universities, and professional schools. The school must use a formal grading system and include some type of primary or secondary type of education.

[41] For example, the NCVS has a category for each level of primary school from kindergarten to 12th grade. To see the full list of educational levels, please see page 143 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

Regular schools exclude vocational, trade, business, correspondence, and other specialized schools unless students can transfer credits earned at these schools to other regular schools. For respondents currently enrolled in school, their education attainment identifies their current enrollment level. Field representatives identify educational attainment at the first, third, fifth, and seventh interviews. For the second and fourth interview, they use the educational attainment identified at the previous interview. The education variable generated six condensed binary indicator variables representing the following education levels: not a high school graduate, high school graduate, some college with no degree, associate degree, bachelor's degree, and advanced degree.

- Employment

During each interview, field representatives ask respondents two employment related questions. These questions are as follows:[42]

Did you have a job or work at a business last week? (Do not include volunteer work or work around the house.)

Did you have a job or work at a business during the last 6 months?

Both of these questions are binary. This analysis uses responses from the first question only. The first question has a higher response rate. Secondly, identifying individuals who did not work in the last week compared to individuals who did not work in the last 6 months likely better identifies individuals who are in the workforce but unable to find work. This analysis recoded the employment variable so that respondents over age 17 who had worked for pay in the last week received a value of one, and all other adult respondents received a value of zero.

[42] To view these questions, please see page 169 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

Using the employment variable, this analysis also identifies the unemployment rate for each household during each interview. To determine household unemployment, this analysis identifies the percent of unemployed adults aged 18-64 in each household during each interview.[43] This analysis also considers how the combination of employment statuses among intimate partners influences violence. As a result, it is necessary to identify intimate partners. The reference and principal person relationship variable identifies married couples in each household. The employed variable also identifies each respondent's employment status. This analysis first combined married couples in each household. Then, using each respondent's employment status, this analysis generated four binary employment categories, which are as follows: female employed and male employed, female employed and male unemployed, female unemployed and male employed, and female unemployed and male unemployed. Each married respondent received a value of one for exactly one of these categories.

The NCVS does not explicitly identify unmarried couples, which makes it more difficult to identify partner employment combinations for these couples. To determine partner employment status for unmarried couples, this analysis identified households with one unmarried female and one unmarried male adult. This analysis then paired these respondents and identified partner employment combinations using the same method used with married partners.[44]

Table 2 identifies the rate of different partner employment combinations for female respondents aged 18-64 with partners.[45]

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[43] This resulted in mean value of household unemployment of 29.3% and a standard deviation of 37.2.
[44] While this method most likely identifies unmarried partners, it excludes same-sex couples.
[45] Table 2 includes female respondents because hypothesis 2 identifies the effect of partner employment combinations on male-initiated intimate partner violence against females.

TABLE 2: Intimate partner employment status		
Female employed, male employed	52.8%	49.9
Female employed, male unemployed	11.6%	32.0
Female unemployed, male employed	24.6%	43.0
Female unemployed, male unemployed	11.0%	31.3
Notes: n=280,301. The table identifies the rate of different partner employment combinations for female NCVS respondents aged 18-64 with partners as well as the standard deviation for each employment category.		

Table 2 reveals that over half the couples interviewed had full employment. Additionally, neither partner worked in 11% of partnerships.

Incident Level Variables

Once a respondent reports crime victimization to the NCVS, he or she answers several follow-up questions designed to uncover additional information about the crime. Field representatives ask victims to state whether they experienced one or multiple victimizations in a designated time period leading up to the interview. If a respondent identifies multiple victimizations, the field representative asks follow-up questions for every incident. The incident level contains the following relevant variables: year and quarter of interview, person identifier, and type of offense, and victim/offender relationship.[46]

- Type of Crime

Field representatives instruct crime victims to select one option that best describes his or her type of victimization. The crimes of interest in this analysis include simple assaults, aggravated assaults, sexual assaults, and verbal threats.[47]

[46] The variable descriptions in the person level already described the person identifier and year/quarter of interview. The NCVS codes for the remaining variables are as follows: Type of offense – V4528, Victim/offender relationship – V4245.

[47] Other types of crimes such as vandalism and robbery are less likely to be acts of family violence.

Victim/Offender Relationship

Crime victims identify their relationship with their offender by responding to the following question:

> *How did you know the offender? For example, was the offender a friend, cousin, etc.?*[48]

The respondent can select one relationship out of several different types of relationships. The NCVS classifies all relationships into two categories. The first category includes relatives such as spouses, parents, siblings, and other non-listed relatives. The second category includes non-relatives such as boyfriends (current or former), girlfriends (current or former), schoolmates, neighbors, and other non-listed non-relatives. Respondents can also select another option, which identifies an unknown victim/offender relationship.

3.1B Defining Family Violence

The NCVS does not explicitly identify acts of family violence. For a reported incident to count as an act of family violence in this analysis, it must meet two requirements. First, the incident must have one of the following victim/offender relationships: spouse, ex-spouse, own or stepparent, own or stepchild, brother/sister, other relative, and boyfriend or girlfriend. Second, the incident must be some type of assault or threat.[49] Figure 4 identifies the annual rate of family incidents by year per 1,000 respondents.

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[48] Please see page 304 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

[49] The type of crime variable (variable V4528) identifies several detailed types of crimes. Family crimes consist of the following types of incidents: simple assault (simple assault completed with injury, assault without weapon without injury), aggravated assault (completed aggravated assault with injury, attempted aggravated assault with weapon), sexual assault (completed rape, attempted rape, sexual attack with serious assault, sexual attack with minor assault, sexual assault without injury, unwanted sexual contact without force), and verbal threat (threatened assault with weapon, verbal threat of rape, verbal threat of

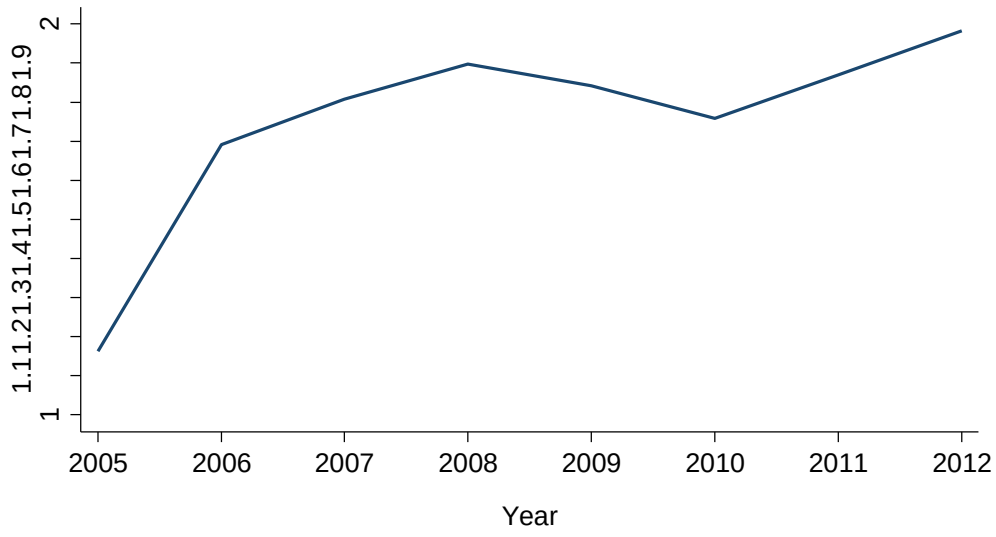

FIGURE 4: Family incidents by year per thousand respondents

notes: The figure identifies the rate of family incidents by year per thousand respondents.
Source: National Crime Victmization Survey

Figure 4 does not identify an increased rate of family violence during the most recent recession.

This analysis also considers factors that predict repeat family violence. If a respondent reported a family incident in a household with multiple family victimizations, the incident received a value of one for a new binary indicator variable called *repeat_violence*. It is important to note that repeat violence could occur when the same respondent reported multiple incidents, different household members reported incidents, or a combination of both situations.

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sexual assault, verbal threat of assault). Please see page 449 of the NCVS 2012 Codebook (Bureau of Justice Statistics, 2012).

Additionally, this analysis considers factors that predict family violence co-occurrence. Co-occurrence is a specific type of repeat family violence. Families with a co-occurrence of family violence have multiple victims, perpetrators, or both. If a respondent reported a family incident in a household with a co-occurrence of family violence, the incident received a value of one for a new binary indicator variable called *co-occurrence*.

This analysis also considers risk factors specifically related to intimate partner violence. The NCVS does not specifically identify acts of violence between intimate partners. This analysis considers all acts of family violence committed against a spouse, ex-spouse, or current/former boy or girlfriend as an act of intimate partner violence. Figure 5 identifies the rate of intimate partner violence per 1,000 female respondents in relationships.

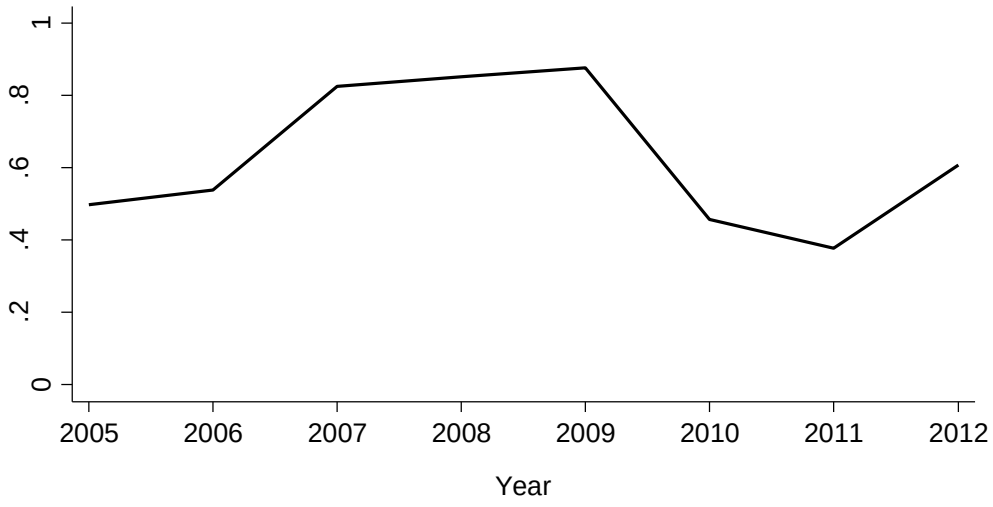

FIGURE 5: Intimate partner violence by year per thousand female respondents in relationships

notes: The figure identifies the rate of intimate partner violence by year per thousand female respondents in intimate relationships.
Source: National Crime Victmization Survey

Figure 5 reveals a relatively low intimate partner violence reporting rate.

3.1C NCVS Demographics

Table 3 includes demographics for all NCVS respondents.

TABLE 3: National Crime Victimization Survey demographics

Variable	Rate	Standard Deviation		Variable	Rate	Standard Deviation
Sex				Marital Status		
Male (r)	0.47	0.50		Married	0.49	0.50
Female	0.52	0.50		Widow	0.01	0.09
Missing	0.00			Divorced	0.09	0.30
				Separated	0.02	0.15
Ethnicity				Never Married (r)	0.38	0.46
Non-Hispanic White (r)	0.69	0.46		Missing	0.00	
Non-Hispanic Black	0.11	0.31				
Non-Hispanic Asian	0.05	0.21		Region		
Non-Hispanic Other	0.02	0.13		Northeast (r)	0.17	0.37
Hispanic	0.16	0.37		Midwest	0.24	0.43
Missing	0.00			South	0.36	0.48
				West	0.23	0.42
Education				Missing	0.00	
Less than High School	0.23	0.34				
High School Graduate (r)	0.25	0.45		Other		
Some College	0.18	0.40		Age (Mean)	34.6	12.3
Associate	0.07	0.27		Income (Mean)	49,133	20,234
Bachelor's	0.18	0.40		Number in Household	2.94	1.49
Advanced Degree	0.07	0.28		Child Under 12 in Household (Binary)	0.30	0.46
Missing	0.01			Proxy Responses	0.03	0.18

Notes: n= 877,481. The table identifies demographics for all NCVS respondents interviewed from 2005 to 2012. Education represents the highest level of education obtained at the time of interview. Income represents the midpoint of the annual household income category. For each category, (r) identifies the reference variable.

Table 3 reveals that the NCVS interviewed slightly more females than males. Additionally, the majority of respondents identified as non-Hispanic White. In regards to education, slightly less than half of respondents earned a high school diploma or less.

Additionally, approximately half identified as married, while about one third identified as never married. Few respondents identified as divorced, separated, or widows. Lastly, proxies made up 3% of the sample.

3.1D Current Population Survey[50]

The U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS) jointly administer the CPS. The survey began in 1940.[51] The data are freely available.[52] The data incorporate a probability-selected sample of approximately 60,000 households monthly representing all 50 states and the District of Columbia. The primary goal of the survey is to produce national and state employment estimates and labor force characteristics.

The CPS samples households using addresses obtained from the 2000 decennial census. Officials update the list annually to include houses built after the census. Officials divide all households up into primary sampling units (PSUs) and group all PSUs into strata.[53] The CPS then selects one PSU from each stratum to include in the survey. From that, officials randomly select households to survey.

The CPS surveys households once a month for four consecutive months, does not survey the household for the next eight months, and then surveys the household for four more consecutive months. Field representatives conduct monthly surveys during the calendar week that includes the 19th day of the month. Similar to the NCVS, the CPS does not include individuals living in-group quarters. Field representatives collect

[50] The Current Population Survey, Technical Paper 63: Design and Methodology identifies background information on the CPS (United States Department of Labor, 2000).
[51] The CPS began in 1940 and the Census Bureau became primarily responsible for conducting it in 1942.
[52] Monthly CPS employment data from the US Census Bureau.
[53] For a list of all PSUs and Strata, please see Table 3.1 on page 3-6 CPS from the Current Population Survey, Technical Paper 63: Design and Methodology (United States Department of Labor, 2000).

responses digitally through in-person or telephone interviews. Respondents must be older than 14 and not in the military. The CPS collects demographic and employment data from all respondents over 15 years old. Usually, one person in the household provides responses for all household residents. The CPS refers to this individual as the reference person. The reference person is usually the individual that owns or rents the housing unit. If that reference person does not know the employment status of a particular household member, the CPS field representative will attempt to contact that household member. From this information, the BLS derives the national unemployment rate as well as the unemployment rate for various demographics and segments of the population.

The CPS is one of the most used data sources for unemployment in the United States. The Bureau of Labor Statistics uses the CPS to derive the official national unemployment rate. The CPS not only provides unemployment data at national and local levels, but also includes detailed demographic information for surveyed respondents. Compared to other employment data sources, such as the Current Employment Statistics (CES) survey, the CPS incorporates a more broad definition of employment. For example, the CPS includes workers that are self-employed, on unpaid leave, and those employed by private households (Bowler and Morisi, 2006).[54] The CPS is also highly reliable. Parsons (2013) analyzed the CPS to find evidence of measurement error. While Parsons did find a relatively small number of outliers, the outliers had no distinct patterns. Parsons also found that the data as a whole had no systematic bias.

[54] For information on the CES, please see The Current Employment Statistics Survey (Bureau of Labor Statistics, 1988).

The CPS is also subject to a few limitations. Since the survey relies on completed household interviews, it is subject to non-sampling error. Additionally, some scholars suggested that the CPS's monthly sample of approximately 60,000 households is relatively small, especially when calculating unemployment rates at detailed geographic levels (Bowler and Morisi, 2006). Even with these limitations, the CPS provides valid and reliable estimates of unemployment rates (Parsons, 2013).

The next section describes the operationalization of relevant CPS variables, which are as follows: region, sex, age, and employment status.[55]

- Region

The CPS defines region of residence the same way as the NCVS. Regions include the Northeast, Midwest, South, and West. Before conducting an interview, the CPS field representative identifies each household's region of residence.

- Sex

In the first interview, the field representative asks the head of the household to identify the sex of each household member. The head of the household can identify each member as male or female. The field representatives do not ask the head of the household to identify the sex of household members in future interviews unless a new household member enters the household after the first interview.

- Age

During the first interview, the field representative asks the head of the household to identify the birthdays of each household member. The field representative then calculates each household member's age at the time of the interview. They also use that

[55] The CPS codes for the variables are as follows: Region – GEREG, Sex – A-SEX, Age – A-AGE, Employment Status – A-EXPLF. To obtain CPS variable definitions, please see the Current Population Survey, Technical Paper 6: Design and Methodology (United States Department of Labor, 2000).

information to identify each respondent's age in future interviews.[56] Using the age variable, this analysis generated four age binary indicator variables (18-24, 25-34, 25-44, 45-54, and 55-64) to facilitate NCVS and CPS data merging.

- Employment Status

During each interview, the field representative asks the head of the household to identify the employment status of each household member in the previous reference week, which is a 7-day period from Sunday to Saturday that includes the 12th day of the month. The household member can select a response from three choices, which are as follows: employed, unemployed, and not in the labor force. In some cases, the head of the household may not know each household member's current employment status. In this case, the field representative attempts to contact the household member to identify employment status.

Figure 6 identifies the average of the monthly unemployment rate by year.

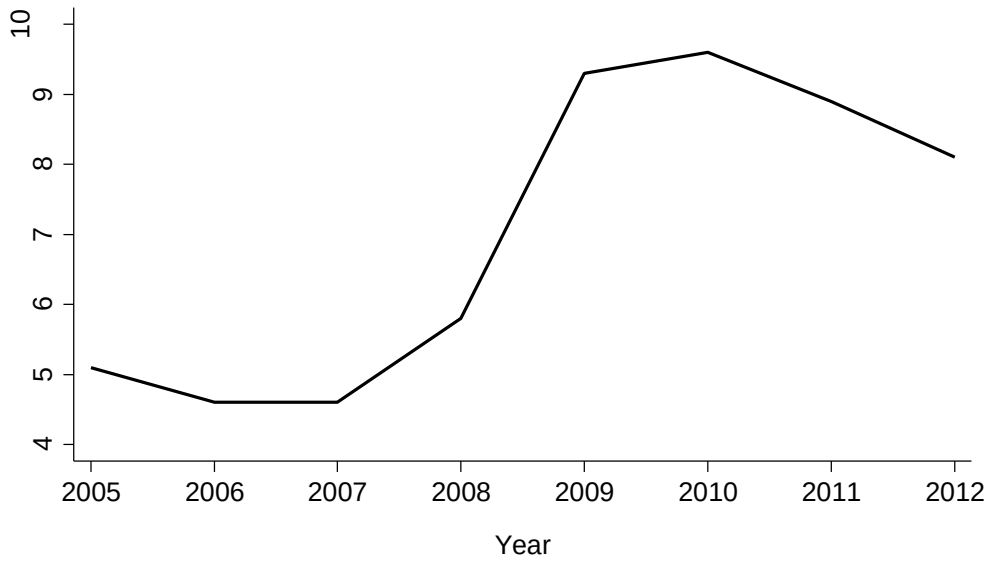

FIGURE 6: Annual Unemployment Rate

notes: The figure identifies the annual unemployment rate.
Source: Current Poulation Survey

Figure 6 reflects a rising unemployment rate from the most recent economic recession.

This analysis merged NCVS data with CPS data to identify the gender, region and age-group specific unemployment rate for each respondent for the six months leading up to his or her interview. For example, if the NCVS interviewed a female respondent aged 24 living in the South in August 2010, the dataset matched the respondent with the female unemployment rate from February to July 2010 for individuals in the South aged 18-24.

3.2 Model

The basic model is as follows:

$$y_{it} = \beta X_{it} + \gamma Unemployment_{it} + \lambda_t + \varepsilon_i \quad (1)$$

The model use OLS regression for individual respondent (*i*) during interview time (*t*). [57] The unit of analysis is individual. The dependent variable identifies a specific type of victimization multiplied by a thousand due to low reporting.[58] β is a vector of coefficients for controls.[59] The model also includes time fixed effects (λ) for year and month of interview and robust standard errors clustered at the individual level.

This analysis includes three applications of the basic model. The first application includes household unemployment. This application includes four variations, which identify the effect of household unemployment on crime victimization, family violence, repeat family violence, and family violence co-occurrence. The sample set in the first two variations includes all NCVS respondents. The samples set in the second two variations include all NCVS respondents who reported family violence victimization.

The second application determines how the combination of partner employment statuses influences intimate partner violence. The sample set includes all female respondents aged 18-64 in heterosexual relationships. The third application determines how the age and region-specific male and female unemployment rate influences intimate partner violence. The sample set also includes all female respondents aged 18-64 in heterosexual relationships. Lastly, this analysis re-runs the model including entity-fixed effects. The next chapter contains results for all applications of the model.

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[57] The results section in this chapter presents OLS results because previous scholars (Beck, 2011) have suggested that OLS is sufficient if the covariates do not show skewness or excess kurtosis. Even so, tables A1-A3 in the appendix contain results for all models re-run as logit models. The results are similar to the OLS models.

[58] All results report mean value for the dependent variable for comparison.

[59] All models control for age, race/ethnicity, education, marital status, region of residence, income, number of household members, and presence of children under 12 in the household. The application of the model testing hypothesis 1 also controls for sex.

CHAPTER 4: RESULTS AND DISCUSSION

Chapter 4 presents the results and discussion. The chapter also determines whether the results support the hypotheses outlined in chapter 2, and how these results align with established theory. Additionally, chapter 4 considers limitations as well as suggestions for future research.

4.1 Results[60]

Table 4 identifies the effect of household unemployment on crime victimization, family violence, repeat family violence, and family violence co-occurrence.

[60] To see results using logit, please see tables A1-A3 in the appendix.

TABLE 4: Impact of household unemployment on victimization				
	Crime Victimization 1A	Family Violence 1B	Repeat Family Violence 1C	Family Violence Co-Occurrence 1D
Household Unemployment	2.33***	1.32***	53.30**	22.99**
	(0.70)	(0.16)	(29.31)	(9.31)
Female	-0.28	1.42***	17.62	3.97
	(0.48)	(0.09)	(30.95)	(9.66)
Age	-0.59***	-0.05***	1.42	-0.57
	(0.02)	(0.01)	(1.29)	(0.38)
Non-Hispanic Black	3.22***	-0.47***	10.78	9.88
	(0.87)	(0.18)	(39.32)	(13.20)
Non-Hispanic Asian	-18.44***	-1.22***	45.06	37.50
	(0.96)	(0.13)	(124.37)	(48.84)
Non-Hispanic Other	25.13***	2.13***	35.02	-4.07
	(2.48)	(0.58)	(61.62)	(18.41)
Hispanic	-2.66***	-1.15***	-24.77	10.09
	(0.80)	(0.15)	(40.91)	(17.15)
Less Than High School	0.38	-0.14	-38.32	12.34
	(0.84)	(0.18)	(38.80)	(13.41)
Some College	10.56***	0.53***	62.03*	11.87
	(0.72)	(0.15)	(33.44)	(11.24)
Associate	8.99***	0.41**	94.16*	-6.32
	(0.97)	(0.20)	(50.26)	(10.62)
Bachelor's	3.74***	-0.30**	43.39	12.69
	(0.67)	(0.12)	(45.98)	(17.65)
Advanced Degree	10.57***	-0.22*	137.81	1.64
	(0.89)	(0.13)	(95.07)	(21.25)
Married	-11.45***	-0.90***	-25.33	14.48
	(0.72)	(0.14)	(39.25)	(14.26)
Widow	9.47***	-0.24	35.68	-8.07
	(2.09)	(0.39)	(106.65)	(16.85)
Divorced	15.74***	1.84***	-42.32	0.54
	(1.10)	(0.25)	(37.23)	(9.43)
Separated	28.10***	9.85***	35.11	13.83
	(2.13)	(0.80)	(39.12)	(13.13)
Midwest	4.67***	0.22	-30.65	-15.39
	(0.71)	(0.15)	(42.96)	(13.43)
South	4.67***	-0.14	-47.57	-20.31
	(0.65)	(0.13)	(42.04)	(14.23)
West	17.73***	0.20	0.78	-4.24

Table 4 (continued)				
	(0.77)	(0.15)	(44.95)	(17.32)
Income	-0.00***	-0.00***	-0.00	0.00
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Income Missing	-8.06***	-0.36***	45.28	6.21
	(0.51)	(0.10)	(31.35)	(9.27)
Number in Household	-0.96***	-0.09**	36.04***	-5.27*
	(0.22)	(0.05)	(10.50)	(2.78)
Child Under 12 in Household	8.41***	1.35***	13.72	12.01
	(0.70)	(0.16)	(33.24)	(10.04)
Constant	39.01***	2.66***	-247.70**	-3.65
	(1.45)	(0.30)	(102.88)	(29.84)
Observations	877,481	877,481	1,533	1,533
R-squared	0.01	0.00	0.10	0.08
Dependent Variable Mean	45.19	1.75	265.49	17.61

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set in columns 1A and 1B includes all NCVS respondents. The sample set in columns 1C and 1D include all NCVS respondents who reported family violence victimization. Each regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable in column 1A identifies respondents who reported any crime. The dependent variable in column 1B identifies respondents who reported a family incident. The dependent variable in column 1C identifies repeat family violence. The dependent variable in model 1D identifies family violence co-occurrence. Household unemployment identifies the percent of unemployed adults aged 18-64 in a household during one interview. Reference categories are as follows: sex- male, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

Column 1A identifies the effect of household unemployment on any type of crime victimization. The sample set included all NCVS respondents. The mean value of the dependent variable was 45.19. All significant variables in column 1A were significant at p = 0.01. Unemployment, the variable of interest, had a positive and significant effect on crime victimization, with an effect size of 2.33. Sex did not have a significant effect. Age had a significant negative effect with a small effect size of 0.59.

Compared to non-Hispanic White respondents, non-Hispanic Asian and Hispanic respondents were less likely to report crime victimization but non-Hispanic Blacks and non-Hispanic others were more likely to report crime victimization. The coefficients for education levels revealed that compared to high school graduates, respondents with higher levels of education including some college, associate degree, bachelor's degree, and advanced degree were more likely to report a crime. Compared to never married respondents, only married respondents were less likely to report a crime. All other martial statuses revealed positive effects. The effects of all regions compared to the Northeast were all positive. Income did not have a meaningful effect (the variable was significant but the effect size was < 0.01). Lastly, respondents in larger households were less likely to report a crime but respondents with children under 12 in the home were more likely to report a crime.

Column 1B identifies the effect of household unemployment on family violence. The sample set included all NCVS respondents. The mean value of the dependent variable was 1.75. Household unemployment had a positive effect on family violence with an effect size of 1.32 (p=0.01). Compared to males, females were more likely to report family violence victimization (p=0.01). Age had a significant and negative effect but only had an effect size of 0.05 (p=0.01). All race and ethnicity variables were significant at p=0.01. Compared to Non-Hispanic White respondents, Non-Hispanic Black, Non-Hispanic Asian, and Hispanic respondents were all less likely to report family violence victimization. The effect size for Non-Hispanic other respondents was positive. The significant variables for education included some college, associate degree, and bachelor's degree. Having some college or an associate degrees had

significant and positive effect sizes of 0.53 and 0.41 with respective p values of 0.01 and 0.05. Having a bachelor's degree had a negative effect with an effect size of 0.30, significant at p=0.05.

All variables for marital status were significant at p=0.01 except for widowed respondents, which was not significant. Marriage had a negative effect while separations and divorces had a positive effect. Interestingly, the effect size for separated individuals (9.85) was the largest effect size for all variables in the model. The controls for region of residence were not significant. Income again did not have a meaningful effect. Respondents with more residents in a home were less likely to report family violence but the effect size was small (effect size = 0.09, p=0.05). Lastly, having children under 12 in the home increased the likelihood of becoming a victim of family violence (effect size= 1.35, p=0.01).

Column 1C identifies the effect of household unemployment on repeat family violence. The sample set included all NCVS respondents who reported family violence. The mean value of the dependent variable was 265.49. Household unemployment had a positive effect on repeat family violence with an effect size of 53.30 (p=0.05). The only significant control variable was number of residents in a home. That control variable positively affected repeat family violence with an effect size of 36.04 (p=0.01). Column 1D identifies the effect of household unemployment on family violence co-occurrence. The sample set included all NCVS respondents who reported family violence. The mean value of the dependent variable was 17.61. Household unemployment had a positive effect on family violence co-occurrence with an effect size of 22.99 (p=0.05). No control variables were significant.

Table 5 identifies the effect of a partner's combination of employment statuses on intimate partner violence.[61]

[61] To see how the combination of partner employment statuses affects overall crime victimization, see table A4 in the appendix.

TABLE 5: Impact of unemployment status on intimate partner violence			
Female Employed, Male Unemployed	0.04	Married	-0.64***
	(0.17)		(0.21)
Female Unemployed, Male Employed	0.03	Widow	-0.63***
	(0.12)		(0.21)
Female Unemployed, Male Unemployed	0.64***	Divorced	2.21***
	(0.22)		(0.51)
Age	-0.03***	Separated	8.65***
	(0.01)		(1.84)
Non-Hispanic Black	-0.20	Midwest	0.14
	(0.22)		(0.14)
Non-Hispanic Asian	-0.51***	South	0.08
	(0.11)		(0.13)
Non-Hispanic Other	0.96	West	0.20
	(0.68)		(0.15)
Hispanic	-0.40**	Income	-0.00
	(0.18)		(<0.01)
Less Than High School	0.05	Income Missing	0.08
	(0.23)		(0.13)
Some College	0.09	Number in Household	0.09
	(0.17)		(0.06)
Associate	-0.24	Child Under 12	0.08
	(0.16)		(0.15)
Bachelor's	-0.20	Constant	1.72***
	(0.13)		(0.40)
Advanced Degree	-0.28***	Observations	280,301
	(0.10)	R-squared	0.00
		Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

The sample set included all female NCVS respondents with partners aged 18-64. The mean value of the dependent variable (intimate partner violence) was 0.62. Table 5 compared the likelihood of intimate partner violence for full employed, fully unemployed, and partially employed couples. Compared to employed females with employed partners, unemployed females with unemployed partners were more likely to report intimate partner violence. The effect size for this partner employment combination was 0.64 (p=0.01). The coefficients for the other employment categories were not significant.

Some of the control variables in Table 5 were also significant. Age had a significant negative effect with a small effect size of 0.03 (p=0.01). Compared to Non-Hispanic White respondents, Non-Hispanic Asian and Hispanic respondents were less likely to report intimate partner violence (p=0.01, 0.05). The only significant education category included respondents with an advanced degree. The effect size for advanced degree was negative with an effect size of 0.28 (p=0.01). All marital status categories were significant at p=0.01. Compared to never married respondents, married and widowed respondents faced a decreased likelihood of intimate partner violence, while a divorce or separation increased the risk. The variables for region of residence, income, number of respondent in the household, and children under 12 were all not significant.

Table 6 identifies the effect of the region and age specific male and female unemployment rate on intimate partner violence.

TABLE 6: Impact of unemployment rate on intimate partner violence			
Female Unemployment Rate	0.11	Married	-0.65***
	(0.14)		(0.24)
Male Unemployment Rate	0.02	Widow	-0.79***
	(0.09)		(0.24)
Age	-0.02	Divorced	3.07***
	(0.01)		(0.65)
Non-Hispanic Black	-0.17	Separated	10.03***
	(0.27)		(2.14)
Non-Hispanic Asian	-0.63***	Midwest	0.19
	(0.09)		(0.18)
Non-Hispanic Other	1.17	South	0.04
	(0.82)		(0.16)
Hispanic	-0.50**	West	0.20
	(0.20)		(0.19)
Less Than High School	0.17	Income	-0.00**
	(0.29)		(<0.00)
Some College	0.14	Income Missing	0.07
	(0.21)		(0.16)
Associate	-0.24	Number in Household	0.12*
	(0.20)		(0.07)
Bachelor's	-0.15	Child Under 12	0.18
	(0.16)		(0.17)
Advanced Degree	-0.25*	Constant	0.33
	(0.13)		(0.80)
		Observations	280,301
		R-squared	0.00
		Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

The sample set included all female NCVS respondents with partners aged 18-64. The mean value of the dependent variable (intimate partner violence) was 0.62. The variables of interest (female and male unemployment rates) were not significant. The effects of the control variables were similar to the effects in Table 5.

Because this analysis includes panel data, Table 7 identifies the effects of a partner's combination of employment statuses on intimate partner violence and includes entity fixed effects.

TABLE 7: Impact of unemployment status on intimate partner violence, entity fixed effects			
Female Employed, Male Unemployed	-0.03	Married	0.85
	(0.47)		(1.39)
Female Unemployed, Male Employed	-0.16	Widow	0.74
	(0.22)		(1.31)
Female Unemployed, Male Unemployed	0.48	Divorced	-2.72
	(0.51)		(4.91)
Age	-0.01	Separated	25.99*
	(0.03)		(13.33)
Non-Hispanic Black	1.09	Income	0.00
	(1.44)		(0.00)
Non-Hispanic Asian	1.27	Income Missing	0.05
	(1.54)		(0.22)
Non-Hispanic Other	9.03	Number in Household	-0.08
	(11.63)		(0.22)
Hispanic	0.61	Child Under 12	0.27
	(0.69)		(0.55)
Less Than High School	-1.84	Constant	0.31
	(1.58)		(2.21)
Some College	-0.17		
	(1.67)	Observations	280,301
Associate	-1.04	R-squared	0.70
	(1.68)	Dependent Variable Mean	0.62
Bachelor's	-0.45		
	(0.95)		
Advanced Degree	-0.47		
	(0.92)		

Notes: The table contains results from an OLS regression with entity and time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

None of the variables included in Table 7 were significant at conventional levels.

4.2 Discussion

The results provide insight to identifying risk factors for family violence. Hypothesis 1 predicted that household unemployment increases crime victimization, family violence, repeat family violence, and a co-occurrence of family violence. These results support hypothesis 1. Household unemployment had a positive effect on all four factors. These findings suggest that unemployment not only increases the likelihood of family violence but also increases the frequency of violence among victims and increases the likelihood of different types of violence within a household.[62] While the effect sizes for unemployment were somewhat small, the results build on the findings of previous scholarship and established theory. Proponents of nested ecological theory and general strain theory (Belsky, 1980; Cottrell and Monk, 2004; and Freysteinsdóttir, 2005; Eriksen and Jensen, 2006; Baron, 2008; Aaltonen et al., 2013) identified unemployment as a factor that increases family violence. Other researchers (Hotaling et al., 1989; Straus and Gelles, 1990; Appel and Holden, 1998) found that households with one type of family violence are at an increased risk of experiencing other types of violence. Even so, little research identifies specifically how unemployment influences repeat violence as well as family violence co-occurrence. This lack of analysis likely stems from the fact that most datasets used to analyze family violence are cross sectional. The longitudinal nature of the NCVS allows one to identify how different factors including unemployment impact patterns of family violence.

[62] Different types of violence include child abuse, parental abuse, sibling abuse, and intimate partner abuse.

Table 5 identifies how unemployment affects intimate partner violence. Hypothesis 2 predicted that a partner's combination of employment statuses influences the likelihood that a female reported intimate partner violence. The hypothesis was non-directional because existing theory makes contrasting predictions. The results do support hypothesis 2 as well as strain theory and nested ecological theory. These theories identify unemployment as a strain that can lead to violence. The results did not support status inconsistency theory or household bargaining theory. Status inconsistency theory suggests that when a male loses his job, he loses relative status, especially if his partner is working. In this case, he may become violent to maintain the status quo in his relationship. Household bargaining theory suggests that unemployed males lose bargaining power and become motivated to conceal violence. Some researchers (Paterson, 2010; Chin 2012) suggested that an individual's sex might not affect household bargaining as strongly as suggested by other researchers. In this case, when any individual in a relationship loses their job (male or female), they become motivated to conceal violent behavior. Table A5 in the appendix contains results for male and female respondents. These additional results also do not support household bargaining theory.

Since different theories suggest that unemployment has differential effects on intimate partner violence, it is relevant to consider if the effects hold for different subpopulations. For example, the loss of a job may have differential effects for high or low earning individuals. Unfortunately, the NCVS does not identify income earned for each individual in a household. Instead, the NCVS reports income as an aggregate of all individual incomes in a home. As a result, the data do not identify previous income

earned by an individual prior to unemployment. While the NCVS does not report income at the individual level, the data do identify the highest level of education obtained for each respondent. Several researchers including Turner et al. (2007) found that individuals with higher levels of education also tend to earn more income. As a result, the loss of a job may have differential impacts for high and low education individuals. Table A6 identifies the effects of partner employment combinations for both low and high education individuals.[63] These results reveal that for low levels of education, female employment coupled with male unemployment actually decreased the likelihood of intimate partner violence against women (effect size = 0.67, p = 0.01). Additionally, this combination of employment increased the likelihood of violence for high education respondents (effect size = 0.49, p = 0.05). These results provide support for household bargaining among employed low education females. Additionally, these results support status inconsistency theory for high education females. These results may reveal why different theories make different predictions as to how unemployment affects intimate partner violence. It is possible that the effects of household bargaining or status inconsistencies exert a greater influence on certain demographics. Individuals with lower levels of education may have fewer resources to bargain with to start. As a result, the loss of a job may have a greater impact on bargaining because it potentially limits access to highly valued resources. Alternatively, highly educated individuals may feel more of a pressure to conform to societal expectations. As a result, male unemployment coupled with female employment may lead to violence more so with this group, compared to less educated individuals.

[63] Low levels of education include a high school diploma and below. High levels of education include any type of education beyond a high school diploma.

It is also possible that differential partner employment rates vary among low and high education individuals. Table A7 in the appendix identifies the rate of different partner employment combinations for high and low education female respondents aged 18-64 with partners. This table identifies an overall higher rate of employment for high education respondents. The rate of female and male employment for low education respondents was 42.8% compared to 59.3% for high education respondents. Additionally, the rate of male and female unemployment for low education respondents was 15.8% compared to 11.0% for high education respondents. Even so, the rate of female employment coupled with male unemployment remained relatively constant. For low education respondents, 12.5% of respondents fell into this category, compared to 11.0% of high education respondents and 11.6% of all respondents. Table A6 identified significant and opposite effects for this employment combination for high and low education respondents. Future research may benefit from further examining this effect. It is possible that household bargaining and status inconsistency do have differential effects for high and low education couples. Additionally, these couples may also face differing rates of differential employment statuses.

Table 6 identifies the effect of the unemployment rate on intimate partner violence. These results tested hypothesis 3, which suggested that an increase in the male unemployment rate decreased violence, while an increase in the female unemployment rate had an opposite effect. Hypothesis 3 tested household bargaining theory using unemployment risk as opposed to unemployment status. Previous researchers (Anderberg et al., 2015) found support for this hypothesis using British crime and unemployment data from the most recent economic recession. The results in this

analysis do not support hypothesis 3. It is possible that a higher unemployment rate signals a loss of bargaining and thus a motivation to conceal violence for both males and females[64]. Table A8 contains results including both male and female respondents. These results also do not support household bargaining theory. An increase in the respondent unemployment rate actually decreased the likelihood of victimization (effect size 0.07, $p = 0.01$). When considering potential male and female victims, household bargaining would suggest that when an individual loses their job, they would become more likely to become a victim of intimate partner violence. These results also reveal that as the partner unemployment rate increases, the likelihood that a respondent reported violence also increased (effect size = 0.10, $p = 0.01$). This result would not support household bargaining but does support status inconsistency theory. It is important to note that these effect sizes are small, even when compared to the mean value of the dependent variable (0.38).

It is possible that there is a more accurate way to conceptualize unemployment risk. For example, unemployment may have a lagged effect. In this case, there may be time between when the unemployment rate changes and individuals identify their own unemployment risk. Table A9 identifies the effect of the male and female unemployment rate on intimate partner violence using a one-month lag. These results also do not reveal significant effects.[65] It is also relevant to consider alternative methods to operationalize unemployment risk. One possible measure is the layoff rate. The BLS generates a monthly layoff rate. They compute the layoff rate by dividing the total number of layoffs by the level of employment and multiply the figure by 100. The data

[64] This analysis originally included only female respondents, as did Anderberg's (2015) analysis.
[65] Results with multiple lags month also did not reveal significant results. These results are available on request.

are available for the entire United States as well as the four regions considered in this analysis (Northeast, Midwest, South, and West).[66]While the BLS calculates monthly unemployment rates for males and females, the data do not identify male and female layoffs. Even so, an increasing layoff rate could signal increased unemployment risk. Table A10 considers the effect of the region-specific non-farm layoff rate.[67] Another possible way to conceptualize unemployment risk is by considering the job-opening rate. The BLS also calculates geographically specific job opening rates using the same methodology as for calculating the layoff rate. Table A11 considers the effect of the job-opening rate. The results for table A10 and A11 reveal that neither the layoff rate nor the job-opening rate had any significant effect on intimate partner violence.

Table 7 identifies how unemployment impacts intimate partner violence using entity level fixed effects. While the effect sizes and direction of the coefficients mirror earlier results, none of the unemployment or control variables were significant. Results for the other analysis using entity fixed effects are also available on request. These results were also not significant. This lack of significant findings likely resulted from a lack of within-entity variation. NCVS field workers only record sex, race, and region of residence during the first interview. This value does not change throughout the remaining interviews. Field workers also only record household income and education during the first, third, fifth, and seventh interviews. For the second and fourth interviews, they use the value from the preceding interview. Additionally they record employment status, marital status, age, and number of household members at every interview. Table A12 identifies the level of within-entity variation for the variables

[66] Data are freely available.
[67] Nonfarm does not include layoffs of farm workers, private household employees, or non-profit organization employees.

included in the model (excluding variables only recorded at the first interview). These results reveal a very low level of variation for education and marital status. Additionally, the results also reveal a moderately low level of variation for employment status and income. These results do suggest that the lack of significant findings from the entity-fixed effects models did stem from lack of within-entity variation.

While the results provide support for some of the hypotheses, they also identify other relevant variables that may contribute to family violence. When considering race and ethnicity, Non-Hispanic Asian and Hispanic respondents were less likely to report any type of family violence as well as intimate partner violence. Tjaden and Thoennes (2000) also identified lower rates of intimate violence for Asian and Hispanic individuals when compared to White individuals. This effect may be due actual lower rates. Alternatively, cultural values may motivate Asian and Hispanic individuals to report less victimization (Tjaden and Thoennes, 2000). Dietrich and Schuett (2013) found that compared to Non-Hispanic White individuals, Hispanic individuals tend to have more tolerance towards family violence, especially intimate partner violence. They also found that Hispanic individuals tend to place a greater value on keeping a family together, which may motivate a victim to conceal an incident. Ho (1990) found that Asian values, which often prioritize close family ties, might not actually decrease the likelihood of violence in private homes. Alternatively, these values may encourage victims to minimize or hide family violence.

Additionally, some Hispanic and Asian victims may face additional factors that could decrease the likelihood of reporting victimization. Reina et al. (2014) interviewed undocumented victims of intimate partner violence. When considering intimate partner

violence, they found that the abusers often told their victims that reporting violence could lead to deportation. The NCVS does not identify a respondent's citizenship status. As a result, the data cannot identify the effect of being undocumented on whether an individual reported violence. Future researchers should consider this factor.

The controls for marital status also revealed potential risk factors for family violence. The results suggest that being married offers a protective effect, especially for intimate partner violence. Compared to never married individuals, married individuals were less likely to report victimization. This finding aligns with previous literature. Brownridge (2008) and Stets and Straus (1989) found higher rates of intimate partner violence among cohabiting couples compared to married couples. Even so, Stets and Straus (1989) argue that while rates among married partners are likely lower, married victims may be less willing to report victimization.

The results also suggest that separated and divorced may face an increased risk of victimization, especially at the hands of an intimate partner. Other researchers (Bowlus and Seitz, 2006; Ellis and Stuckless, 2006) also identified a link between marital separation and family violence. These were the largest effect sizes out of all the variables in the model. It is important to note, though, that there may be an endogenous relationship between being ending a relationship and intimate partner violence. A violent incident could lead to a separation. Alternatively, a separation or divorce could lead to a violent incident. Brownridge et al. (2008) used nested ecological theory to explain how a separation or divorce increases the risk of violence for females. At the macrosystem level, a partner may threaten a male's sense of patriarchal authority by leaving a relationship. As a result, the male may retaliate with violence. Using this

theoretical background, Brownridge et al. (2008) found that compared to married women, separated and divorced women were respectively nine and four times more likely to report victimization. Table A13 identifies the effect of partner employment status on intimate partner violence for married and unmarried female respondents with partners. The table reveals a difference in mean values of intimate partner violence for married and unmarried women (0.18 and 2.20 respectively). This result further supports the notion that unmarried individuals in intimate relationships may be at an increased risk of violence.

None of the models found a meaningful effect size for income. Even so, other sources, such as the US Department of Justice (USDOJ) found a substantial negative relationship between the two variables. They found that females living in households with the lowest annual income experienced seven times the amount of intimate partner violence compared to females in the highest household income level (20 versus 3 per 1,000) (Rennison and Welchans, 2000). [68] Interestingly, the USDOJ did not find any relationship between household income and violence against males. Benson et al. (2005) also found that as household income increases, a female's likelihood of victimization decreased. It is possible that the results did not identify a meaningful effect for income because it correlated with other included independent variables. As previously mentioned, other researchers (Turner et al, 2007) found that individuals with higher levels of education also tend to earn more income. Income may in fact have a meaningful effect masked by other variables. Tables A14-A16 in the appendix contain results for the models but exclude the income variable. These results reveal that when omitting household income, the results remain largely unchanged.

[68] The lowest income level is under $7,500 and the highest income level is over $75,000.

Additionally, out of all variables used in the models, the income variable had the highest non-response rate. All other variables had a response rate of over 98%. The household income variable had a response rate of 72.6%. Other national data sources, such as the National Health Interview Survey also have a high non-response rate for household income (Schenker et al., 2006). Researchers often impute income variables so that they do not have to drop respondents with missing values. This analysis also imputed values for missing income. Imputed values may distort the relationship between income and intimate partner violence. Tables A17-A19 in the appendix contains results for the models excluding respondents missing income. The coefficient for income remained the same with the same significance level. This finding suggests that the imputed income value do not distort the relationship between income and family violence.

4.3 Limitations

The biggest limitation stems from underreporting. As mentioned in previous chapters, family violence is likely to be vastly unreported (Harlow et al., 2005). In fact, The National Coalition Against Domestic Violence estimates that approximately 70% of intimate partner victimizations are never reported (NCADV, 2015). Additionally, Garcia (2004) estimated that only 2.5 to 15% of victims report family violence. Unlike several other types of crimes, victims of family crimes are sometimes motivated to protect their abuser. As a result, they may avoid reporting an incident.

The NCVS does not require victims to report incidents to the police. Even so, victims may fear that the NCVS field workers will report incidents to the police. Alternatively, victims may fear retaliation from their abuser if their abuser finds out that

they reported abuse to the NCVS. Other factors may also cause underreporting. For example, proxies may be more likely to conceal victimization.[69] Proxies may be unaware of victimization or may actually be a respondent's abuser. Tables A20-A22 in the appendix contains results for the model without proxy responses. Omitting proxy response only slightly increased some effect sizes. The omission did not change the significance levels for any variables.

It is also possible that victims of family violence are less likely to be included in the NCVS. Addington (2005) as well as Dugan (1999) found that highly mobile individuals tend to experience higher levels of victimization compared to less mobile individuals. While the NCVS is a longitudinal dataset, it does not follow mobile respondents. Instead, the NCVS conducts multiple interviews of respondents in one household. If a victim of intimate partner violence moves out of the household to escape his or her abuser, they are not included in future interviews. As a result, they may never have the opportunity to report victimization to the NCVS. When redesigning the NCVS in 1990, the Bureau of Justice Statistics (BJS) did consider following a subset of respondents that moved out of their household before completing all seven interviews. The BJS ultimately decided not to pursue this option (Biderman & Lynch, 1991). Unfortunately, little research exists that includes this group of individuals (Addington, 2008). Considering highly mobile individuals may be a good area of focus for future research.

Another possible limitation relates to how the NCVS reports employment status. While NCVS determines if respondents worked for pay in the last week, the survey does not consider whether a respondent is actually in the labor force. As a result, the

[69] Proxies make up approximately 3% of the sample set.

data likely overestimate unemployment rates. To address this limitation, this analysis only considers the employment status of respondents aged 18-64. Respondents outside the age range are less likely to be in the labor force. Additionally, the NCVS does not differentiate between underemployed and employed individuals. Sum and Khatiwada (2010) analyzed labor patterns from the most economic recession and found higher rate of underemployment among less educated individuals as well as individuals in lower-skilled occupations. Even so, it is difficult to determine actual rates of underemployment. In fact, the Bureau of Labor Statistics made the following statement concerning underemployment in the United States:

> *Because of the difficulty of developing an objective set of criteria, which could be readily used in a monthly household survey, no official government statistics are available on the total number of persons who might be viewed as underemployed. Even if many or most could be identified, it would still be difficult to quantify the loss to the economy of such underemployment.* (Addy et al., 2012).

Future researchers may want to consider this limitation and develop methods to identify individuals affected by underemployment.

In addition, some researchers (Canavire-Bacarreza and Avila, 2010) suggested that there might be an endogenous relationship between unemployment and family violence. Table A23 contains the first stage results for using region and gender-specific unemployment rates as instruments for partner employment combinations. These results suggest that the instruments are weak. Future researchers may want to consider other instruments to better identify possible endogeneity. In addition, there may also be an interactive effect among unemployment and other variables. Tables A24-A26 in the appendix considers some of these possible interactive effects. Future researchers may also want to consider identifying other interactions.

Lastly, this research only considers heterosexual couples.[70] In 2010, the CDC found that gay and bisexual individuals experienced higher rates of intimate partner violence compared to heterosexual individuals (CDC, 2010). Even so, the experiences of these victims, as well as transgendered individuals, receive little attention from scholars (Anderson, 2010; Messinger, 2011). Since little quantitative data exist on intimate partner violence among homosexual couples, future researchers may want to consider triangulating these results with qualitative methods.

Overall, when considering both male and female victims, the results primarily supported nested ecological theory and strain theory. These theories suggest that any type of unemployment will increase the likelihood of violence. The results only supported household bargaining for employed low-education females. For these females, partner unemployment decreases the likelihood of violence. For employed high-education females, partner unemployment had the opposite effect. This partner employment combination actually increased the likelihood of violence, which supported status inconsistency theory. Additionally, when considering the effects of unemployment risk, the results did not support household bargaining. The results also revealed that other factors such as race and marital status might influence the likelihood of intimate partner violence. Chapter 5 considers policy implications stemming from these results. The chapter also evaluates existing policy aimed to decrease rates of family violence as well as support victims.

[70] As previously mentioned, the NCVS does not explicitly identify unmarried couples so this analysis paired opposite sex adults living in households with male adult and one female adult.

CHAPTER 5: POLICY IMPLICATIONS

This research primarily identifies how employment may influence family violence. It also identifies other factors that may put individuals at risk for victimization. This chapter considers how these results align with existing policies aimed to prevent family violence. Chapter 5 also makes policy recommendations that may further deter violent behavior.

To start, it is helpful to consider recently developed or amended federal family violence policies. One of the most comprehensive anti-crime laws that also addresses family violence is the Violent Crime Control and Law Enforcement Act of 1994 (Palmiotto, 1998). [71] Congress passed the act in the early 1990s during a time characterized by heightened public concern over increasing crime rates (Fortner, 2015). While the Act addresses a vast array of crimes, Title IV, entitled the Violence Against Women Act (VAWA), contains several subsections that specifically address family violence.

Subsection B, entitled Safe Homes for Women, expands funding for the National Domestic Violence Hotline, which is a 24/7 toll-free assistance hotline for family violence victims.[72] The Act also makes grants eligible for several family violence policies. These include helping states develop and implement mandatory arrest

[71]To read the Act, please see the Violent Crime Control and Law Enforcement Act of 1994: Briefing Book (United States Department of Justice, 1994).

[72] The Family Violence Prevention and Services Act (FVPSA) of 1984 originally created the National Domestic Violence Hotline.

policies for family violence offenders as well as facilitate communication between the police and the court systems. Funding also assists the development and operation of domestic violence shelters. Lastly, funding helps develop youth and community awareness programs.

While Subsection B contains several anti-violence initiatives, other subsections also address family violence. Subsection F, called National Stalker and Domestic Violence Reduction, provides funding to help state and local governments develop domestic violence databases. These databases also help local police units track offenders who may move about district lines. Subjection G, entitled Protections for Battered Immigrant Women and Children, removed some immigration laws that make it difficult for abused women and children to escape violent households.[73] For example, the policy allows alien spouses to avoid deportation if they can prove they entered into a marriage in good faith and that the marriage led to abuse. They also must demonstrate that deportation would result in extreme hardship to themselves or their children. Lastly, the policy allows domestic violence victims to waive the seven-year residence requirement usually required to apply for suspension of deportation. [74]

In 2013, Congress reauthorized the VAWA.[75] The reauthorization extends provisions for funding as directed by the VAWA of 1994. The reauthorization identifies lesbian, gay, bisexual, and transgender (LGBT) victims as an underserved population. The reauthorization also prohibits shelters from turning away victims based on sexual orientation or gender identity. The reauthorization marks the first time an anti-violence

[73] Subsection G amended the Immigration and Nationality Act (INA) of 1965.
[74] Subsections A, C, D, and E also address violence against women, but are less relevant to family violence. For example, Subsection A, entitled Safe Streets for Women, increases sentences for repeat sex offenders.
[75] To read the VAWA, please see United States Department of Justice (1994).

act created protections for LGBT victims (Ortega and Busch-Armendariz, 2014). Additionally, the reauthorization addresses the needs of the immigrant population by increasing access to U Visas for domestic violence victims.[76]

While the original VAWA, as well as the 2013 reauthorization provide many valuable resources to decrease family violence and assist victims, some organizations question the Act's effectiveness. In fact, Stop Abuse and Violent Environments (SAVE) evaluated the effectiveness of the original VAWA and found that, "We have no evidence to date that VAWA has led to a decrease in the overall levels of violence against women" (SAVE, 2010). While the reauthorization is still relatively recent, other researchers also considered whether it actually decreases family violence or provides adequate resources for victims. Villegas (2013) suggested that the 2013 VAWA reauthorization has yet to go through any meaningful scientific evaluation to make sure that it is achieving desired results. For example, the VAWA includes provisions for developing mandatory arrest policies. Hotaling and Buzawa (2003) interviewed 118 female victims of intimate partner violence.[77] They found that 58 of these victims experienced additional violence but only 26 re-reported the acts to the police. One of the main reasons for not reporting the incident included concern over mandatory arrest policies. Additionally, Iyengar (2007) analyzed mandatory arrest policies in 15 states and found that these type of policies actually increased intimate partner homicide by 60%. Another limitation of the VAWA is that while it offers funds for several agencies created to address the needs of victims, it does not address the underlying causes of violence. To identify the root causes of family violence, policymakers should look to

[76] Immigrants who have suffered physical or mental abuse are eligible to apply for U Visas if they are willing to assist the courts in prosecuting their abuser.
[77] Hotaling and Buzawa identified these victims through a previous study.

theory, which they did not consider when creating the VAWA or its reauthorization (Villegas, 2013).

Other policies and programs at the local level also address family violence. For example, Mecklenburg County's police department (CMPD) developed a specialized domestic violence unit to address the unique needs of domestic violence victims.[78] The task unit handles the most serious domestic violence cases. Every year, Mecklenburg County receives over 30,000 domestic violence calls (Mecklenburg County Health Department, 2013). Officers in the domestic violence unit receive specialized training, where they learn how to deescalate family incidents. Unfortunately, domestic violence incidents can have fatal implications. In 2012, domestic violence was a factor in approximately 12% of reported homicides in Mecklenburg County (Mecklenburg County Health Department, 2013). Officers also learn how to identify domestic violence victims even when not responding to domestic violence calls.

Friday et al. (2006) evaluated the effectiveness of CMPD's domestic violence unit. They found that suspected abusers processed by the domestic violence unit had fewer future incidents compared to suspected abusers processed by non-specialized officers. Even so, if the suspected abuser did offend in the future, the domestic violence unit did not effectively decrease the severity of future incidents. Friday et al. also determined how these cases fared in the criminal justice system. They found that within two years of an incident occurring, cases assigned to the domestic violence unit had a higher rate of clearance. Even so, the District Attorney declined to prosecute twice as many cases from the domestic violence unit compared to the regular units. Out of the

[78] For more information on the CMPD domestic violence unit, please see Charlotte-Mecklenburg Police Department (2012).

cases prosecuted, suspects from domestic violence unit spent approximately four more days in jail. Lastly, suspects from the domestic violence unit as well as the regular unit both received future domestic-violence related jail sentences in approximately one third of these cases. This evaluation reveals that the domestic violence unit does provide a useful service but is subject to limitations.

While a great deal of family violence policy and programs focus on providing needs for victims, fewer aims to prevent family violence. Family violence is an extremely costly social issue. The CDC estimates that when just considering intimate partner violence, annual costs exceed $5.3 billion dollars annually (CDC, 2003). While there is a cost to enacting policy aimed to prevent family violence, a policy that effectively decreases the rate of family violence could turn out to be cost effective (Chan and Cho, 2010). Lehrner and Allen (2008) argued that when creating effective family violence policy, policymakers should reconsider how they view family violence. They suggested that most policy created focuses on providing for victims because policymakers view family violence as an individual problem. To develop effective policy, policymakers should instead view family violence as a social problem. By taking this perspective, policymakers can consider the social costs of family violence. Additionally, they will be more likely to develop policies aimed to decrease rates of family violence, as opposed to solely focusing on providing services after a family experiences a violent incident.

One type of policy developed to decrease rates of domestic violence as opposed to focusing primarily on the needs of victims is Batter Intervention Programs (BIPs). These initiatives exist at the state and local level. Court systems sometimes require

convicted male abusers to participate in these programs. Policymakers base BIPS on the Duluth Model of Domestic Violence, which argues that domestic violence stems from patriarchal ideology and that men engage in violence as a means to control their partners (Pender, 2012). Some researchers argue that BIPS are ineffective because they are not based on theory and do not consider root causes of violence (Feder and Wilson, 2005). In fact, Stuart et al. (2007) analyzed two batterer intervention programs in Florida and New York and concluded that they have little or no effect in reducing subsequent violence.

BIPS also focus primarily on male batterers. As a result, they do not address female initiative violence against males. Kimmel (2001) argued that, "Policy-oriented efforts have been misplaced, because they focus entirely on women as the victims of domestic violence." This research suggests that the majority of domestic violence victims are female. Other researchers (Tjaden and Thoennes; 2000) also found a similar trend. Even so, males can also be victims. Recent research suggests that the prevalence of male victims may be higher than previously thought. In fact, a study conducted by the CDC in 2010 found that over a 12-month period actually found relatively equal rates of family violence towards males and females. The study also found that males might make up to 40% of victims of severe violence (Black et al., 2011).

If family violence policy focuses primarily on male-initiated violence, it may fail to address and prevent violent acts committed by women. An evaluation of domestic violence intervention programs found that few programs are willing to work with female abusers (Gavin and Puffit, 2005). Motz (2014) surveyed several domestic violence shelters and found that most are unwilling to accept male victims. Little

research exists that examines motivations for female-initiated violence (Barber, 2008). The same factors that lead to violence against women may also trigger violence against men. Alternatively, violence against men may call for alternate theoretical explanations (Drijber et al., 2013). This factor could influence the development of effectively policy aimed to decrease female-initiated violence.

It is important to note that women do not commit all acts of violence against men. Intimate partner violence can occur in same sex relationships. In fact, in 2010, the CDC actually found higher rates of domestic violence in homosexual versus heterosexual relationships (CDC, 2010). Unfortunately, little research exists to identify the prevalence of same sex victimization among male victims of domestic violence (Cruz, 2003). On the same note, even less research focuses on domestic violence among female same sex couples. While the VAWA does include a non-discrimination clause, Messinger (2011) found that in general, current policies and initiatives do not meet the needs of homosexual victims and abusers. Future policymakers may want to consider specifically addressing the needs of these victims.

Most policies discussed up to now assist victims after a violent family incident or provide resources to abusers to prevent a re-occurrence of violence. Few policies aim to prevent family violence before it occurs. One organization that does focus on family violence prevention is the National Resource Center on Domestic Violence (NRCDV). Using federal funding, the US Department of Health and Human Services (HHS) created the NRCDV in 1993 to combat rising domestic violence rates. The NRCDV originally operated as a national project housed within the Pennsylvania Coalition against Domestic Violence (PCADV). Since 2011, it has operated as an independent

non-profit organization. One of the largest anti-family violence initiates created by the NRCDV is the Domestic Violence Awareness Project (DVAP). The DVAP utilizes several different strategies to raise public awareness of family violence. For example, the project designated October as national domestic violence awareness month. They also collaborated with the White House to develop the *1is2many* campaign. The campaign created several public service announcements (PSAs) featuring Vice President Joe Biden and professional athletes. The DVAP also helps state and local organizations develop campaigns aimed to decrease rates of family violence.

While these initiatives do aim to prevent family violence before they occur, little research exists to evaluate the effectiveness of these campaigns. They should be subject to program evaluation so researchers can determine if these initiatives really do reduce rates of family violence (Lehrner and Allen, 2008). While many initiatives are not subject to evaluation, some organizations do attempt to fill the gap. One organization is the Domestic Violence Evidence Project (DVEP).[79] The DVEP conducts controlled research studies as well as through program analysis to evaluate the effectiveness of anti-violence campaigns. The DVEP focuses primary on four research areas, which include adult services, children's services, family violence prevention, and reducing violent behavior. Unlike several other family violence initiatives that focus primarily on intimate partner violence, the DVEP aims to address all types of family violence (such as partner, sibling, parent, and child abuse). The DVEP argues that policymakers should base family violence policy on a theory of change. This shift in focus requires policymakers to identify short as well as long-term objectives and then create measurable outcomes linked to defined goals (Hernandez and Hodges, 2006).

[79] For more information, see Sullivan (2014).

The primarily goals of the DVEP tie well to this analysis. While this analysis did not identify the effectiveness of existing policy, it did identify some factors that may increase the likelihood of family violence. The first part of this analysis considered how unemployment affects family violence. The results found that when an individual experiences unemployment, all family members face an increased risk of violence. While previous research links unemployment to family violence, these results also found that unemployment increases the risk for repeat violence and a co-occurrence of family violence. Families experience co-occurrence violence when multiple family members become violent or when an individual abuses more than one family member. A co-occurrence of family violence could include intimate partner, parent, child, and sibling abuse. The bulk of family violence policy focuses on intimate partner violence. Some policies, such as the Child Abuse Prevention and Treatment Act (CAPTA) focus on child abuse.[80] The Act provides funding to increase awareness of child abuse as well as prosecute offenders. Unfortunately, few policies specifically address sibling and parental abuse. One possible explanation is that little research exists to identify the causes and prevalence of these types of family violence. In this analysis, sibling and parent violence did occur but at very low rates when compared to intimate partner violence. The lack of occurrence made it difficult to identify risk factors for these specific types of family violence. Future research could identify the causes of parent and sibling abuse, which may ultimately affect family violence policy.

Since this analysis considers the effect of unemployment on family violence, it is also relevant to consider recent unemployment legislation, as well as policies aimed

[80] For more information on CAPTA, please see United States Department of Health and Human Services (2003).

to reintegrate unemployed workers into the workforce. In 1998, the Clinton administration passed the federal Workforce Investment Act (WIA).[81] Title I of the Act developed a one-stop concept, which allows job seekers to go to one location to access a wide variety of employment services from multiple agencies (Cohen et al., 2005). The Tile also developed a set of standards designed to measure the success of the program. Lastly, Title I created regional Workforce Investment Boards (WIBs), which identify the unique needs of local job seekers. Title II created programs to help adults improve literacy. Specifically, the Title focuses on helping adults obtain at least an eighth grade literacy level before entering the workforce. Title III generated academic training and rehabilitation services for job seekers with disabilities. Title IV further addresses the needs of individuals with disabilities by creating a national council on disability. The Title also ensures that individuals with disabilities have access to job training programs. Lastly, Title IV created goals for the WIA as well incentive grants for states that meet or exceed these goals.

Heinrich (2013) analyzed the effectiveness of the WIA. Her research suggests that the WIA should direct more resources to train less-advantaged individuals, such as individuals with lower levels of education and work experience. Additionally, Heinrich found that offering targeted job training as opposed to more generalized training leads to better outcomes for job seekers. Lastly, Heinrich's analysis suggests that the WIA should dedicate more resources to helping adolescents as well as recent graduates navigate the transition from school to the workforce.

[81] For a detailed analysis of the WIA, please see Besharov and Cottingham (2011).

In 2014, the Obama administration signed the Workforce Innovation and Opportunity Act (WIOA), which supersedes the WIA.[82] The WIOA primarily developed additional performance indicators to assess the performance of the WIBs. Since the WIOA recently went into effect, researchers have not yet had the opportunity to evaluate its effectiveness. Additionally, researchers have not considered how job-training programs in general may influence family violence rates. This research suggests that unemployment may increase the likelihood of family violence. As a result, this research may give additional justification for the development of effective job training programs, especially during times of economic downturns. Researchers may want to consider this factor once they are able to evaluate the WIOA.

As previously mentioned, one criticism of existing family violence and employment policy is that it does not consider existing theory. Doing so may help develop more effective and targeted policies. The DVEP suggested that as opposed to simply raising awareness of family violence, policymakers should use theory to target efforts to individuals with risk factors. This research considers several interdisciplinary theories including nested ecological theory, general strain theory, status inconsistency theory and household bargaining theory. Nested ecological theory and general strain theory identify unemployment as a strain that may lead to family violence. As a result, organizations such the DVAP may benefit from increasing domestic violence awareness initiatives during times of economic instability. In addition, they could target individuals affected by unemployment. This could include developing awareness programs in geographic locations with high rates of employment. They could also collaborate with employment agencies to identify at risk individuals. These awareness

[82] For a detailed analysis of the WIOA, please see Ginn (2015).

initiatives may further benefit society if they can prevent family violence before it occurs. As previously mentioned, family violence is a costly social issue. Decreasing rates of family violence may ease its financial burden on society. Additionally, targeting at risk individuals may increase the effectiveness of these initiatives.

While nested ecological theory and general strain theory predict a positive relationship between economic instability and family violence, status inconsistency and household bargaining theory suggest a different relationship. Status inconsistency theory suggests that male unemployment coupled with female unemployment will raise family violence, while household bargaining theory suggests that this combination of employment statuses will actually decrease family violence. This analysis found support for household bargaining among low education individuals and for status inconsistency among high education individuals. These results may help policymakers further target policy to at risk individuals. When individuals seek out employment assistance, agencies may want to consider the job seeker's education level, prior earnings, and partner employment status if applicable. This may help identify individual's facing an increased risk of engaging in violence. While an employment agencies main goal is not to address family violence, doing so may have a significant benefit for job seekers. A job agency may identify an unemployed male with an employed partner and a high level of education as at an increased risk for engaging in family violence. Once an agency identifies a high-risk individual, they could offer resources such as counseling to help individuals effectively manage and cope with financial strains. This could decrease the likelihood of family violence from occurring.

Local domestic violence task units may also benefit from integrating theory into policies and practices. While this would not prevent family violence from occurring in the first place, it could mitigate the likelihood of future violence. When an officer responds to a domestic violence call, their primary goal is to prevent an escalation of violence and ensure the safety of all parties involved. Domestic violence task units may be able to prevent future violence by following up with the victim. Doing so would give them the opportunity to assess the victim's family and personal situation. The officer may identify unemployed victims with unemployed partners as individuals facing an increased risk for violence. Additionally, victims with higher levels of education and with unemployed partners may also face an increased risk. Using this information, officers could increase the number of follow-ups with these high-risk victims. They could also take extra efforts to make sure that these victims are aware of resources available to both victims and perpetrators to prevent future violence.

In addition to financial instability, these results also reveal several other risk factors for family violence victimization that policymakers may want to consider. First, the results suggest that compared to married partners, unmarried partners experience higher rates of violence. This result aligns with findings in previous research (Stets and Straus, 1989; Brownridge, 2008). Some policymaker advocate enacting policy aimed to promote marriage as a way to address this issue as well as other negative outcomes that unmarried couples face. In 2006, President Bush signed the Deficit Reduction Act (DRA) of 2005. The Act allocated $100 million dollars a year to programs aimed to promote marriage.[83] While the Act has received little attention from researchers, some attempted to identify its implications. Hawkins et al. (2013) found that between 2005

[83] For a detailed review of the DRA, please see Koyanagi (2006).

and 2010, the Act did lead to a small increase in marriage rates for certain subpopulations, such as African Americans. These subgroups also experienced slightly decreased rates of family violence. Even so, Johnson et al. (2014) responded to this analysis by suggesting that Hawkins et al. (2013) de-emphasized null effects and ignored negative effects. Overall, Johnson (2014) found little evidence that marriage increase marriage rates or address social issues including family violence.

While this analysis identified marriage as a protective factor against family violence, it also identified a positive relationship between separations and divorces and family violence. Vestal (2007) suggested that policymakers might be able to decrease rates of family violence by improving access to resources to couples ending a marriage. These resources often come as part of family mediation services. Vestal found that most states require some type of family mediation for divorcing couples with children. Family violence may be present in up to half of custody disputes even though couples may hide or deny abuse (Pearson, 1997). Currently, mediation programs do not effectively address family violence or protect victims (Vestal, 2007). Vestal made several suggestions to address this issue, such as screening of all divorce cases to identify needs for mediation, and extensive mediator training, so that mediators can identify and address family violence.

This analysis also found significant effect for race and ethnicity. Compared to non-Hispanic white individuals, non-Hispanic Asian and Hispanics were less likely to report family violence victimization. Even so, previous research (Tjaden and Thoennes, 2000; Dietrich and Schuett, 2013) has suggested cultural norms may discourage Asian and Hispanic individuals from reporting violence. They may not actually face a

decreased risk of victimization. It may be helpful for policymakers to enact measures to encourage reporting by victims who may be hesitant to report victimization. For example, CMPD offers a five percent salary increase to officers who speak Spanish, Vietnamese, or Laotian. Police units such as CMPD may also benefit from offering cultural awareness training, especially to their domestic violence task unit. Additionally, future researchers may want to evaluate whether enacting these types of policies affects the rates of family violence reporting among minority groups.

Overall, existing policy, especially at the federal level, tends to focus primarily on addressing family violence after it occurred. While it is important to provide resources for victims, society may benefit from a shift in focus to where policymakers enact policy aimed to prevent family violence before it occurs. Some programs at the state and local level attempt to address this issue. Even so, there is still a need to amplify efforts to prevent family violence. Suggestions for future policies include improving the employment and financial status of potential victims as well as provide mediation resources to prevent family violence during separations or divorces.

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APPENDIX A: SUPPLEMENTARY TABLES

TABLE A1: Impact of household unemployment on victimization, logit				
	Crime Victimization 1A	Family Violence 1B	Repeat Family Violence 1C	Family Violence Co-Occurrence 1D
Household Unemployment	0.05***	0.59***	0.23**	1.39***
	(0.02)	(0.07)	(0.15)	(0.47)
Female	-0.02	0.90***	0.23	0.31
	(0.01)	(0.06)	(0.17)	(0.72)
Age	-0.01***	-0.03***	0.01	-0.03
	(0.00)	(0.00)	(0.01)	(0.02)
Non-Hispanic Black	0.08***	-0.24***	-0.02	0.41
	(0.02)	(0.08)	(0.20)	(0.63)
Non-Hispanic Asian	-0.52***	-1.21***	0.22	0.99
	(0.03)	(0.25)	(0.56)	(0.82)
Non-Hispanic Other	0.42***	0.55***	0.13	-0.46
	(0.04)	(0.13)	(0.29)	(1.15)
Hispanic	-0.04**	-0.56***	-0.26	0.34
	(0.02)	(0.09)	(0.23)	(0.73)
Less Than High School	0.03*	-0.04	-0.17	0.89
	(0.02)	(0.09)	(0.22)	(0.64)
Some College	0.24***	0.21***	0.31*	0.74
	(0.02)	(0.07)	(0.17)	(0.68)
Associate	0.22***	0.24**	0.49**	-0.35
	(0.02)	(0.10)	(0.24)	(1.16)
Bachelor’s	0.10***	-0.29***	0.24	0.84
	(0.02)	(0.10)	(0.24)	(1.06)
Advanced Degree	0.26***	-0.48***	0.82**	0.88
	(0.02)	(0.18)	(0.41)	(0.93)
Married	-0.29***	-0.74***	-0.15	0.57
	(0.02)	(0.09)	(0.20)	(0.66)
Widow	0.25***	0.10	0.16	-0.50
	(0.04)	(0.22)	(0.48)	(0.73)
Divorced	0.34***	0.81***	-0.22	0.49
	(0.02)	(0.09)	(0.20)	(0.63)
Separated	0.48***	1.73***	0.06	-0.79
	(0.03)	(0.09)	(0.20)	(0.73)
Midwest	0.14***	0.12	-0.21	-0.80

Table A1 (continued)				
	(0.02)	(0.09)	(0.22)	(0.71)
South	0.14***	-0.06	-0.21	0.09
	(0.02)	(0.08)	(0.21)	1.39***
West	0.42***	0.16*	-0.04	(0.47)
	(0.02)	(0.09)	(0.22)	(0.76)
Income	-0.00***	-0.00***	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Income Missing	-0.15***	-0.00	0.21	0.17
	(0.01)	(0.07)	(0.16)	(0.50)
Number in Household	-0.02***	-0.07***	0.19***	-0.23
	(0.01)	(0.03)	(0.05)	(0.17)
Child Under 12 in Household	0.21***	0.65***	0.05	0.50
	(0.02)	(0.07)	(0.17)	(0.57)
Constant	-2.28***	-5.30***	-2.02***	-4.12***
	(0.03)	(0.16)	(0.37)	(1.56)
Observations	877,481	877,481	1,533	1,533
Dependent Variable Mean	45.19	1.75	265.49	17.61

Notes: The table contains results from logit regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set in columns 1A and 1B includes all NCVS respondents. The sample set in columns 1C and 1D include all NCVS respondents who reported family violence victimization. Each regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable in column 1A identifies respondents who reported any crime. The dependent variable in column 1B identifies respondents who reported a family incident. The dependent variable in column 1C identifies repeat family violence. The dependent variable in model 1D identifies family violence co-occurrence. Household unemployment identifies the percent of unemployed adults aged 18-64 in a household during one interview. Reference categories are as follows: sex- male, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A2: Impact of unemployment status on intimate partner violence, logit			
Female Employed, Male Unemployed	0.00	Married	-1.05***
	(0.24)		(0.28)
Female Unemployed, Male Employed	-0.00	Widow	1.79***
	(0.21)		(0.26)
Female Unemployed, Male Unemployed	0.47**	Divorced	2.55***
	(0.22)		(0.27)
Age	-0.06***	Separated	0.17
	(0.01)		(0.28)
Non-Hispanic Black	-0.11	Midwest	0.11
	(0.24)		(0.26)
Non-Hispanic Asian	-1.88*	South	0.35
	(1.01)		(0.28)
Non-Hispanic Other	0.60	West	-0.00**
	(0.37)		(0.00)
Hispanic	-0.41*	Income	0.27
	(0.24)		(0.18)
Less Than High School	0.02	Income Missing	0.07
	(0.23)		(0.07)
Some College	0.11	Number in Household	0.29
	(0.20)		(0.20)
Associate	-0.37	Child Under 12	-5.04***
	(0.34)		(0.48)
Bachelor's	-0.31	Constant	-1.05***
	(0.31)		(0.28)
Advanced Degree	-1.96*		
	(1.01)		
		Observations	280,301
		Dependent Variable Mean	0.62

Notes: The table contains results from a logit regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A3: Impact of unemployment rate on intimate partner violence, logit			
Female Unemployment Rate	-0.05	Married	-1.17***
	(0.09)		(0.28)
Male Unemployment Rate	0.02	Widow	1.68***
	(0.06)		(0.27)
Age	-0.05***	Divorced	2.42***
	(0.01)		(0.28)
Non-Hispanic Black	-0.11	Separated	0.22
	(0.25)		(0.29)
Non-Hispanic Asian	0.59	Midwest	0.20
	(0.37)		(0.27)
Non-Hispanic Other	-0.49**	South	0.45
	(0.24)		(0.29)
Hispanic	0.13	West	-0.00***
	(0.24)		(0.00)
Less Than High School	0.16	Income	0.27
	(0.20)		(0.19)
Some College	-0.33	Income Missing	0.09
	(0.34)		(0.07)
Associate	-0.31	Number in Household	0.24
	(0.32)		(0.21)
Bachelor's	-1.86*	Child Under 12	-4.88***
	(1.01)		(0.68)
Advanced Degree	-0.05	Constant	-1.17***
	(0.09)		(0.28)
		Observations	280,301
		Dependent Variable Mean	0.62

Notes: The table contains results from a logit regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A4: Impact of unemployment on crime victimization			
Female Employed, Male Unemployed	-0.28	Married	-9.51***
	(1.22)		(1.38)
Female Unemployed, Male Employed	1.19	Widow	9.60**
	(0.91)		(4.36)
Female Unemployed, Male Unemployed	0.33	Divorced	13.66***
	(1.30)		(2.29)
Age	-0.45***	Separated	31.16***
	(0.04)		(5.23)
Non-Hispanic Black	0.76	Midwest	4.81***
	(1.50)		(1.09)
Non-Hispanic Asian	-19.52***	South	5.22***
	(1.35)		(1.01)
Non-Hispanic Other	22.61***	West	14.34***
	(4.08)		(1.19)
Hispanic	-3.41***	Income	-0.00***
	(1.29)		(0.00)
Less Than High School	-0.01	Income Missing	-7.51***
	(1.41)		(0.83)
Some College	8.05***	Number in Household	3.06***
	(1.13)		(0.40)
Associate	5.78***	Child Under 12	1.44
	(1.40)		(1.13)
Bachelor's	3.69***	Constant	23.08***
	(1.04)		(2.53)
Advanced Degree	10.68***	Observations	280,301
	(1.39)	R-squared	0.01
		Dependent Variable Mean	35.92

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is any type of crime victimization. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A5: Impact of employment status on intimate partner violence by sex			
	Females Only	Males Only	Males and Females
Respondent Employed, Partner Unemployed	0.04	0.03	0.05
	(0.17)	(0.06)	(0.07)
Respondent Unemployed, Partner Employed	0.03	-0.01	-0.00
	(0.12)	(0.07)	(0.08)
Respondent Unemployed, Partner Unemployed	0.64***	-0.02	0.32**
	(0.22)	(0.08)	(0.13)
Female			0.44***
			(0.05)
Age	-0.03***	-0.01**	-0.02***
	(0.01)	(0.00)	(0.00)
Non-Hispanic Black	-0.20	0.03	-0.07
	(0.22)	(0.10)	(0.12)
Non-Hispanic Asian	-0.51***	-0.03	-0.29***
	(0.11)	(0.09)	(0.07)
Non-Hispanic Other	0.96	0.05	0.52
	(0.68)	(0.25)	(0.37)
Hispanic	-0.40**	-0.06	-0.23**
	(0.18)	(0.06)	(0.10)
Less Than High School	0.05	-0.13**	-0.05
	(0.23)	(0.06)	(0.12)
Some College	0.09	0.01	0.09
	(0.17)	(0.07)	(0.09)
Associate	-0.24	0.26*	0.00
	(0.16)	(0.14)	(0.11)
Bachelor’s	-0.20	0.05	-0.04
	(0.13)	(0.06)	(0.07)
Advanced Degree	-0.28***	-0.00	-0.10*
	(0.10)	(0.06)	(0.06)
Married	-0.64***	-0.16*	-0.39***
	(0.21)	(0.09)	(0.12)
Widow	-0.63***	-0.16*	-0.53***
	(0.21)	(0.09)	(0.12)
Divorced	2.21***	0.60**	1.58***
	(0.51)	(0.29)	(0.32)
Separated	8.65***	1.43	6.01***
	(1.84)	(0.95)	(1.20)
Midwest	0.14	0.01	0.07

Table A5 (continued)			
	(0.14)	(0.07)	(0.08)
South	0.08	-0.01	0.03
	(0.13)	(0.06)	(0.07)
West	0.20	0.03	0.12
	(0.15)	(0.08)	(0.09)
Income	-0.00	-0.00	-0.00**
	(0.00)	(0.00)	(0.00)
Income Missing	0.08	-0.00	0.04
	(0.13)	(0.06)	(0.07)
Number in Household	0.09	-0.00	0.05
	(0.06)	(0.02)	(0.03)
Child Under 12 in Household	0.08	0.01	0.09
	(0.15)	(0.06)	(0.08)
Constant	1.72***	0.38**	0.74***
	(0.40)	(0.16)	(0.21)
Observations	280,301	263,032	543,333
R-squared	0.00	0.00	0.00
Dependent Variable Mean	0.62	0.13	0.38

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all respondent in relationships aged 18-64. Column 1 includes female respondents, column 2 includes male respondents, and column 3 includes both female and male respondents. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A6: Impact of employment status on intimate partner violence, low and high education		
	Low Education	High Education
Female Employed, Male Unemployed	-0.67***	0.49**
	(0.24)	(0.24)
Female Unemployed, Male Employed	-0.03	0.05
	(0.22)	(0.13)
Female Unemployed, Male Unemployed	0.59*	0.59**
	(0.33)	(0.30)
Age	-0.05***	-0.02***
	(0.01)	(0.01)
Non-Hispanic Black	-0.08	-0.32
	(0.38)	(0.25)
Non-Hispanic Asian	-0.85***	-0.36***
	(0.14)	(0.14)
Non-Hispanic Other	0.88	1.02
	(1.12)	(0.85)
Hispanic	-0.77***	0.12
	(0.25)	(0.26)
Married	-0.67*	-0.62**
	(0.36)	(0.26)
Widow	-0.53	-0.72***
	(0.35)	(0.27)
Divorced	2.57***	1.87***
	(0.82)	(0.63)
Separated	8.25***	9.27***
	(2.28)	(3.08)
Midwest	0.20	0.11
	(0.28)	(0.15)
South	-0.07	0.18
	(0.24)	(0.14)
West	0.36	0.16
	(0.31)	(0.16)
Income	-0.00	-0.00**
	(0.00)	(0.00)
Income Missing	0.22	-0.04
	(0.20)	(0.17)
Number in Household	0.05	0.13*
	(0.10)	(0.08)
Child Under 12 in Household	-0.25	0.22

Table A6 (continued)		
	(0.27)	(0.19)
Constant	2.90***	1.13**
	(0.70)	(0.47)
Observations	109,674	170,627
R-squared	0.00	0.00
Dependent Variable Mean	0.83	0.42

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Low education includes high school graduates and below. High education includes beyond high school graduate. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A7: Intimate partner employment status, low and high education						
	Low Education		High Education		All Respondents	
Female employed, male employed	42.8%	49.5	59.3%	49.1	52.8%	49.9
Female employed, male unemployed	12.5%	33.1	11.0%	31.3	11.6%	32.0
Female unemployed, male employed	28.8%	45.2	21.8%	41.3	24.6%	43.0
Female unemployed, male unemployed	15.8%	36.5	07.9%	27.0	11.0%	31.3
Notes: n=280,301. The table identifies the rate of different partner employment combinations for female NCVS respondents aged 18-64 with partners as well as the standard deviation for each employment category. The first two columns identify partner employment combinations for respondents with a high school diploma or less. For these respondents, n= 109,674. The next two columns identify partner employment combinations for respondents with more than a high school diploma. For these respondents, n= 170,627. The last two columns identify partner employment combinations for all respondents. For these respondents, n=280,301. Table 2 also reports these figures.						

TABLE A8: Impact of employment rate on intimate partner violence by sex			
	Females Only	Males Only	Males and Females
Respondent Unemployment Rate	0.11	-0.02	-0.07***
	(0.14)	(0.03)	(0.03)
Partner Unemployment Rate	0.02	-0.05	0.10***
	(0.09)	(0.06)	(0.04)
Female			0.44***
			(0.07)
Age	-0.02	-0.02***	-0.01**
	(0.01)	(0.01)	(0.01)
Non-Hispanic Black	-0.17	0.03	-0.04
	(0.27)	(0.12)	(0.15)
Non-Hispanic Asian	-0.63***	-0.04	-0.36***
	(0.09)	(0.11)	(0.07)
Non-Hispanic Other	1.17	0.07	0.64
	(0.82)	(0.31)	(0.46)
Hispanic	-0.50**	-0.07	-0.28**
	(0.20)	(0.07)	(0.11)
Less Than High School	0.17	-0.16**	-0.02
	(0.29)	(0.08)	(0.15)
Some College	0.14	0.02	0.12
	(0.21)	(0.09)	(0.12)
Associate	-0.24	0.34*	0.03
	(0.20)	(0.18)	(0.13)
Bachelor's	-0.15	0.04	-0.04
	(0.16)	(0.08)	(0.09)
Advanced Degree	-0.25*	-0.00	-0.10
	(0.13)	(0.08)	(0.08)
Married	-0.65***	-0.22**	-0.44***
	(0.24)	(0.11)	(0.13)
Widow	-0.79***	-0.26**	-0.67***
	(0.24)	(0.12)	(0.14)
Divorced	3.07***	0.66*	2.11***
	(0.65)	(0.37)	(0.40)
Separated	10.03***	1.72	7.04***
	(2.14)	(1.16)	(1.42)
Midwest	0.19	-0.02	0.08
	(0.18)	(0.09)	(0.10)
South	0.04	0.04	0.04
	(0.09)	(0.09)	(0.09)

Table A8 (continued)			
West	0.14	0.14	0.14
	(0.11)	(0.11)	(0.11)
Income	-0.00***	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)
Income Missing	0.04	0.04	0.04
	(0.09)	(0.09)	(0.09)
Number in Household	0.07*	0.07*	0.07*
	(0.04)	(0.04)	(0.04)
Child Under 12 in Household	0.12	0.12	0.12
	(0.09)	(0.09)	(0.09)
Constant	0.33	1.16***	0.41
	(0.80)	(0.44)	(0.40)
Observations	280,301	263,032	543,333
R-squared	0.00	0.00	0.00
Dependent Variable Mean	0.62	0.13	0.38

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all respondent in relationships aged 18-64. Column 1 includes female respondents, column 2 includes male respondents, and column 3 includes both female and male respondents. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The respondent and partner unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A9: Impact of unemployment rate on intimate partner violence, lag			
Female Unemployment Rate	0.09	Married	-0.67***
	(0.14)		(0.24)
Male Unemployment Rate	0.02	Widow	-0.80***
	(0.10)		(0.24)
Age	-0.02	Divorced	3.06***
	(0.01)		(0.65)
Non-Hispanic Black	-0.18	Separated	10.02***
	(0.27)		(2.14)
Non-Hispanic Asian	-0.63***	Midwest	0.19
	(0.09)		(0.18)
Non-Hispanic Other	1.17	South	0.05
	(0.82)		(0.16)
Hispanic	-0.50**	West	0.20
	(0.20)		(0.19)
Less Than High School	0.17	Income	-0.00**
	(0.29)		(0.00)
Some College	0.14	Income Missing	0.07
	(0.21)		(0.16)
Associate	-0.24	Number in Household	0.12*
	(0.20)		(0.07)
Bachelor's	-0.15	Child Under 12	0.17
	(0.16)		(0.17)
Advanced Degree	-0.25*	Constant	0.00
	(0.13)		(1.06)
		Observations	280,301
		R-squared	0.00
		Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the month before their interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status– never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.

*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

TABLE A10: Impact of the layoff rate on intimate partner violence			
Layoff Rate	0.32	Married	-0.71***
	(0.28)		(0.21)
Age	-0.03***	Widow	-0.68***
	(0.01)		(0.21)
Non-Hispanic Black	-0.20	Divorced	2.15***
	(0.21)		(0.50)
Non-Hispanic Asian	-0.50***	Separated	8.61***
	(0.11)		(1.84)
Non-Hispanic Other	0.97	Midwest	0.13
	(0.68)		(0.14)
Hispanic	-0.43**	South	0.08
	(0.18)		(0.13)
Less Than High School	0.09	West	0.17
	(0.23)		(0.15)
Some College	0.09	Income	-0.00**
	(0.17)		(0.00)
Associate	-0.27*	Income Missing	0.08
	(0.16)		(0.13)
Bachelor's	-0.21*	Number in Household	0.09
	(0.13)		(0.06)
Advanced Degree	-0.30***	Child Under 12	0.08
	(0.10)		(0.15)
		Constant	1.22*
			(0.63)
		Observations	280,301
		R-squared	0.00
		Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The BLS calculates the layoff rate by dividing the total number of layoffs by the level of employment and multiplying that figure by 100. The layoff rate identifies the monthly region-specific layoff rate for each respondent. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A11: Impact of the job opening rate on intimate partner violence			
Job Opening Rate	1.37*	Married	-0.71***
	(0.71)		(0.21)
Age	-0.03***	Widow	-0.68***
	(0.01)		(0.21)
Non-Hispanic Black	-0.20	Divorced	2.15***
	(0.21)		(0.50)
Non-Hispanic Asian	-0.50***	Separated	8.61***
	(0.11)		(1.84)
Non-Hispanic Other	0.97	Midwest	0.17
	(0.68)		(0.15)
Hispanic	-0.43**	South	0.03
	(0.18)		(0.14)
Less Than High School	0.09	West	0.17
	(0.23)		(0.16)
Some College	0.09	Income	-0.00**
	(0.17)		(0.00)
Associate	-0.27*	Income Missing	0.08
	(0.16)		(0.13)
Bachelor's	-0.21*	Number in Household	0.09
	(0.13)		(0.06)
Advanced Degree	-0.30***	Child Under 12	0.08
	(0.10)		(0.15)
		Constant	1.37*
			(0.71)
		Observations	280,301
		R-squared	0.00
		Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The BLS calculates the job-opening rate by dividing the total number of job openings by the level of employment and multiplying that figure by 100. The job-opening rate identifies the monthly region-specific layoff rate for each respondent. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A12: Within-entity variation	
Income	6,647.01
Education	1.17
Employment	0.14
Marital Status	0.09
Age	1.05
Number in Household	0.18
Notes: This table identifies the level of within-entity variation for relevant variables. It does not include variables only recorded during the first interview. These values identify the mean of the standard deviation values by individual respondent. The values report household income in dollars, education by level (less than high school graduate, high school graduate, some college, associate degree, bachelor's degree, advanced degree), employment as either employed or unemployed, marital status by level (never married, married, divorced, separated, widowed), age in years, and the numerical value of number of household members.	

TABLE A13: Impact of employment status on intimate partner violence, married and unmarried respondents		
	Married	Unmarried
Female Employed, Male Unemployed	0.09	0.07
	(0.12)	(0.48)
Female Unemployed, Male Employed	-0.10	0.54
	(0.07)	(0.59)
Female Unemployed, Male Unemployed	0.20	1.01
	(0.15)	(0.62)
Age	-0.01***	-0.03**
	(0.00)	(0.01)
Non-Hispanic Black	0.08	-1.16**
	(0.15)	(0.53)
Non-Hispanic Asian	-0.07	-2.71***
	(0.11)	(0.37)
Non-Hispanic Other	1.40*	-0.11
	(0.74)	(1.47)
Hispanic	-0.09	-1.12*
	(0.12)	(0.58)
Less Than High School	0.06	-0.32
	(0.14)	(0.67)
Some College	0.13	-0.03
	(0.11)	(0.56)
Associate	-0.08	-0.44
	(0.09)	(0.74)
Bachelor's	-0.08	-0.27
	(0.07)	(0.61)
Advanced Degree	-0.07	-1.38***
	(0.07)	(0.41)
Midwest	0.05	0.33
	(0.07)	(0.59)
South	0.07	0.28
	(0.07)	(0.52)
West	0.11	0.70
	(0.07)	(0.63)
Income	-0.00*	-0.00*
	(0.00)	(0.00)
Income Missing	-0.02	0.53
	(0.08)	(0.45)
Number in Household	0.02	0.30

Table A13 (continued)		
	(0.03)	(0.25)
Child Under 12 in Household	-0.06	1.90***
	(0.09)	(0.63)
Constant	0.77***	0.57
	(0.28)	(1.18)
Observations	218,473	61,828
R-squared	0.00	0.00
Dependent Variable Mean	0.18	2.20

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Low education includes high school graduates and below. High education includes beyond high school graduate. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, and region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A14: Impact of household unemployment on victimization, omit household income				
	Crime Victimization 1A	Family Violence 1B	Repeat Family Violence 1C	Family Violence Co-Occurrence 1D
Household Unemployment	6.41***	1.66***	60.58**	22.56**
	(0.69)	(0.16)	(28.64)	(9.24)
Female	0.05	1.45***	19.92	3.71
	(0.48)	(0.09)	(30.52)	(9.20)
Age	-0.64***	-0.05***	1.41	-0.56
	(0.02)	(0.00)	(1.29)	(0.37)
Non-Hispanic Black	4.93***	-0.32*	13.91	9.80
	(0.86)	(0.18)	(39.04)	(13.35)
Non-Hispanic Asian	-17.53***	-1.13***	52.90	39.88
	(0.95)	(0.13)	(122.67)	(48.36)
Non-Hispanic Other	27.25***	2.28***	36.56	-4.94
	(2.49)	(0.58)	(61.73)	(18.37)
Hispanic	-0.19	-0.96***	-23.12	9.90
	(0.79)	(0.15)	(40.73)	(17.38)
Less Than High School	2.93***	0.05	-35.73	11.98
	(0.84)	(0.18)	(38.73)	(13.46)
Some College	10.07***	0.48***	59.26*	11.84
	(0.72)	(0.15)	(33.29)	(10.99)
Associate	7.53***	0.27	89.32*	-5.37
	(0.97)	(0.20)	(49.79)	(10.09)
Bachelor's	0.25	-0.60***	37.11	13.71
	(0.66)	(0.12)	(45.47)	(17.61)
Advanced Degree	6.00***	-0.61***	127.40	3.28
	(0.87)	(0.13)	(93.85)	(21.12)
Married	-13.82***	-1.09***	-28.09	14.80
	(0.72)	(0.14)	(38.76)	(14.34)
Widow	10.64***	-0.15	36.17	-8.55
	(2.10)	(0.39)	(107.12)	(16.81)
Divorced	16.82***	1.91***	-41.10	0.79
	(1.10)	(0.25)	(37.21)	(9.40)
Separated	29.85***	9.98***	34.49	13.67
	(2.13)	(0.80)	(39.07)	(13.14)
Midwest	5.78***	0.30**	-32.27	-16.49
	(0.71)	(0.15)	(43.01)	(13.14)
South	6.04***	-0.05	-49.04	-21.25
	(0.65)	(0.13)	(42.11)	(13.87)
West	18.24***	0.23	0.09	-4.42

Table A14 (continued)				
	(0.77)	(0.15)	(45.02)	(17.28)
Number in Household	-2.06***	-0.18***	33.80***	-4.99*
	(0.22)	(0.05)	(10.14)	(2.73)
Child Under 12 in Household	10.68***	1.52***	17.76	11.42
	(0.70)	(0.16)	(32.85)	(9.75)
Constant	21.60***	1.37***	-260.58***	-0.53
	(1.31)	(0.27)	(100.59)	(27.51)
Observations	877,481	877,481	1,533	1,533
R-squared	0.01	0.00	0.10	0.08
Dependent Variable Mean	45.19	1.75	265.49	17.61

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set in columns 1A and 1B includes all NCVS respondents. The sample set in columns 1C and 1D include all NCVS respondents who reported family violence victimization. Each regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable in column 1A identifies respondents who reported any crime. The dependent variable in column 1B identifies respondents who reported a family incident. The dependent variable in column 1C identifies repeat family violence. The dependent variable in model 1D identifies family violence co-occurrence. Household unemployment identifies the percent of unemployed adults aged 18-64 in a household during one interview. Reference categories are as follows: sex- male, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A15: Impact of unemployment status on intimate partner violence, omit household income			
Female Employed, Male Unemployed	0.09	Married	-0.67***
	(0.17)		(0.21)
Female Unemployed, Male Employed	0.06	Widow	-0.61***
	(0.11)		(0.21)
Female Unemployed, Male Unemployed	0.72***	Divorced	2.23***
	(0.22)		(0.51)
Age	-0.04***	Separated	8.69***
	(0.01)		(1.84)
Non-Hispanic Black	-0.17	Midwest	0.15
	(0.21)		(0.14)
Non-Hispanic Asian	-0.49***	South	0.09
	(0.11)		(0.13)
Non-Hispanic Other	0.99	West	0.21
	(0.68)		(0.16)
Hispanic	-0.37**		
	(0.17)	Number in Household	0.08
Less Than High School	0.09		(0.06)
	(0.22)	Child Under 12	0.09
Some College	0.07		(0.15)
	(0.17)	Constant	1.52***
Associate	-0.28*		(0.36)
	(0.16)	Observations	280,301
Bachelor's	-0.27**	R-squared	0.00
	(0.12)	Dependent Variable Mean	0.62
Advanced Degree	-0.37***		
	(0.10)		

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A16: Impact of unemployment rate on intimate partner violence, omit household income			
Female Unemployment Rate	0.11	Married	-0.71***
	(0.14)		(0.24)
Male Unemployment Rate	0.02	Widow	-0.72***
	(0.09)		(0.24)
Age	-0.02	Divorced	3.10***
	(0.01)		(0.65)
Non-Hispanic Black	-0.11	Separated	10.10***
	(0.27)		(2.14)
Non-Hispanic Asian	-0.60***	Midwest	0.21
	(0.08)		(0.18)
Non-Hispanic Other	1.21	South	0.06
	(0.82)		(0.16)
Hispanic	-0.44**	West	0.20
	(0.20)		(0.19)
Less Than High School	0.25		
	(0.29)	Number in Household	0.11
Some College	0.10		(0.07)
	(0.21)	Child Under 12	0.20
Associate	-0.32		(0.17)
	(0.20)	Constant	-0.04
Bachelor's	-0.28*		(0.80)
	(0.15)		
Advanced Degree	-0.41***	Observations	280,301
	(0.12)	R-squared	0.00
		Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A17: Impact of household unemployment on victimization, no missing income				
	Crime Victimization 1A	Family Violence 1B	Repeat Family Violence 1C	Family Violence Co-Occurrence 1D
Household Unemployment	1.92**	1.29***	82.17**	27.20***
	(0.88)	(0.20)	(34.42)	(10.07)
Female	0.04	1.47***	23.30	1.32
	(0.56)	(0.10)	(35.98)	(12.10)
Age	-0.57***	-0.05***	2.59*	-0.48
	(0.03)	(0.01)	(1.49)	(0.49)
Non-Hispanic Black	2.26**	-0.49**	-13.25	-0.83
	(1.08)	(0.24)	(43.85)	(12.47)
Non-Hispanic Asian	-19.72***	-1.42***	127.90	93.74
	(1.14)	(0.13)	(163.03)	(88.46)
Non-Hispanic Other	26.20***	2.12***	-29.33	-18.83**
	(2.85)	(0.66)	(62.51)	(8.46)
Hispanic	-4.44***	-1.28***	-23.60	7.72
	(0.95)	(0.19)	(49.01)	(21.30)
Less Than High School	-2.42**	-0.33	-45.99	14.21
	(1.02)	(0.22)	(43.44)	(17.81)
Some College	10.54***	0.56***	54.59	6.41
	(0.87)	(0.18)	(36.85)	(12.44)
Associate	8.26***	0.33	108.61*	-17.28*
	(1.13)	(0.23)	(57.94)	(10.42)
Bachelor's	3.82***	-0.27*	9.04	-2.87
	(0.80)	(0.14)	(52.81)	(11.71)
Advanced Degree	11.41***	-0.16	220.62**	5.92
	(1.03)	(0.16)	(106.93)	(23.63)
Married	-11.81***	-0.89***	-40.55	20.25
	(0.87)	(0.18)	(45.56)	(16.01)
Widow	7.96***	-0.36	-46.32	6.81
	(2.58)	(0.47)	(133.19)	(21.11)
Divorced	15.43***	1.66***	-69.54	4.02
	(1.32)	(0.30)	(42.67)	(11.81)
Separated	28.66***	10.55***	18.95	21.57
	(2.58)	(0.97)	(45.72)	(16.23)
Midwest	5.72***	0.38**	12.26	-16.92
	(0.85)	(0.18)	(47.62)	(16.33)
South	5.74***	-0.13	-5.38	-27.44
	(0.78)	(0.15)	(48.29)	(17.86)
West	18.67***	0.17	43.72	-5.86

Table A17 (continued)				
	(0.90)	(0.17)	(51.11)	(20.84)
Income	-0.00***	-0.00***	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Number in Household	-0.82***	-0.01	31.90***	-4.86
	(0.27)	(0.06)	(11.81)	(3.00)
Child Under 12 in Household	8.11***	1.13***	5.31	12.29
	(0.82)	(0.18)	(37.57)	(12.14)
Constant	37.15***	2.48***	-330.87***	-5.54
	(1.66)	(0.34)	(115.98)	(35.46)
Observations	645,457	645,457	1,164	1,164
R-squared	0.01	0.00	0.13	0.10
Dependent Variable Mean	47.23	1.80	258.59	16.32

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set in columns 1A and 1B includes all NCVS respondents not missing income. The sample set in columns 1C and 1D include all NCVS respondents who reported family violence victimization and not missing income. Each regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable in column 1A identifies respondents who reported any crime. The dependent variable in column 1B identifies respondents who reported a family incident. The dependent variable in column 1C identifies repeat family violence. The dependent variable in model 1D identifies family violence co-occurrence. Household unemployment identifies the percent of unemployed adults aged 18-64 in a household during one interview. Reference categories are as follows: sex- male, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A18: Impact of unemployment status on intimate partner violence, no missing income			
Female Employed, Male Unemployed	0.14	Married	-0.63**
	(0.21)		(0.24)
Female Unemployed, Male Employed	-0.03	Widow	-0.65***
	(0.13)		(0.24)
Female Unemployed, Male Unemployed	0.49*	Divorced	1.69***
	(0.26)		(0.54)
Age	-0.03***	Separated	9.91***
	(0.01)		(2.34)
Non-Hispanic Black	-0.12	Midwest	0.20
	(0.26)		(0.16)
Non-Hispanic Asian	-0.46***	South	-0.04
	(0.13)		(0.14)
Non-Hispanic Other	0.36	West	0.23
	(0.63)		(0.17)
Hispanic	-0.35*	Income	-0.00**
	(0.20)		(0.00)
Less Than High School	-0.19	Number in Household	0.14**
	(0.25)		(0.07)
Some College	0.08	Child Under 12	-0.02
	(0.19)		(0.17)
Associate	-0.30*	Constant	1.64***
	(0.17)		(0.42)
Bachelor's	-0.24*		
	(0.14)		
Advanced Degree	-0.27**		
	(0.12)		
		Observations	215,433
		R-squared	0.00
		Dependent Variable Mean	0.58

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64 not missing income. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A19: Impact of unemployment rate on intimate partner violence, no missing income			
Female Unemployment Rate	0.21	Married	-0.66**
	(0.15)		(0.27)
Male Unemployment Rate	-0.05	Widow	-0.85***
	(0.10)		(0.28)
Age	-0.01	Divorced	2.49***
	(0.01)		(0.70)
Non-Hispanic Black	-0.09	Separated	11.93***
	(0.32)		(2.76)
Non-Hispanic Asian	-0.62***	Midwest	0.23
	(0.10)		(0.20)
Non-Hispanic Other	0.42	South	-0.23
	(0.76)		(0.18)
Hispanic	-0.43*	West	0.19
	(0.23)		(0.21)
Less Than High School	-0.20	Income	-0.00**
	(0.32)		(0.00)
Some College	0.10	Number in Household	0.18**
	(0.24)		(0.08)
Associate	-0.33	Child Under 12	0.05
	(0.21)		(0.19)
Bachelor's	-0.24	Constant	0.05
	(0.18)		(0.85)
Advanced Degree	-0.25		
	(0.16)		
		Observations	215,433
		R-squared	0.00
		Dependent Variable Mean	0.58

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64 not missing income. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A20: Impact of household unemployment on victimization, no proxies				
	Crime Victimization 1A	Family Violence 1B	Repeat Family Violence 1C	Family Violence Co-Occurrence 1D
Household Unemployment	3.14***	1.37***	53.48*	23.28**
	(0.71)	(0.16)	(29.42)	(9.43)
Female	-0.57	1.44***	12.91	3.47
	(0.49)	(0.09)	(31.36)	(9.79)
Age	-0.60***	-0.05***	1.34	-0.60
	(0.02)	(0.00)	(1.30)	(0.38)
Non-Hispanic Black	3.25***	-0.50***	15.03	9.78
	(0.89)	(0.19)	(39.52)	(13.35)
Non-Hispanic Asian	-18.65***	-1.23***	50.31	37.82
	(0.99)	(0.14)	(125.50)	(48.93)
Non-Hispanic Other	26.01***	2.08***	36.65	-4.22
	(2.54)	(0.58)	(62.31)	(18.68)
Hispanic	-2.96***	-1.18***	-18.27	10.53
	(0.82)	(0.16)	(41.10)	(17.34)
Less Than High School	0.53	-0.15	-39.98	12.53
	(0.87)	(0.18)	(39.22)	(13.62)
Some College	10.45***	0.55***	62.65*	11.31
	(0.74)	(0.16)	(33.50)	(11.14)
Associate	8.81***	0.39*	91.35*	-6.83
	(0.99)	(0.20)	(50.54)	(10.72)
Bachelor's	3.53***	-0.31**	43.34	12.56
	(0.68)	(0.12)	(46.06)	(17.65)
Advanced Degree	10.51***	-0.25*	130.38	-0.12
	(0.91)	(0.13)	(95.94)	(21.73)
Married	-12.06***	-0.95***	-18.95	15.38
	(0.74)	(0.15)	(39.55)	(14.36)
Widow	9.04***	-0.27	37.10	-8.26
	(2.12)	(0.39)	(107.30)	(17.31)
Divorced	15.26***	1.79***	-37.50	0.87
	(1.11)	(0.26)	(37.39)	(9.39)
Separated	27.65***	9.93***	38.03	13.85
	(2.15)	(0.81)	(39.15)	(13.14)
Midwest	4.90***	0.21	-30.28	-14.94
	(0.73)	(0.15)	(43.09)	(13.32)
South	4.64***	-0.16	-48.16	-20.10
	(0.66)	(0.14)	(42.10)	(14.21)
West	18.13***	0.19	-2.10	-4.10

Table A20 (continued)

	(0.78)	(0.15)	(45.02)	(17.34)
Income	-0.00***	-0.00***	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Income Missing	-7.77***	-0.35***	46.14	6.72
	(0.52)	(0.11)	(31.48)	(9.44)
Number in Household	-0.70***	-0.09*	34.19***	-5.31*
	(0.23)	(0.05)	(10.52)	(2.80)
Child Under 12 in Household	7.86***	1.34***	15.85	12.08
	(0.71)	(0.16)	(33.32)	(9.99)
Constant	39.21***	2.71***	-240.17**	-1.74
	(1.48)	(0.31)	(102.57)	(30.18)
Observations	856,865	856,865	1,520	1,520
R-squared	0.01	0.00	0.10	0.08
Dependent Variable Mean	46.03	1.77	265.13	17.76

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set in columns 1A and 1B includes all non-proxy NCVS respondents. The sample set in columns 1C and 1D include all NCVS respondents who reported family violence victimization. Each regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable in column 1A identifies respondents who reported any crime. The dependent variable in column 1B identifies respondents who reported a family incident. The dependent variable in column 1C identifies repeat family violence. The dependent variable in model 1D identifies family violence co-occurrence. Household unemployment identifies the percent of unemployed adults aged 18-64 in a household during one interview. Reference categories are as follows: sex- male, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category.

*** p<0.01, ** p<0.05, * p<0.1.

TABLE A21: Impact of unemployment status on intimate partner violence, no proxies			
Female Employed, Male Unemployed	-0.01	Married	-0.68***
	(0.17)		(0.22)
Female Unemployed, Male Employed	0.03	Widow	-0.67***
	(0.12)		(0.22)
Female Unemployed, Male Unemployed	0.69***	Divorced	2.12***
	(0.23)		(0.51)
Age	-0.04***	Separated	8.79***
	(0.01)		(1.87)
Non-Hispanic Black	-0.20	Midwest	0.15
	(0.22)		(0.14)
Non-Hispanic Asian	-0.50***	South	0.07
	(0.11)		(0.13)
Non-Hispanic Other	1.01	West	0.16
	(0.70)		(0.16)
Hispanic	-0.41**	Income	-0.00
	(0.18)		(0.00)
Less Than High School	0.04	Income Missing	0.07
	(0.23)		(0.13)
Some College	0.10	Number in Household	0.10
	(0.17)		(0.06)
Associate	-0.28*	Child Under 12	0.04
	(0.16)		(0.15)
Bachelor's	-0.20	Constant	1.80***
	(0.13)		(0.41)
Advanced Degree	-0.28***	Observations	274,239
	(0.10)	R-squared	0.00
		Dependent Variable Mean	0.63

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all non-proxy female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home. *** p<0.01, ** p<0.05, * p<0.1.

TABLE A22: Impact of unemployment rate on intimate partner violence, no proxies			
Female Unemployment Rate	0.10	Married	-0.71***
	(0.14)		(0.24)
Male Unemployment Rate	0.02	Widow	-0.84***
	(0.10)		(0.25)
Age	-0.02	Divorced	3.00***
	(0.01)		(0.66)
Non-Hispanic Black	-0.16	Separated	10.15***
	(0.27)		(2.17)
Non-Hispanic Asian	-0.63***	Midwest	0.21
	(0.09)		(0.18)
Non-Hispanic Other	1.22	South	0.05
	(0.84)		(0.16)
Hispanic	-0.48**	West	0.17
	(0.21)		(0.19)
Less Than High School	0.14	Income	-0.00**
	(0.30)		(0.00)
Some College	0.14	Income Missing	0.07
	(0.22)		(0.16)
Associate	-0.30	Number in Household	0.13*
	(0.19)		(0.07)
Bachelor's	-0.17	Child Under 12	0.13
	(0.16)		(0.17)
Advanced Degree	-0.26**	Constant	0.53
	(0.13)		(0.81)
		Observations	274,239
		R-squared	0.00
		Dependent Variable Mean	0.63

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all non-proxy female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.

*** p<0.01, ** p<0.05, * p<0.1.

TABLE A23: Impact of unemployment status on intimate partner violence, first stage results for instrumental variables

Variable	First Stage Results
Female Employed, Male Unemployed	0.0006
Female Unemployed, Male Employed	0.0005
Female Unemployed, Male Employed	0.0000

Notes: This table includes first stage results with instrumental variables. The instruments are as follows. The female age and region specific employment rate as an instrument for female employed and male unemployed. The male age and region specific employment rate as an instrument for female unemployed and male employed. Lastly, the overall age and region specific employment rate as an instrument for female unemployed and male unemployed. These first stage partial r^2 results indicate that all three instruments are weak.

TABLE A24: Impact of household unemployment on victimization, interaction effects				
	Crime Victimization 1A	Family Violence 1B	Repeat Family Violence 1C	Family Violence Co-Occurrence 1D
Unemployment * Female	-2.13***	0.93***	5.56	-5.48
	(0.60)	(0.10)	(38.11)	(8.71)
Unemployment * Age	6.83***	1.74***	36.19	24.66
	(1.34)	(0.29)	(63.44)	(19.44)
Unemployment * Income	-0.04	-0.04***	-1.74	0.25
	(0.05)	(0.01)	(2.23)	(0.58)
Unemployment * High Education	-0.00***	-0.00***	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Household Unemployment	10.25***	3.30***	150.84	-2.73
	(2.95)	(0.69)	(109.61)	(23.65)
Female	-2.13***	0.93***	5.56	-5.48
	(0.60)	(0.10)	(38.11)	(8.71)
Age	-0.57***	-0.03***	2.29	-0.67
	(0.03)	(0.01)	(1.64)	(0.43)
Non-Hispanic Black	3.14***	-0.50***	7.08	10.03
	(0.87)	(0.18)	(39.27)	(13.27)
Non-Hispanic Asian	-18.46***	-1.24***	40.40	37.30
	(0.96)	(0.13)	(124.55)	(49.35)
Non-Hispanic Other	25.08***	2.13***	32.40	-4.08
	(2.48)	(0.58)	(61.93)	(18.25)
Hispanic	-2.51***	-1.14***	-23.12	10.24
	(0.80)	(0.15)	(41.01)	(17.16)
Less Than High School	0.39	-0.16	-41.89	11.94
	(0.85)	(0.18)	(39.15)	(13.56)
Some College	9.14***	0.50***	59.90	15.72
	(0.82)	(0.17)	(40.29)	(10.00)
Associate	7.68***	0.39*	91.15*	-3.04
	(1.04)	(0.21)	(53.56)	(10.54)
Bachelor’s	2.37***	-0.33**	36.02	16.37
	(0.76)	(0.14)	(48.58)	(15.00)
Advanced Degree	9.13***	-0.27*	138.16	4.76
	(0.97)	(0.15)	(97.84)	(19.46)
Married	-11.56***	-0.91***	-25.11	14.81
	(0.72)	(0.14)	(39.21)	(14.26)
Widow	9.00***	-0.28	38.56	-7.39
	(2.09)	(0.39)	(107.08)	(16.65)
Divorced	15.63***	1.82***	-42.85	0.52

Table A24 (continued)

	(1.10)	(0.25)	(37.08)	(9.44)
Separated	27.94***	9.82***	32.03	13.48
	(2.13)	(0.80)	(38.98)	(13.15)
Midwest	4.76***	0.23	-29.43	-15.26
	(0.71)	(0.15)	(42.97)	(13.47)
South	4.80***	-0.12	-45.28	-20.76
	(0.65)	(0.13)	(42.23)	(14.33)
West	17.83***	0.22	5.42	-3.54
	(0.77)	(0.15)	(44.98)	(17.58)
Income	-0.00***	-0.00***	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Income Missing	-7.21***	-0.28***	54.52*	5.85
	(0.51)	(0.10)	(31.71)	(8.81)
Number in Household	-0.93***	-0.10**	36.27***	-5.28*
	(0.22)	(0.05)	(10.52)	(2.74)
Child Under 12 in Household	8.36***	1.34***	12.79	12.02
	(0.70)	(0.16)	(33.39)	(10.00)
Constant	35.20***	1.88***	-307.29***	5.40
	(1.72)	(0.35)	(105.83)	(28.00)
Observations	877,481	877,481	1,533	1,533
R-squared	0.01	0.00	0.11	0.08
Dependent Variable Mean	45.19	1.75	265.49	17.61

Notes: The table contains results from OLS regressions with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set in columns 1A and 1B includes all NCVS respondent. The sample set in columns 1C and 1D include all NCVS respondents who reported family violence victimization. Each regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable in column 1A identifies respondents who reported any crime. The dependent variable in column 1B identifies respondents who reported a family incident. The dependent variable in column 1C identifies repeat family violence. The dependent variable in model 1D identifies family violence co-occurrence. Household unemployment identifies the percent of unemployed adults aged 18-64 in a household during one interview. The interaction variables multiply household unemployment with female, age, income, and high education. High education identifies respondents with more than a high school diploma. Reference categories are as follows: sex- male, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A25: Impact of unemployment status on intimate partner violence, interaction effects					
Female Employed, Male Unemployed* Age	-0.01	Age	-0.03***	Married	-0.61***
	(0.02)		(0.01)		(0.22)
Respondent Unemployed, Partner Employed * Age	-0.01	Non-Hispanic Black	-0.21	Widow	-0.61***
	(0.01)		(0.21)		(0.22)
Respondent Unemployed, Partner Unemployed * Age	-0.03	Non-Hispanic Asian	-0.53***	Divorced	2.22***
	(0.02)		(0.11)		(0.51)
Female Employed, Male Unemployed* Income	-0.00	Non-Hispanic Other	0.96	Separated	8.65***
	(0.00)		(0.68)		(1.84)
Respondent Unemployed, Partner Employed * Income	0.00	Hispanic	-0.39**	Midwest	0.14
	(0.00)		(0.18)		(0.14)
Respondent Unemployed, Partner Unemployed * Income	0.00	Less Than High School	0.05	South	0.08
	(0.00)		(0.23)		(0.13)
Female Employed, Male Unemployed* High Education	1.20***	Some College	-0.08	West	0.21
	(0.37)		(0.19)		(0.16)
Respondent Unemployed, Partner Employed * High Education	0.14	Associate	-0.42**	Income	-0.00
	(0.25)		(0.18)		(0.00)
Respondent Unemployed, Partner Unemployed * High Education	-0.13	Bachelor's	-0.36**	Income Missing	0.08
	(0.43)		(0.16)		(0.13)
Female Employed, Male Unemployed	0.44	Advanced Degree	-0.45***	Number in Household	0.07
	(1.08)		(0.14)		(0.06)
Female Unemployed, Male Employed	-0.16			Child Under 12	0.11
	(0.69)				(0.15)
Female Unemployed, Male Unemployed	1.88*			Constant	1.59***
	(1.10)				(0.50)
				Observations	280,301
				R-squared	0.00
				Dependent Variable Mean	0.62

Table A25 (continued)

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. Partner employment categories identify respondent and partner employment status at the time of the interview. The interaction variables multiply each partner employment combination with age, income, and high education High education identifies respondents with more than a high school diploma Reference categories are as follows: partner employment combination – partners employed, race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.

TABLE A26: Impact of unemployment rate on intimate partner violence, interaction effects					
Female Unemployment Rate*Age	-0.01	Age	-0.02	Married	-0.69***
	(0.01)		(0.02)		(0.19)
Male Unemployment Rate*Age	0.00	Non-Hispanic Black	-0.18	Widow	-0.80
	(0.01)		(0.22)		(0.79)
Female Unemployment Rate*Income	-0.00	Non-Hispanic Asian	-0.61**	Divorced	3.05***
	(0.00)		(0.28)		(0.31)
Male Unemployment Rate*Income	0.00	Non-Hispanic Other	1.15**	Separated	10.02***
	(0.00)		(0.46)		(0.57)
Female Unemployment Rate*High Education	0.02	Hispanic	-0.51***	Midwest	0.16
	(0.16)		(0.18)		(0.19)
Male Unemployment Rate*High Education	-0.08	Less Than High School	0.17	South	0.13
	(0.11)		(0.22)		(0.18)
Female Unemployment Rate	0.26	Some College	0.58	West	0.29
	(0.30)		(0.37)		(0.20)
Male Unemployment Rate	-0.03	Associate	0.15	Income	0.00
	(0.21)		(0.38)		(0.00)
		Bachelor's	0.22	Income Missing	0.10
			(0.36)		(0.14)
		Advanced Degree	0.10	Number in Household	0.12**
			(0.38)		(0.06)
				Child Under 12	0.13
					(0.16)
				Constant	1.03
					(0.82)
				Observations	280,301
				R-squared	0.00
				Dependent Variable Mean	0.62

Notes: The table contains results from an OLS regression with time fixed effects. Robust standard errors clustered at the individual level are in parenthesis. The sample set includes all female respondents in relationships aged 18-64. The regression multiplies the value of the dependent variable by 1,000 to account for low levels of reporting. The dependent variable is intimate partner violence. The female and male unemployment rates identify the gender region and age specific unemployment rates for respondents and their partners for the six months leading up to the interview. The interaction variables multiply the male and female unemployment rate with age, income, and high education. High education identifies respondents with more than a high school diploma. Reference categories are as follows: race/ethnicity – Non Hispanic White, highest level of education – high school graduate, marital status – never married, region - Northeast. Income identifies the midpoint of a respondent's household income category. Income Missing is binary. A value of 1 identifies respondents missing income and a value of 0 identifies respondents with a value for income. Respondents missing income received a value equal to

Table A26 (continued)
the midpoint of the mean household income category. Child under 12 is binary and indicates the presence or absence of children under 12 in the home.
*** p<0.01, ** p<0.05, * p<0.1.