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# Firearms and fisticuffs: Region, race, and adversary effects on homicide and assault

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## ABSTRACT

Analyses of the National Crime Victimization Survey and Supplemental Homicide Reports show that southern whites are much more likely than northern whites to be victims of gun homicides and assaults, but not other homicides and assaults. While blacks are more likely than whites to be victims of gun assaults (regardless of region), they have lower risks of assault victimization by unarmed offenders. The patterns are inconsistent with the subculture of violence thesis. In addition, incident analyses reveal that patterns of weapon use primarily reflect the race of the victim not the offender. Our results point to the importance of adversary effects: Offenders avoid assaulting blacks and southern whites unless they have guns because members of these groups are perceived as a greater threat. We suggest that the prevalence of armed assault in a community may lower the likelihood of unarmed assaults, and that honor culture explanations may be salvageable.

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## 1. Introduction

It is well-known that the southern states of the United States have higher homicide rates than the northern states (e.g., Redfield, 1880; Fox and Zawitz, 2004; Nisbett et al., 1995; Parker and Pruitt, 2000; Ouimet, 1993; O'Carroll and Mercy, 1989). For example, from 1976 to 2002, the homicide rate in the South was 10.24 per 100,000 residents, compared to 8.32 in the West and 6.60 in the North (Bureau of Justice Statistics, 2005a). Other research shows that these regional differences are only observed among whites (Parker and Pruitt, 2000; Nelsen et al., 1994). In fact, O'Carroll and Mercy (1989) found that blacks in the South actually have lower homicide rates than blacks in other regions. On the other hand, both arrest data and victimization surveys suggest that African-Americans have higher rates of violent crime than White Americans (e.g., Bureau of Justice Statistics, 2005b; Hawkins et al., 2000; see also Sampson and Lauritsen, 1994).<sup>1</sup>

Higher homicide rates among southern whites have often been attributed to a southern subculture of violence (e.g., Gastil, 1971; Hackney, 1969; Nisbett and Cohen, 1996; Reed, 1971). According to this perspective, southern whites have an honor culture where violent retaliation is normative behavior when there is adequate provocation. In honor cultures, men are expected to defend themselves when threatened and to respond to verbal provocation with aggression. Honor cultures, however, may affect women as well. Nisbett and Cohen (1996) cite data showing that southern women are more likely than northern women to engage in homicide, particularly those stemming from disputes.

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<sup>1</sup> Higher homicide rates in the South are due, to some extent, to higher levels of poverty and greater numbers of African-Americans in that region (Loftin and Hill, 1974; Parker, 1989; Parker and Pruitt, 2000; Smith and Parker, 1980; McCall et al., 1992).

There is substantial evidence that southerners have more favorable attitudes toward defensive or retaliatory forms of violence than northerners (Cohen and Nisbett, 1994; Dixon and Lizotte, 1987; Ellison, 1991). Experimental research on college students has shown that southern men react more strongly to an insult than northern men on behavioral, attitudinal, and even biological measures (Cohen et al., 1996). For example, southerners were more likely to behave aggressively in a game of “chicken”, and when provoked, they were more upset (as indicated by a rise in cortisol levels), more prepared for aggression (as indicated by a rise in testosterone levels), and displayed more dominance behavior (they gave firmer handshakes).<sup>2</sup> Cohen (1996) has shown that southern laws are more permissive toward the use of violence for self-defense and defense of home and property. Finally, Rice and Goldman (1994) found that homicides in the South are more likely to result from arguments than homicides in the North.

Violence among African-Americans has received less attention. While race differences can ultimately be attributed to racism and the historic oppression of African-Americans (e.g., Hawkins, 1995; McCord, 1997; Sampson and Wilson, 1995), it is also important to examine more proximate causal factors. Some discussions emphasize an honor subculture (e.g., Wolfgang and Ferracuti, 1967), while others place more emphasis on disorganized neighborhoods and other circumstances faced by African-Americans (e.g., Sampson and Wilson, 1995; Anderson, 1999). The evidence as to whether there are race differences in attitudes toward violence is more mixed than it is for region (e.g., Blumenthal, 1972; Cao et al., 1997; Erlanger, 1974; Markowitz and Felson, 1998; Rossi et al., 1974). In addition, race differences in violence have been observed at colleges and prisons where blacks and whites are living in similar circumstances (e.g., Harer and Steffensmeier, 1996; Volkwein et al., 1995).

In this research we use data from the National Crime Victimization Survey (NCVS) and from Supplemental Homicide Reports (SHR) to examine regional and race differences in homicide and assault. We use individual level data to examine whether regional and race differences primarily involve firearm offenses. We use incident level data to examine whether regional and race differences reflect what we refer to as “adversary effects”. Adversary effects imply that the characteristics of victims rather than offenders affect the offender’s choice of weapon and other behavior. We suggest that adversary effects explain why some groups have higher rates of armed assault but not unarmed assault. We begin by reviewing research on regional and race differences in assault and gun carrying.

## 2. Firearms and violence

Most research on regional differences (described above) focuses on homicide rates. Regional patterns are different for assault. While southerners have higher rates of aggravated assault, they do not have higher rates of simple assault (McCall et al., 1992).<sup>3</sup> Erlanger (1976) reported national data showing that Southerners have lower rates of fist fighting in conflict situations than northerners. More recent analyses of the National Crime Victimization Survey (1996–2001) show that the rate of simple assault in southern states is lower than the rate in midwestern states and about the same as the rate in northern states (Bureau of Justice Statistics, 2005b). The western states have the highest rate of simple assault.

We suggest that regional differences in gun use can account for the patterns observed: southern and western whites are more likely to use firearms than northern whites. The prevalence of guns may explain why there are regional and race differences in homicide and aggravated assault but not assault generally; about 1/3 of aggravated assaults involve guns while simple assaults never involve guns (Bureau of Justice Statistics, 2005b). It may also explain why southerners are more likely than northerners to use guns during robberies and assaults (see Baumer et al., 2003).

Recent work on regional differences in weapon carrying supports this perspective (Felson and Paré, 2010). We found that southern and western whites were much more likely than northern whites to carry guns for self-protection, while we did not observe this regional variation among African-Americans. The statistical interaction between region and race was particularly strong for women. On the other hand, regional differences in carrying knives and mace were weaker or nonexistent. Kleck and Gertz (1995) also found that southerners and westerners were much more likely than northerners to carry guns for protection, although they did not examine whether regional effects differed by race (see also McAnney, 1993; Bankston et al., 1990). Most research on owning weapons for protection also shows regional differences consistent with our perspective (Cohen and Nisbett, 1994; Weil and Hemenway, 1992; McAnney, 1993; Smith and Uchida, 1988).

The regional differences we found were no weaker when we controlled for concern for safety, victimization, and county indicators of violent crime rates and demographic factors. This finding suggested that regional variation reflects the effect of gun subcultures rather than current threat. Southern and western whites include guns as part of their “tool kit” for handling potential adversaries (Swidler, 1986). Perhaps their tendency to use guns developed because of their membership in honor cultures, since guns are the most effective tool available. However, the failure to find much regional variation in carrying other weapons did not support the idea of an existing honor culture.

Guns may also play an important role in accounting for race differences. While blacks have higher homicide and aggravated assault victimization rates than whites, they have slightly lower rates of simple assault victimization (e.g., Rennison, 2001). In addition, their offending rates are much higher for homicide and aggravated assault but only somewhat higher for simple assault (Bureau of Justice Statistics, 2005b). Any explanation of race and regional effects must take into account evidence that these

<sup>2</sup> On the other hand, regional differences in attitudes toward general violence are not observed (e.g., Dixon and Lizotte, 1987).

<sup>3</sup> These studies do not find effects for rape or robbery, which supports the idea that the subculture of violence is concerned with retaliatory violence.

effects are mainly observed for lethal violence and aggravated assaults, not simple assaults. Since simple assaults are *much* more frequent than aggravated assault and homicide, that evidence casts doubt on the honor subculture thesis.

Research on race differences in weapon carrying also points to the importance of guns. Kleck and Gertz (1995) found that blacks were more likely to carry guns than whites.<sup>4</sup> Felson and Paré (forthcoming) found that black women were much more likely to carry guns than white women. They were also more likely to carry knives but the effect was weaker. These race differences were just as strong when concerns for safety and other measures of threat were controlled. The results supported the idea of both a gun culture and an honor culture. For men, on the other hand, the results were different. While black men were more likely than white men to carry guns (but not knives), the race difference disappeared when threat was controlled. The results suggested that gun carrying among black men is a tactical response to current circumstances.

### 3. Adversary effects

Subcultural arguments emphasize the effects of third parties (e.g., Wolfgang and Ferracuti, 1967; Cooney, 1998). Actors learn attitudes favorable to crime from others or comply because they are concerned about audience opinion (Felson et al., 1994). In the case of violence, however, adversaries may have a greater impact than third parties. Violent situations, unlike other criminal events, involve personal confrontation. People are likely to have strong concerns about the reaction of their adversaries since the consequences of an attack are potentially catastrophic (Tedeschi and Felson, 1994). Their concerns are likely to be particularly strong if they live in communities where guns are prevalent and retaliation is likely. One response to this precarious situation is for people to arm themselves or to otherwise adopt an aggressive posture.

This type of adversary effect plays a prominent role in Anderson's (1999) description of the code of the streets in African-American neighborhoods. He argues that blacks in inner city communities adopt an aggressive posture, in part, to avoid victimization. Even youth who are not otherwise prone to use violence—the “decent kids”—follow the code of the streets. Some youth may use firearms for protection (see also, Nielsen et al., 2005). Note that they are responding to circumstances, not internalized attitudes toward violence. Their behavior is adaptive and tactical although it may reflect the indirect effects of subculture. Membership in a subculture is not necessary for this type of social influence to occur; the only requirement is spatial proximity to potentially dangerous adversaries.

Because of adversary effects, one would expect that violent offenders are more likely to use guns when they think that their potential victims are likely to be armed and prone to retaliation. A common reason offenders give for carrying guns is the possibility that the victim is armed (Wright and Rossi, 1986). The victim's demographic characteristics are likely to affect this perception. Thus, Felson and Messner (1996) found that offenders were more likely to use a gun during a violent offense when the victim was a male or a black, controlling for their own gender and race (see also, Baumer et al., 2003). Adversary effects might lead to regional differences in weapon use as well: those who assault southern and western whites should be more likely to use guns. Regional and race difference should be observed for women as well as men since the adversaries of women are usually men.

Adversary effects are likely to produce *contagion*, i.e., to cause violence to spread in a community or for rates to increase over time. Violent crime may be more contagious than non-violent crime because it involves adversary effects as well as the effects of third parties. In addition, the tendency for individuals to arm themselves with guns may lead to an “arms race”. Thus, Griffiths and Chavez (2004) find a diffusion of gun homicides from the most violent neighborhoods to adjacent neighborhoods in Chicago. This diffusion was not observed for homicides that involved other weapons or no weapon. An arms race may have developed in African-American neighborhoods where individuals carry guns to protect themselves from others who are armed (see Blumstein, 1995). Thus, Deane et al. (2005) found that race difference in violence among youth was particularly strong for armed violence.

Adversary effects are likely to be important in any type of competitive relationship. For example, Burt (1987) found that doctors are more likely to adopt a medical innovation in response to its adoption by competitors than in response to the influence of their associates. Apparently, the costs of not keeping up with competitors were greater than the costs of non-conformity with peers.

### 4. The current research

In our first set of analyses, we examine individual differences in the risk of assault by an offender with a firearm, some other weapon, or no weapon. If regional differences among whites reflect the use of guns, then we should observe stronger regional differences among whites in the prevalence of assaults involving firearms but not in the prevalence of assaults with other weapons or unarmed assaults. In other words, we should observe a statistical interaction between race and region for assaults with firearms only. If southern and western whites are prone to violence because of honor subcultures or some other factor then we should find a region–race interaction in the risk of all three types of assaults. Similarly, a gun explanation implies race differences in the risk of assaults by firearms but not other types of assault victimization. A race difference in all types of assault victimization, on the other hand, is consistent with explanations that emphasize neighborhood or cultural differences.

<sup>4</sup> Results from studies of youth do not show consistent race difference in gun carrying (Sheley and Wright, 1995; Lizotte et al., 2000).

In our second analysis we examine the role of adversary effects in explaining regional and race patterns for those who have been assaulted. In an incident analysis we attempt to disentangle the effects of the race of the victim and the offender on whether the offender used a gun or some other weapon during the assault. Regional differences may be due to a tendency for southern and western white offenders to use guns or they may be due to a tendency for offenders who assault southern and western whites to use guns, i.e., an adversary effect. The same argument applies to race differences. Black offenders may be more likely than white offenders to use guns during an assault or offenders of both races may use guns when they assault blacks.

We perform similar analyses of SHR data. In our homicide rate analyses, we examine regional and race differences in homicides committed with guns, other weapons, and no weapon. If guns are playing a key role then we should find strong differences in homicides involving firearms but not much difference in homicides that do not involve firearms. That is, we should find that southern and western whites have much higher rates of gun homicide than northern whites, while the regional difference for non-gun homicides should be weaker. Blacks should have higher rates of gun homicide than whites, while the race difference for non-gun homicides should be weaker. In our incident analyses, we will examine whether it is the race of the offender or victim that affects the use of a gun during a homicide. Effects of race of victim point to adversary effects.

## 5. Assault analyses

The NCVS is based on a nationally representative sample of households in the United States. It is the largest data source on victimization in the US, and includes information about characteristics of victims and non-victims for samples of respondents 12 years and older. We base our analysis on data from 1996, the first year region of residence was systematically recorded, to the first half of 2004, the latest data available at the time of our analysis. We omitted respondents under 18 years of age. We randomly selected 10% of the respondents who did not report a physical assault to reduce the sample to a manageable size. We included all respondents who reported a physical assault. Our final sample includes 150,310 respondents, approximately 10% of whom experienced an assault.

### 5.1. Measurement

Our dependent variable is a measure of victimization for physical assault (and threat of physical assault) during the 6 months prior to the survey. The measure includes a variety of behaviors such as hitting, punching, assaulting with weapons, and threats of violence with or without a weapon present. We excluded incidents of sexual assault, robbery, or burglary. Survey responses were used to create a four-category variable for types of assault victimization: (1) assault with firearm; (2) assault with other weapon; (3) unarmed assault; (4) no assault victimization (the reference category). If multiple weapons were reported, we coded the incident based on the most lethal type of weapon used. We considered firearms more lethal than other weapons and other weapons more lethal than unarmed assaults. In the incident analysis, we use the same coding but omitted cases with no victimization and treated unarmed assault as the reference category.

The main independent variables are region, gender, and race. Region is coded as either the South, the West, or the North (the reference category).<sup>5</sup> Race/ethnicity is coded as either Black, Hispanic, other/unknown race (e.g., mixed race, Asian, Native American, Pacific Islander, etc.), or White (the reference category). In the incident analysis, we also include the gender and the race of the offender(s). We coded multiple offenders as “male” if at least one of them was a male, while we coded multiple offenders of different races as “other/unknown race”.

Control variables include respondent's age, level of education, and household annual income and the size of the community. Level of education is coded as less than high school graduate (the reference category), high school graduate (including those with some college education but less than a Bachelor degree), college graduate, or unknown education. Household annual income is coded as either low income (less than \$20,000, the reference category), medium income (\$20,000–49,999), high income (\$50,000 or more), or unknown income. Community size was coded as small (under 100,000 residents), medium (100,000–999,999 residents), large (1,000,000 or more residents, the reference category), or unknown size/not a community. In order to preserve sample size, we handle missing data on explanatory variables by including missing data dummy variables.

### 5.2. Analytic strategy

We estimated our equations using multinomial logistic regression. Because respondents can report multiple incidents during an interview, we use Stata's “cluster” adjustment to correct for dependence of observations. To examine statistical interactions, we entered multiplicative terms one at a time in the initial equations. We present only our final models, which include statistically significant interactions.

<sup>5</sup> States included in each region are presented in the Appendix. We observed similar effects for the northeastern states and the midwestern states so we combine them.



### 5.3. Results of victimization analysis

In Table 1, we present descriptive information for the variables used in the analyses of the NCVS. Unarmed assault is the most common type of physical assault, while physical assault with a firearm is the rarest. Approximately 10% of assaults involve a firearm and an additional 16% involve some other weapon. In Table 2, we present results from our multinomial logistic regression analysis for risk of different types of assault victimization (vs. no victimization). We present the results for men and women combined, since preliminary analyses showed that the effects were similar. We also display the differences between groups in Fig. 1.

For gun assaults, the results reveal the predicted statistical interaction involving southern region and race. Southern whites are more likely than northern whites to be the victim of a gun assault. We do not observe a statistically significant interaction between southern region and race for other weapons and unarmed assault. The evidence suggests that southern whites are not at greater risk of these assaults. In addition, the interaction term for gun assaults was significantly larger than the interaction terms for other weapons ( $z = 2.48$ ;  $p < .05$ ) and unarmed assault ( $z = 3.46$ ;  $p < .01$ ); (see Brame et al., 1998). We do observe a main effect of southern residence on unarmed assault, but it is not in the direction of greater southern violence. Southerners are slightly less likely than northerners to be victims of unarmed assaults.

We also observe significant West by race interaction for gun assaults. Western whites are more likely than northern whites to be the victim of a gun assault. However, western whites are also more likely to be the victim of unarmed assault than northern whites. The interaction is not as strong as the interaction for guns, but the difference between the two interaction terms is not statistically significant ( $z = 1.68$ ;  $p > .05$ ). The difference between the gun assault interaction term and the other weapon assault interaction term is significant, however ( $z = 2.08$ ;  $p < .05$ ). This evidence suggests that the main difference between western and northern whites is in gun assaults.

The evidence also suggests that offenders are reluctant to assault African-Americans without adequate weaponry. Blacks (the reference category) are much more likely to be the victim of gun assaults than whites but are less likely to be the victim of unarmed assaults. We also observe evidence of a reluctance to assault male victims without adequate weaponry. While

**Table 1**

Descriptive statistics for the NCVS data ( $N = 150,310$ ).<sup>a</sup>

	%
<i>Assault victimization</i>	
Gun	1.0
Other weapon	1.6
Unarmed	7.6
No victimization	89.8
<i>Victim characteristics</i>	
North	42.9
South	34.3
West	22.8
White	73.4
Black	10.6
Hispanic	10.3
Other/unknown race	5.7
Male	47.5
Female	52.5
Low income	19.0
Medium income	31.5
High income	30.7
Unknown income	18.8
Age (mean)	44.7
Less than high school education	15.8
High school education	57.3
College education	24.3
Unknown education	2.6
Small community	45.3
Medium community	19.3
Large community	8.0
Unknown/not a community	27.4
<i>Offender characteristics<sup>b</sup></i>	
Male offender	82.7
Female offender	14.7
Unknown offender gender	2.6
White offender	60.3
Black offender	22.3
Other/unknown offender race	17.4

<sup>a</sup> Based on a sample that includes approximately 10% of the respondents who did not report an assault.

<sup>b</sup> Available only for the incident sample ( $N = 15,285$ ).

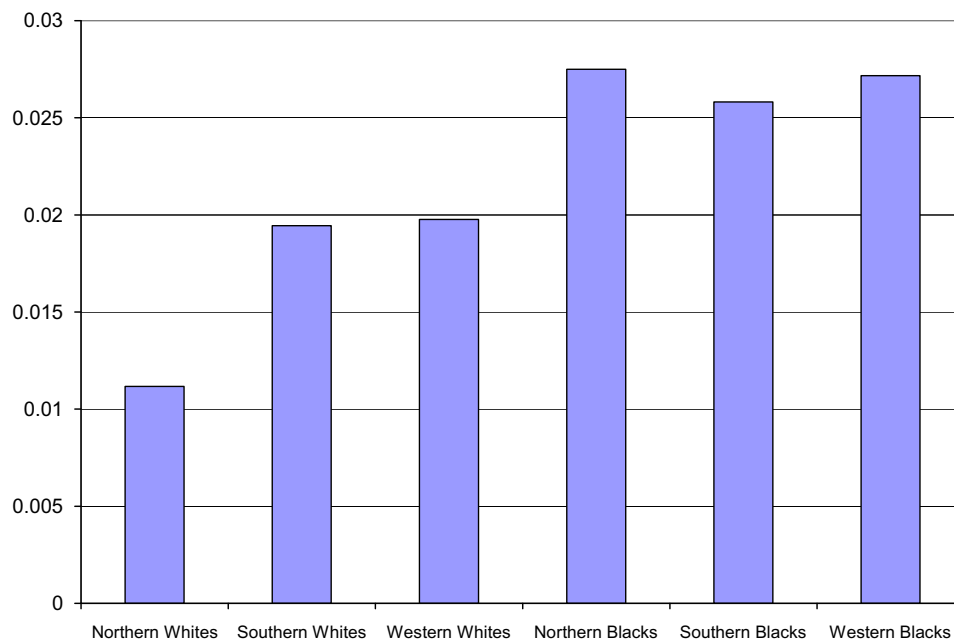
**Table 2**  
Multinomial logistic regression coefficients for assault victimization (vs. no victimization).<sup>a</sup>

	Firearm	Other weapon	Unarmed
South	-.078 (.107)	-.064 (.102)	-.174** (.056)
West	-.013 (.120)	-.110 (.108)	-.043 (.059)
White	-.907** (.111)	-.064 (.099)	.243** (.053)
Hispanic	-.747** (.103)	-.487** (.100)	-.227** (.055)
Male	.720** (.057)	.648** (.045)	.111** (.022)
Medium income	-.547** (.070)	-.592** (.055)	-.411** (.035)
High income	-.810** (.085)	-.873** (.065)	-.693** (.034)
Age	-.046** (.002)	-.047** (.001)	-.042** (.001)
High school education	-.131 (.074)	-.129* (.059)	.081* (.034)
College education	-.436** (.100)	-.364** (.078)	.041 (.041)
Small community	-.756** (.093)	-.263** (.011)	-.093* (.043)
Medium community	-.134 (.093)	-.009 (.082)	.094* (.044)
South × White	.638** (.135)	.194 (.118)	.121 (.064)
West × White	.632** (.152)	.221 (.126)	.352** (.068)
Intercept	-1.33** (.133)	-1.52** (.180)	-.470** (.070)

<sup>a</sup> Standard errors are in parentheses; coefficients for other/unknown race, unknown income, and unknown community size were included in the equation but are not presented. *N* = 150,310.

\* *p* < .05.

\*\* *p* < .01.



**Fig. 1.** Predicted probabilities of physical assault victimization with a gun. Predicted probabilities are calculated from the multinomial logistic equation in Table 2 using the following formula:  $p = (\exp[g_1(x)]) / (1 + \exp[g_1(x)] + \exp[g_2(x)] + \exp[g_3(x)])$ . Estimates are calculated assuming male respondents with the mean age, the medium income category, high school education, living in a community with 100,000 to 999,999 residents.

men are much more likely than women to be victims of assault by offenders armed with guns and other weapons, they are only slightly more likely to be victims of unarmed assault.

Finally, there are a few other significant effects that we mention in passing. Respondents living in smaller communities are less likely to be the victim of all types of assaults; the relationship is particularly strong for assaults with a firearm.<sup>6</sup> Younger respondents and respondents with low income are at greater risk of assault, particularly armed assault. Respondents with college education have lower risks of victimization with a gun or other weapon, but they are at no greater risk of unarmed assault.

<sup>6</sup> Nisbett et al. (1995) have argued that cultural traditions are most likely to be preserved in small towns and rural areas. They have shown that regional differences in homicide rates are greater in small towns and rural counties than in larger cities. In analyses not presented, we examined whether regional differences are stronger in rural areas than urban areas. We did not find support for this hypothesis.

**Table 3**Multinomial logistic regression coefficients for weapon type during an assault (vs. unarmed assault).<sup>a</sup>

	Firearm	Other weapon
<i>Victim characteristics</i>		
South	.197 (.119)	.155 (.112)
West	.072 (.133)	.166 (.118)
White	-.814* (.124)	-.188 (.108)
Male	.456* (.063)	.560* (.049)
South × White	.405* (.147)	.030 (.129)
West × White	.227 (.165)	-.152 (.137)
<i>Offender characteristics</i>		
Male	1.96* (.180)	.008 (.068)
White	-.687* (.079)	-.200* (.062)
Intercept	-2.58* (.221)	-1.07* (.148)

<sup>a</sup> Standard errors are in parentheses; control variables for education level, income level, community size, other/unknown race, unknown offender gender, other/unknown offender race, unknown income, and unknown community size were included in the equation but are not presented. *N* = 15,285.

\* *p* < .01.

#### 5.4. Results of incident analysis

In Table 3 we analyze the NCVS data for those respondents who have experienced an assault. This analysis enables us to determine whether regional and race difference are due to the effect of the race of the offender or the victim. The latter suggests adversary effects. Again, preliminary analyses revealed that most of the effects were similar for male and female victims so we combine the samples. Combining samples also allows us to examine whether gender effects are a function of the gender of the offender or the victim.

The results in Table 3 are based on a multinomial logistic regression analysis where the dependent variable reflects whether the respondent experienced a gun assault, an assault with some other weapon, or an unarmed assault (the reference category). We first examined statistical interactions between region and race of the offender (not presented). None of them approached significance indicating that southern and western white offenders were not particularly likely to use a weapon. We then examined statistical interactions between region and the race of the victim. We found a significant interaction for southern region by white victim on gun assault and we include it in the final model. Offenders who assault southern whites are more likely to use a gun than offenders who assault northern whites, controlling for the offender's own race. The results suggest an adversary effect. On the other hand, we did not observe any regional-race interactions for assault with other weapons. In addition, we do not observe the predicted interaction for western whites, although it is in the predicted direction. This pattern is consistent with the victimization analysis which revealed a similar interaction for gun assault and unarmed assault.

We find strong evidence of adversary effects when we examine the effects of race and gender. We observe a main effect of the race of the victim: offenders are more likely to use a firearm when assaulting a black victim than a white victim, controlling for the offender's race. Offenders are also more likely to use guns and other weapons when they assault men. We also find that the race and gender of offenders affects weapon use. Black offenders are more likely to use guns and other weapons than white offenders. Finally, male offenders are much more likely than female offenders to use guns.

## 6. Homicide analyses

The analyses of Supplementary Homicide Reports (SHR) are based on data obtained from 1976 to 2002 (see Fox, 2001). SHR are produced by the FBI based on all homicides known to the police in the US. SHR are available at the incident level. In the current analysis we use the victim files (e.g., each homicide victim counts as an incident). Because of our interest in dispute-related homicides, we focus on cases where the circumstances of the homicide involve either "Lovers triangle", "Brawl under alcohol", "Brawl under drugs", "Argument over money", or "Other arguments". Independent variables were coded similarly to the NCVS analysis presented before.

The results are presented in Table 4. When examining regional effects, it is useful to compare white on white homicides across regions, since they are not affected by race differences. The results show that the gun homicide rate is much higher for southern whites than northern whites, but that regional differences are only slightly higher for homicides not involving guns. The rates of gun homicides are almost three times higher in the South than in the North. The rate for homicides involving other weapons is 1.5 times higher in the South than in the North. The rate of unarmed homicide is about the same in both regions. The results show that the difference between southern and northern whites primarily involves gun homicides.

Western whites have higher homicide rates than northern whites, regardless of weapon. However, regional differences are strongest for gun homicides. The rates of gun homicides are about three times higher in the West than in the North while the rates for other homicides are only about twice as high.

The table also shows extremely high rates of black on black homicide. In the North, the rate of black on black gun homicides is about 13 times higher than white on white homicides. It is about 5 times higher in the South and the West. The race



**Table 4**Dispute-related homicide rates per 1,000,000 by region, race, and weapon type.<sup>a</sup>

Offender's race	Victim's race	Weapon	North	South	West
White	White	Firearm	9.52	28.15	27.42
White	White	Other weapon	5.09	7.67	12.62
White	White	Unarmed	1.40	1.64	2.64
White	White	Firearm/unarmed Ratio	6.80	17.16	10.39
White	Black	Firearm	3.31	2.78	8.22
White	Black	Other weapon	1.77	0.94	4.80
White	Black	Unarmed	0.23	0.10	0.38
White	Black	Firearm/unarmed Ratio	14.39	27.80	21.63
Black	Black	Firearm	124.55	143.50	140.80
Black	Black	Other weapon	68.28	51.63	64.00
Black	Black	Unarmed	8.30	4.56	8.50
Black	Black	Firearm/unarmed Ratio	15.01	31.47	16.56
Black	White	Firearm	4.59	4.40	13.49
Black	White	Other weapon	3.41	1.79	8.05
Black	White	Unarmed	0.86	0.36	2.18
Black	White	Firearm/unarmed Ratio	5.34	12.22	6.19

<sup>a</sup> Calculation based on the method of harmonic mean (Schoen, 1988).

differences are just as strong for homicides involving other weapons, suggesting that race differences cannot be attributed to guns. Race differences in unarmed homicide are weaker, however.

The results for our incident analyses were different for male and female victims so we present them separately (see Table 5). For male victims, the results show a statistical interaction between region and race: those who kill southern men, particularly white southern men are more likely to use a gun than to use no weapon. The statistical interaction for other weapon is close to zero and non-significant. The difference between the two interaction terms is statistically significant ( $z = 2.84$ ;  $p < .01$ ). We do observe a main effect of southern region on the use of other weapons: those who kill southern men (regardless of race) are more likely to use other weapons than engage in unarmed homicide. However, the effect is significantly weaker than the main effect of southern region on firearm homicides ( $z = 4.91$ ;  $p < .01$ ).

We find no evidence of an interaction between southern region and race of the offender, so we left it out of the equation in Table 5. The results support the idea that the impact of region and race reflect the effects of adversaries on the use of weapons, particularly firearms.

In regard to westerners (vs. northerners), we observe region–race interactions for male victims. Offenders are particularly likely to kill western white men with guns and other weapons. Western white offenders are also particularly likely to use guns and other weapons. The evidence suggests that the tendency for western homicide to involve weapons is due to both adversary effects and the tendency for western white offenders to use weapons. Regional differences are not restricted to firearms.

Race differences are due entirely to adversary effects. Black offenders are no more likely to use guns or other weapons. On the other hand, offenders are much more likely to use guns when they kill black men than when they kill white men. They are also more likely to use other weapons, but the effect is weaker.

**Table 5**Multinomial logistic regression coefficients for weapon type used during dispute-related homicide (vs. unarmed homicide)<sup>a</sup>.

	Male victim		Female victim	
	Firearm	Other weapon	Firearm	Other weapon
<i>Victim characteristics</i>				
South	.833** (.054)	.458** (.054)	.706** (.043)	-.012 (.046)
West	-.044 (.067)	-.176* (.069)	.320** (.051)	.076 (.053)
White	-1.01** (.064)	-.661** (.065)	-.402** (.080)	-.243** (.082)
South × White	.242** (.070)	-.044 (.072)	—	—
West × White	.233* (.101)	.277** (.104)	—	—
<i>Offender characteristics</i>				
Male offender	-1.22** (.058)	-1.68** (.058)	-.140 (.079)	-.990** (.078)
White offender	.105 (.058)	-.093 (.060)	.234** (.079)	-.178* (.082)
West × White offender	.296** (.089)	.283** (.092)	—	—
Intercept	4.74** (.076)	4.30** (.077)	2.09** (.093)	2.47** (.094)

<sup>a</sup> Standard errors are in parentheses. The equations included controls for victim's and offender's age, community size, decade when the incident occurred, other/unknown race of victim and offender, unknown offender gender, and unknown community size  $N = 189,360$ .

\*  $p < .05$ .\*\*  $p < .01$ .

The results for female homicide victims suggest mainly additive effects of race and region. Offenders are more likely to use guns in the South, and to a lesser extent in the West, when they kill female victims. However, we cannot determine whether the main effects of region are due to an adversary effect or not, since offender and victim are from the same region. We do see evidence of a small adversary effect when we look at effects of race of victim: offenders are more likely to use guns and other weapons when they kill black women vs. white women. We also find that white offenders are more likely than black offenders to use guns, but slightly less likely to use other weapons.

Finally, we observe some gender effects. Female offenders are much more likely than male offenders to use weapons other than guns when they kill women. Men and women are equally likely to use guns against women. When we combine samples we observe strong effects of victim's gender on weapon use, consistent with adversary effects (not presented in tabular form). Offenders are much more likely to use guns vs. no weapon when they kill men ( $b = .845$ ;  $p < .001$ ). They are also more likely to use other weapons vs. no weapon when they kill men ( $b = .623$ ;  $p < .001$ ).

## 7. Supplemental robbery analysis

Our interest in honor cultures led us to restrict our analyses to dispute-related crime. However, if regional variation in violence involves guns one might also expect to find similar patterns for robbery, even though it is usually a predatory crime.<sup>7</sup> We analyzed robbery data from the NCVS and found a similar pattern, although the differences were not as strong: offenders who robbed white southerners were significantly more likely to use a gun than offenders who robbed white northerners (14.6% vs. 10.8%;  $p = .013$ ). On the other hand, offenders who robbed white southerners were no different in their use of other weapons (17.4% vs. 16.9%;  $p = .786$ ).<sup>8</sup> Our analyses also show that offenders were much more likely to use guns during robberies when their victims were black (26.8% vs. 12.7% for white,  $p = .000$ ). The results provide further support for our conclusions about the importance of guns.

## 8. Discussion

The strongest regional differences we observe involve firearms. White southerners are at much greater risk of being assaulted and killed by someone with a gun than white northerners. We do not observe differences between southern and northern whites in assaults without guns and we find only slight differences in homicides committed without guns. Given that unarmed assault is much more frequent than homicide and armed assault, it is inaccurate to say that southerners have higher rates of violence. One cannot attribute this pattern to an honor culture in the South since it is extremely unlikely that an honor culture would affect gun assaults but not other assaults among southern whites. It would be more accurate to talk about a gun culture or a gun carrying culture (Felson and Paré, 2010).

The difference between southern and northern whites in gun violence is large. It is observed for both men and women and for both homicide and assault. The incident analyses show that the region–race interaction is significantly stronger for gun violence than unarmed violence. Our supplemental analysis show a similar pattern for robbery: offenders who rob southern whites are also more likely to use guns than those who rob northern whites. Finally, we have found the same statistical interaction between race and region for gun carrying by the general population (Felson and Paré, 2010). The consistency in the pattern strengthens our confidence in our conclusions.

We have not focused much on the western states since our primary interest is in differences between the North and South (and race differences). Nelsen et al. (1994) provide evidence that western violence is affected by the percentage of Hispanics living in the region. We cannot address this issue. We can say that our evidence regarding the western states is mixed. We observe the predicted statistical interaction between race and region in the individual analyses: white westerners are at greater risk of being assaulted or killed by someone with a gun than white northerners. The regional differences in the use of other weapons are not as large. The incident analyses, however, show that the regional race interaction is not significantly stronger for guns than for other weapons. We do not find that offenders are significantly more likely to use guns (vs. other weapons) when they assault western whites. In addition, the regional difference in homicides involving other weapons is just as strong as the difference involving guns. In general, the results suggest that the tendency for westerners to use firearms is only a partial explanation of the westerners' greater tendency to engage in violence.

Our results also show that the use of firearms is critical in explaining race differences in assault. Blacks are much more likely to be victims of gun assaults than whites, but they are no more likely to be victims of assaults with other weapons and they are less likely to be victims of unarmed assault. The evidence for homicide does not support the gun thesis, however. Race differences in gun homicides are no stronger than race difference in homicides involving other weapons. Race differences are also observed for unarmed homicide although they are weaker. In sum, the higher rates of violence in African-American communities can only partially be attributed to guns.

An alternative argument is that blacks and southern and western whites use guns because they are more strongly motivated to harm their victims. This seems unlikely since it primarily the characteristics of the victim, not the offender, that predicts gun use. In addition, in analyses not presented we examined whether there were regional or race differences in

<sup>7</sup> We thank an anonymous reviewer for suggesting this analysis.

<sup>8</sup> Offenders who robbed white westerners were slightly more likely than offenders who robbed white northerners to use both guns and other weapons.

whether the victim was injured during an assault, controlling for weapon used. We found no evidence that blacks or southern or western whites were more likely to be injured or produce injury. The results suggest that the effects we observe are due to regional and race variation in choice of weapon not intensity of anger.

One could argue that a reporting bias explains why we mainly find regional and race differences in gun assaults. Perhaps blacks and southern whites are less likely to tell interviewers about an assault than northern whites unless it is extremely serious—the use of a gun is one indicator that the incident was serious. In other words, perhaps minor incidents committed by blacks and southern whites are under-sampled. If this were the case, however, we would have expected to find stronger regional and race effects on injurious violence than non-injurious violence, and we did not. In addition, it seems unlikely that victims would fail to report attacks with knives and other non-gun weapons. Finally, this type of reporting bias cannot explain the homicide results, which are generally consistent with the results for assault.

### 8.1. *Adversary effects and armed violence*

Our incident analyses suggest that adversary effects help explain violence among Southern whites. They show that offenders are more likely to use guns when they assault southern whites, regardless of their own race. The homicide analysis shows that both blacks and whites are more likely to use guns when they kill white southerners than when they kill white northerners. We assume that offenders use guns because they anticipate that southern whites are likely to be armed with guns and/or prone to retaliation. We find only mixed support for adversary effects among western whites. While offenders who kill western white men are more likely to use guns and other weapons, we do not observe this pattern for assault.

We also find evidence of adversary effects when we consider the effects of race. Offenders are much more likely to use guns when they assault blacks, controlling for the offender's race and gender. In addition, the homicide data shows that offenders who kill blacks are more likely to use guns than offenders who kill whites. These findings are consistent with evidence that respondents from the general population are more likely to carry guns if they live in counties that have a higher percentage of poor people and African-Americans (Felson and Paré, 2010).

The effects of victim's gender on weapon use during assault and homicide also suggest an adversary effect. Offenders are more likely to use guns when they assault men than when they assault women. They are more likely to use guns and other weapons (vs. no weapon) when they kill men. Presumably, they prefer guns against male victims because of their disadvantage in physical strength (Felson, 1996). Adversary effects can also explain why region affects both men and women: female offenders must contend with adversaries who are mostly men. Finally, evidence not presented shows that homicide offenders who attacked multiple victims were much more likely to use guns and knives.

In sum, the literature suggests that both offenders and the general population are likely to use guns in social contexts in which others are likely to be armed and quick to defend themselves. It is not necessary to have a special preference for guns to find it advantageous to use them. Individual behavior is also influenced by expectations about the behavior of potential adversaries.

Adversary effects may help explain why gun violence might persist even after the disappearance of frontiers, herding economies, slavery, or whatever circumstances led to their development. Perhaps the tendency to use guns emerged out of the honor culture in the South and then took on a life of its own. In other areas of social life, one might expect to observe a cultural lag in which a cultural element slowly disappears when circumstances have changed and it is no longer adaptive (Ogburn, 1957). In conflict relationships, on the other hand, an aggressive posture creates new circumstances that are self-maintaining. In fact, violence is likely to spread in a community at a greater rate than non-violent crime. Violence is probably more contagious because of adversary effects.

### 8.2. *Adversary effects and unarmed violence*

Although northerners have just as high rates of assault as southerners we think it would be premature to abandon the idea of a southern honor culture. We are persuaded by evidence from prior research. Recall, for example, that southerners differ from northerners in their attitudes toward retaliatory violence and in their behavioral and physiological response to provocations (e.g., Cohen and Nisbett, 1994). In addition, the current research shows southern whites are more likely than northern whites to be victims of homicides involving other weapons. These findings suggest that a southern honor culture probably has some effect. Finally, we did not measure region where the offender was raised. It may be that an honor culture still exists among native-born Southerners but a study based on region of residence is not sensitive enough to reveal it, because so many non-southerners now live in the South. Two pieces of evidence suggest that this is not the case. First, prior research shows that current residence is just as strong a predictor of regional differences in gun ownership as residence at age 16, and there is some evidence that it is a stronger predictor (O'Connor and Lizotte, 1978; Dixon and Lizotte, 1987). Second, in analyses not presented, we separated southern states that are likely to have fewer transplanted northerners from other southern states (Texas, Oklahoma, Florida, Maryland, and Delaware). The results were similar for both southern regions. Still, we cannot rule out the possibility that native-born southerners still have an honor culture. The fact that we find strong regional differences in gun violence but not other, more common, types of violence suggests that honor culture effects are weak, or at least, weaker than the gun effects.

Perhaps the South has an honor culture, but not high rates of violence without guns, because of a suppressor effect. Perhaps the presence of firearms discourages unarmed violence and this process explains why we primarily find differences for

gun assaults. While an honor culture in the South results in more frequent unarmed violence, the presence of guns suppresses that effect.

The hypothesis follows from game theory, which suggests that adversaries who are armed and violent do not necessarily elicit a violent response and escalation (e.g., Deutsch and Krauss, 1960; Myerson, 1997; McCarty and Meirowitz, 2007). An aggressive stance sometimes deters adversaries from becoming aggressive and inhibits violence. Game theory draws attention to the great dilemma faced by people in conflict situations. The offsetting effects also pose a problem for scholars who want to study the consequences of violence.

We take a different perspective from Lott (2000) who claims that an armed citizenry is a deterrent to violence. We suggest that guns have different effects on different types of violence. While guns may increase the incidence of gun violence, they inhibit more minor forms of aggression and violence. Thus, adversary effects may inhibit individuals from engaging in an assault without a gun if they think adversaries are armed and prone to retaliate. Participation in a fist fight or a knife fight becomes too dangerous if adversaries might be “packing heat”. Thus, it is said: “Don’t bring a knife to a gun fight.”

We suspect that the presence of guns in southern states “drives out” unarmed violence and violence using less lethal weapons. More generally, serious forms of aggression tend to spread but act as a deterrent to less serious forms of aggression. Thus, the adversary effect may explain why southerners tend to be more polite than northerners (Cohen et al., 1999).<sup>9</sup> In places where individuals are quick to retaliate, others are careful not to offend. Anthropological evidence also suggests that members of violent cultures tend to be more polite (see Cohen and Vandello, 2004, for a review).<sup>10</sup>

We think that this process also suppresses race differences in assault: blacks are less likely than whites to be victims of unarmed assault and they are at no greater risk of knife assaults. These effects are striking given that blacks generally have much higher risks of violent and non-violent crime victimization (e.g., Rennison, 2001). How is it possible that the most common type of assault is less frequent in the black community when that community has relatively high rates of violent crime? We think the pattern is observed because many offenders consider it too dangerous to assault blacks without a gun. Our analyses of robbery patterns also show that offenders were much more likely to use guns when their victims were black (vs. white).

The deterrent effect of adversaries may also explain why cities with high rates of gun ownership tend to have lower rates of robberies that do not involve firearms (Kleck and Patterson, 1993) and why youth are less likely to threaten others with weapons when they live in counties where guns are prevalent (Cook and Ludwig, 2004). According to McGrath (1984) gun-toting in mining towns in the 19th century increased the incidence of homicide, but deterred property crime. As a result homicide rates were much higher in these mining towns than in eastern cities, but robbery rates were no higher, and burglary rates were lower.

It is not clear what effect guns should have on the incidence of non-gun homicide. On the one hand, the presence of guns in a community may inhibit offenders from using other weapons or no weapon when they commit a homicide. Thus, Griffiths and Chavez (2004) found that increases over time in gun homicides tended to reduce the incidence of lethal violence by other means in some Chicago neighborhoods. On the other hand, when offenders think victims are more dangerous, they may find it advantageous to “finish them off” to avoid future retaliation. If offenders think their victims are armed with guns or prone to retaliate, some assaults may become homicides. Felson and Messner (1996) found that, during an assault, offenders were more likely to kill victims who were either black or male. These effects were observed controlling for the offender's race and gender and controlling for the type of weapon used. Perhaps “kill or be killed” thinking in communities where many people carry guns offsets the tendency to avoid confrontations without a gun. It is therefore difficult to make a prediction regarding regional and race variation in non-gun homicides.

Adversary effects also have implications for the comparison of rates of violence in the United States to rates of violence in other developed nations. The evidence shows that the US has a much higher rate of gun homicides, a somewhat higher rate of non-gun homicides, and a similar rate of assault (Zimring and Hawkins, 1997; see also Killias, 1993). Since overall the US does not have higher rates of violent or non-violent crime, theories of violence and crime do not provide adequate explanations, at least not without some elaboration. The prevalence of guns in the United States can only explain part of the pattern. We suggest that adversary effects play a role. Greater fear of adversaries in the US may lead some offenders to avoid fist fights and to kill their victims when they get involved in an assault.

In sum, our research points to the theoretical importance of proper conceptualization of the dependent variable and the importance in research of examining multiple outcomes. Crime theories predict effects on all types of crime, theories of violence only predict violent crime, and neither can explain effects that are only observed for gun violence. When a theory over- or under-predicts, it casts doubt on that theory, or suggests a need for elaboration. In our research, honor cultures cannot explain regional differences in homicide and assault, given evidence that these differences are not observed for offenses without guns. We suggested that honor cultures may have some effect, but that guns are the critical factor explaining regional variation in violence in the United States. They also help explain race differences. The prevalence of guns leads to gun violence. It does not increase the frequency of violence but it causes the violence that occurs to be more dangerous.

<sup>9</sup> The principle also applies to nation-states. For example, the possession of nuclear weapons during the cold war led to an arms race, but probably deterred conventional conflicts between the U.S. and the Soviet Union.

<sup>10</sup> The reverse effect could go in either direction. Politeness norms may discourage aggression by preventing open conflict or encourage because it inhibits the resolution of conflicts (Felson and Ackerman, 2001; Cohen et al. 1999).

## Appendix A. States by regions

North	South	West
Connecticut	Alabama	Alaska
Illinois	Arkansas	Arizona
Indiana	Delaware	California
Iowa	District of Columbia	Colorado
Kansas	Florida	Hawaii
Maine	Georgia	Idaho
Massachusetts	Kentucky	Montana
Michigan	Louisiana	Nevada
Minnesota	Maryland	New Mexico
Missouri	Mississippi	Oregon
Nebraska	North Carolina	Utah
New Hampshire	Oklahoma	Washington
New Jersey	South Carolina	Wyoming
New York	Tennessee	
North Dakota	Texas	
Ohio	Virginia	
Pennsylvania	West Virginia	
Rhode Island		
South Dakota		
Vermont		
Wisconsin		

Note: Based on US census, with Northeast and Midwestern states classified as North.

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