Age and Homicide: Evidence for Persisting Self-help "Honor" Institutions among White Southerners

Brian Paciotti, Ph.D.
Lecturer, Department of Sociology
(Fellow, National Consortium on Violence Research)
University of California, Davis
Davis, CA 95616
bmpaciotti@ucdavis.edu

ABSTRACT

Aggregate analyses of homicide conducted by many authors at city, county and state levels illustrate that both structural variables (e.g., poverty, inequality and education) and regional variables (proxies for "subcultures of violence or honor") are significant predictors of interpersonal violence. Other studies have shown that a large proportion of interpersonal violent events are dispute-related (rather than predatory), and thus related to the types of institutions available for individuals to resolve disputes. Aggregate FBI homicide data is used to analyze the relationship of age and dispute-related violence, and compare the results among different regions of the United States. Poisson regression, little used in aggregate crime studies, is used to test the specific hypothesis that regional institutions are important. The results are explained with an ecological and evolutionary theory that links structural, cultural, and dispute resolution frameworks. The assumption that the association between younger age groups and violence is regionally invariant—at least for dispute-related homicides—is challenged. Results show that dispute-related homicides do vary with age—older males are more likely to be involved in homicides in areas that historians and other scholars have identified as having strong honor institutions relative to peacemaking institutions. The relationship between honor institutions and the emergence of third-party peacemaking institutions is discussed, and competing hypotheses are evaluated to explain age-specific and regional patterns of violence.

INTERPERSONAL VIOLENCE AND AGE

A number of studies propose that the relationship between age and violence is historically and regionally invariant—young males (e.g., 15-35) are much more likely to be involved in violence. Hirschi and Gottfredson (1983) proposed that the invariant pattern between age and violence is related to general changes in the life course of *individuals* rather than to varying sociological and cultural attributes of their environment (see Sampson and Laub (1992) for review). Daly and Wilson (1988) argue that the age relationship with violence (or homicide) is invariant across populations such as American cities. Using evolutionary theory to explain why younger males are more likely to be involved in violent conflicts, they argue that the invariant pattern is related to mechanisms associated with the biology of the male life course—young males in competitive socio-cultural or ecological environments gain material and symbolic rewards from risky behavior. Daly and Wilson (1988 Chapters 6,8) attribute negligible influence of many environmental factors such as age of marriage or other sociological factors associated with aging because they assume that through human evolution, ecological factors associated with male competition has shaped a universal male psychological disposition to take risks at young ages. Their work illustrates that the ecology of male competition is related to violence, but because they focus on invariant biological mechanisms without clear linkage to cultural forces (institutions), their theory is likely to prove incomplete, especially for violence related to interpersonal conflict (see Chapter 6 in this volume).

Recently, criminologists have challenged the age/violence invariance hypotheses with longitudinal studies of age-specific homicide rates. Greenberg (1985) reviews the literature and finds evidence that the mean homicide rate has shifted towards younger males in recent decades,

and that the mean age of homicide in samples from foreign counties and ethnic groups around the world is older than mean ages for Western societies. In an analysis of United States crime rates, both Greenberg (1994) and Britt (1992) find that parameter estimates (means and variance) vary significantly when comparing data from the 1950's to more recent decades. Their data, in general, illustrate that in the past homicide and assault was likely to be more common among older males. This data, however, must be interpreted carefully, because Steffensmeier and Streifel (1991) provide evidence that age distributions for males and females involved in violence have shifted toward younger and more peaked distributions between 1935 and 1985. Thus, it is important to identify whether older homicide offenders are now less common, or whether the recent relative increase in rates of youth violence explains the changing cross-sectional distributions.

CAUSES OF VARIATION IN AGE AND HOMICIDE RELATIONSHIP

Although authors have discussed the existence of varying patterns of age-specific homicide, few studies have explored the causes of such variation. An exception is the recent concern with increased levels in violence among individuals below the age of eighteen (Moore and Tonry, 1998). Although the results of these studies vary, factors such as youth involvement in crack cocaine markets (Blumstein, 1995), and perceived need of firearms for self-protection are deemed important. In another study, Britt (1997) analyzes the association between seven felony crimes and changes in unemployment rates to evaluate factors influencing variation in the age of offenders. He contrasts the predictions from motivation and opportunity theories of crime, and finds that for homicide and assault, unemployment has a greater opportunity effect on youth

and young adults (16–24 years old) and greater motivational effect on adults. This follows the logic that fewer available jobs reduces the opportunity for crime because people remaining in their homes and communities and are able to protect their property (Cohen and Felson, 1979). However, fewer jobs may increase the motivation of crime due to the strain of resource deprivation (Merton, 1938). Because both opportunity and motivation theories discussed by Britt (1997) are theories better designed to explain property crime relative to violent crime, it is unsurprising that unemployment was less associated with rates of homicide and assault. Finally, Riggs and Hobbs (1997) used longitudinal homicide data to show that males and females differ with respect to how age-specific homicide rates change synchronouly through time. In other words, all the age categories for males change with similar magnitude through time, in contrast to female age specific rates that vary depending on the age group. Fluctuations in the age-specific homicide rates between 1950 and 1990 are synchronous for males aged between 15 to 54, but highly variable for females. Further, age-specific rates for males aged between 0 and 15 years old and over 54 years of age, are variable and are not significantly correlated. The authors argued that males aged between 15 and 54 are more likely to be involved in reproductive strategies associated with inter-male competition. Thus ecological changes simultaneously influence homicide rates across *all* male age categories between 15 and 54.

In a cross-national test, Pampel and Gartner (1995) tested the hypothesis that varying proportions of young males in a society influence homicide rates. In their sample of eighteen countries, they found that the proportion of population aged between 15 and 29 did not significantly influence homicide rates. They argued that societal demographic peaks are mitigated through collective institutions that buffer young males from the adverse affects of economic stress. Gartner and Parker (1990) conducted a time-series analysis in Japan, Scotland,

Italy and the United States, and found that changes in the population age structure over time significantly influence homicide rates in the U.S. and Italy, but less so in Scotland and Japan. The authors speculated that cultural differences produce these patterns. Many individuals prefer to resolve their disputes personally in the U.S. and Italy, whereas strong formal and informal institutions in Japan and England discourage self-help justice, and limit the availability of guns to restrict opportunity for lethal dispute resolution. As discussed below, explicit attention to the types of institutions within societies is important for understanding rates of male interpersonal violence.

THE IMPORTANCE OF SOCIAL CONTROL INSTITUTIONS

Cooney (1998) develops a theory of interpersonal violence based on Black's (1983) social control and dispute resolution framework. Black (1983) argued that many acts of violence considered as *crimes* by the state are considered personal justice to the individuals involved. A Dallas detective was quoted as saying that most homicides "…begin over little old arguments about nothing at all…" (Daly and Wilson, 1988 p.127). This statement fits with empirical data showing that over half (and likely up to 70%) of homicides in the U.S. and other countries result from interpersonal arguments (Cooney, 1998). Thus, Cooney (1998) argues that theories of dispute resolution should be central explanations of violence, and what needs explanation is why individuals choose self-help justice to resolve disputes with *violence*, rather than the use of third-parties to settle disputes *peacefully*. In his detailed analysis of sociological and anthropological literature, he illustrates that a strong predictor of rates of violence is the availability of third-

parties who intervene to settle disputes. If societal third-party mechanisms for dispute resolution are absent or weak, self-help justice is a substitute (Knauft, 1987).

In Chapter 6, I outlined an ecological and evolutionary theory to explain that patterns of dispute-related violence are related to the types of social control institutions present in a society. This theory expands on Ellickson's (1991) description of *social control systems* in which different types of *controllers* (e.g., community gossip networks, organizations, and states) consist of *actors* who *sanction* set of *rules* defining normative behavior. First, controllers are different types of actors that either act as peacemakers to mediate disputes and control deviance within groups or societies *or* as honor enforcers that encourage violent self-help strategies to resolve disputes and protect property. Both peacemakers and enforcers of honor administer sanctions through a tripartite system of material or symbolic incentives to reward individuals for exceptionally upholding rules, punish them for rule violations, and do nothing upon conformance. Rules are prescriptions of behaviors that *should* be followed, and can be categorized into primary and secondary rules. Primary rules specify socially accepted substantive behavior such as resolving disputes peacefully or violently. Secondary rules are higher-order rules that specify the sanctions to be given to social controllers themselves for not punishing or rewarding individuals breaking primary rules. An individual failing to uphold a secondary rule by shaming a man for dishonorable behavior could be sanctioned herself from rules at the tertiary level.

In Ellickson's framework, third-party controllers (those intervening in cases that they may not be directly involved in) are often *peacemakers* because individuals, communities, organizations, and states limit interpersonal conflict and violence. Third-party controllers can be grouped into three categories: *community social forces* (e.g., gossip networks), *hierarchical*

organizations (e.g., vigilante groups) and *states* (e.g., formal police and courts). In contrast, second-party self-help justice results when disputants remedy disputes—often with violence—personally. For example, two men disputing over a fence boundary may use violence to resolve the dispute rather than seeking other third-parties for assistance. Although Ellickson considers self-help justice the result of second-party interaction (only the individuals involved in the dispute), self-help justice can both become institutionalized and involve third-parties. In other words, self-help justice becomes morally acceptable through institutionalization of rules associated with the importance of honor.

Honor institutions emerge through a number of processes in which males form coalitions due to the costs and risks associated with competing with other males. Coalitions can become institutionalized when extended families, clans, or youth gangs sanction rules that each member must uphold their individual and group honor. Individuals are concerned about honor because it is a societal judgment of how well individuals or groups are able to *acquire* and *protect* resources. In addition, honor is a zero-sum game in which individuals or groups attempt to steal the status and reputation of being "honorable" from others—honor must be taken from others (Nisbett and Cohen, 1996; Miller, 1990).

With a clear conceptualization of the components of social control systems and a general understanding of honor and peacemaking institutions, it is possible to understand how the relative strength of these forces influences rates of male interpersonal violence. In Chapter 6, I argue that ecological factors such as poverty and inequality increase male competition for symbolic and material resources. Honor institutions may emerge to increase the likelihood of violence, or peacemaking institutions may emerge to control levels of violence among disputing males. Thus, even though an area might be poor with an unequal distribution of wealth, the

forces generating competition between males could be mitigated with strong third-party peacemakers. Further, once institutions emerge, the rules comprising them may be inflexible to change. As a result of institutional lag, peacemaking or honor institutions may persist in areas even after the structural forces that caused the development of them have disappeared (Chapter 6). Overall, honor institutions may have emerged in the American South because of inequality, and persist even though the structural environment has become more equal through time.

EVIDENCE OF REGIONAL INSTITUTIONS

Criminologists have criticized that cultural theories of violence (subcultures of violence) are tautological—violent beliefs, attitudes, or rules produce violent behavioral outcomes. This critique is unwarranted when culture is conceptualized as the rules of social control institutions. Institutional rules produce patterns of behavior because individuals reward and punish each other when they support or violate expected patterns of behavior. Thus, the best evidence for the existence of institutional rules are the sanctions produced when the rules are exceptionally supported or violated—conforming to rules produces few behavioral outcomes we can observe. Below I discuss institutional patterns evidenced by the sanctions produced from them. Evidence for the existence of honor institutions does not only come from patterns of violence, or attitudes expressed about violence, but from patterns of behavior such as jurors acquitting duelists or state laws that legitimize personal forms of justice. Once we provide independent evidence (separate from homicide data) that different types of institutions exist, we can make a stronger case that patterns of violence correlating with regional institutional patterns are causally related.

Southern Whites

Scholars interested in regional patterns of American violence (Brearley, 1935) have shown consistently higher homicide rates occur in the southern and western states as compared to northern states (Brearley, 1935; Gastil, 1971).[1] The homicide pattern has led authors to conclude that a "culture of violence" emerged (and may persist) in the South (fig. 1 and 2). Although different authors have described southern institutions in a number of ways, most explanations are similar to the categories of social control institutions discussed above. State controllers (courts and sheriffs) along with religious organizations in Antebellum South were weak; individuals could not rely on third-party peacemakers to intervene in disputes. Thus, individuals were taught that "every man is the sheriff of is own hearth," and that upholding their individual and group honor was needed to protect their own property and status (Fischer, 1989; Gorn, 1985; McWhiney, 1988).

Nisbett and Cohen (1996) used contemporary data to test the hypothesis that honor institutions continue to be important in at least parts of the South and West. They conducted experiments in which northern and southern undergraduates are insulted in a laboratory situation—southern subjects upon being insulted were much more likely to display aggressive behavior and have elevated hormone levels. The authors also looked at regional institutions and showed that gun and trespassing laws favor self-help justice in the South. Finally, they discussed how the questions related to self-help justice in the General Social Survey show that southerners are more likely to report preferences to use violence to resolve personal disputes. They also used

[1] Cultural geographers evaluate regional differences in institutional history and document the spread of people who bring their institutions to new regions. New England culture spread into the Midwest with eastern migration. Further, German and Scandinavian farmers immigrating to the Midwest brought with them peacemaking third-party institutions associated with their cooperative farming and religious institutions. In contrast, Southerners populated Texas, Missouri, Arkansas and Oklahoma throughout the nineteenth century, and subsequently into the western states more recently. It is likely that these people brought with them to their new communities a distrust of state controllers, and a reliance of self-help violence and honor.

homicide data to evaluate the institutional hypothesis. They find that homicide rates among *White* southerners as compared to White northerners are higher in dispute-related homicide, but similar in homicide rates related to other crimes such as robbery. Further, the rates are higher in rural areas where honor institutions have been most likely to resist forces of modernization.

Criminologists using similar homicide and assault data find some evidence that regional variables used as proxies for cultural patterns, along with other structural variables such as poverty and inequality, explain dispute-related violence. McCall et al. (1992) review *cultural* and *structural* explanations of violence. In their cross-sectional analysis of homicide and other crimes from 1960 to 1980, a regional dummy variable for the South remained significant after controlling for structural variables, although the effect diminishes over time.[2] McKinney and Bourque (1971) argue that although the South has changed substantially in many structural ways, much of southern culture has remained stable. As a result, property crime rates have converged to similar levels between the North and South, but rates of violence have been much slower to decline, and remain high in the South (Jacobson, 1975). In sum, it seems that southern honor institutions continue to function, at least in areas of the South that have been less affected by the forces of modernization.

I acknowledge that a number of processes might have created honor institutions, including southern inequality (Cash, 1941; Wyatt-Brown, 1982), the influence by Scotch-Irish herders (Nisbett and Cohen, 1996), and the slow development of peacemaking institutions because of agricultural rather than industrial development (Ayers, 1984). In general, all these processes involved Protestant White southerners more than other groups, thus I take advantage of variation within the state of Louisiana. French Acadian farmers (Cajuns) migrating from eastern

[2] Interestingly, rates of violence did not diminish over time in cities, but did with the larger aggregate units of states and SMSAs.

Canada settled in southern Louisiana, whereas the northern part of the state was settled by White Protestants hypothesized to subscribe to honor institutions (Bankston and Allen 1980; Vandal, 2000: Chapter 2). Finally, unlike Nisbett and Cohen (1996) I assume honor institutions among White southerners were important in all regions (not only herding areas), and argue that modern patterns of violence reflect areas where these institutions have yet to decay.

HYPOTHESES: LINKING AGE-SPECIFIC CONFLICT HOMICIDE AND SOCIAL CONTROL INSTITUTIONS

Because social control systems are institutions with various types of actors and rules, I use historical and contemporary data to identify empirically the social control institutions present among various societies or subcultures. Wolfgang and Ferrecuti's (1967) subculture of violence approach is similar, yet their unclear linkages of "culture" with empirical data of social control institutions makes it difficult to interpret the *origins* of violent subcultures. Further, by clarifying that violence is related to independently observable institutions present in the social environment of a unit of study, I avoid tautological problems associated with arguing that an individual's violent "culture" leads them to commit violent acts. From the social control perspective outlined above, dispute-related interpersonal violence occurs in societies where self-help justice mechanisms of social control are preferred over third-party peacemaking because of the specific institutional evolution in that society.[3]

[3] The benefit of this approach is that much is known about how structural aspects of society shapes institutions (Chapter 6), thus historical data can be used to evaluate how subcultures emerged. Further the approach links structural and cultural explanations of violence. For example, scholars are becoming increasingly aware that segregation of minorities in large U.S. cities increases poverty and diminishes opportunity for residents (Wilson, 1989). Linked with resource deprivation, these areas become isolated from state and organizational third-parties required in dispute resolution and self-help violence. Thus, it is unsurprising that urban ethnographers describe the

My first hypothesis draws from empirical evidence in the United States, which suggests that honor institutions emerged among White southerners and continue to exist. However, due to modernization of the South and the slow decay of southern culture (McKinney and Bourque, 1971; Jacobson, 1975; Meyers, 1980), I expect that third-party peacemaking institutions have replaced honor institutions. Because, rural areas are less likely to experience modernization forces that bring third-party enforcers, rural counties more likely to retain honor institutions.

Hypothesis 1: Whites are more likely to be homicide offenders in southern rural counties where honor institutions play a larger role relative to peacemaking institutions in the social control system than in urban counties where peacemaking institutions are stronger.

My second set of hypotheses follows claims from Parker (1989) and Peterson and Krivo (1993) that cultural pre-dispositions to self-help justice should be expected to influence *all age groups* in a society. Although absolute regional rates of violence elucidate important patterns, relative age-specific homicide rates might be an additional measure for the relative importance of honor as compared to peacemaking institutions in a society or between different societal regions. It is well know that violence is generally more common among younger males (Daly and Wilson, 1988; Hirschi and Gottfredson, 1983). However, if homicides in some areas are more common in older (and possibly younger) age groups, then there is evidence that some structural or institutional factor may be causing more violence in these groups. From the theory outlined above, I hypothesize that an important factor is the types of institutions of social control both available and legitimate to individuals in an area.

---

importance of honor institutions that are both legitimate and preferred within parts of inner-city communities (Anderson, 1999).

Hypothesis 2: White males in older age groups are more likely to be homicide offenders in the U.S. South where honor institutions are relatively more important, as compared to White males in older age groups in the North where third-party peacemaking institutions have historically been stronger.

METHODS

Sample

Counties are the units in all analyses presented here, and are aggregated by various regional criteria. The *southern* region is defined as all counties nested within the census divisions labeled West South Central, East South Central, and South Atlantic. The *northern* region includes the West North Central, East North Central, Middle Atlantic, and New England divisions (fig. 3).[4] Louisiana counties are divided into southern French and northern Protestant parishes as coded in Bankston and Allen (1980). Native American cultural regions include states fitting within the cultural boundaries outlined in Waldman (2000).[5] All analyses were conducted with aggregate homicide counts from *every* county within each regional boundary across aggregates of years. The analysis of White males across northern and southern U.S counties included aggregate counts from 1978 to 1982 (1980 sample) and from 1988 to1992 (1990 sample). The Louisiana analysis included aggregate counts from 1978 to 1982 (1980 sample) and from 1987 to 993 (1990 sample).[6]

[4] Although honor institutions likely spread to the West with Southern migrants (Gastil, 1971; Nisbett and Cohen, 1996), the emergence and decay of these institutions are less well known historically in the West.
[5] Northeast (CT, DE, IL, IN, ME, MD, MA, MI, MN, NH, NJ, NY, OH, PA, RI, VT, WI), Southeast (AL, AR, FL, GA, KY, LA, MS, MA, NC, SC, OK, TN, TX), Great Basin (ID, NV, OR, WY, UT), Southwest (NM, AR, CO), California (CA), Plains (IA, KS, MT, NE, SD, ND), Northwest (WA, AK).
[6] Two extra years were added to the 1990 sample due to a small number of homicides during these years compared to the 1980 sample.

MEASURES

Homicide Data

Homicide data come from the FBI *Supplementary Homicide Reports* (SHR) (Fox, 2000). Homicide cases were drawn from the SHR by FBI codes specifying either White or Native American male offenders in which both age and cause of the event were known. Males were the focus of the analysis because males disproportionately commit homicides and dispute over honor (Daly and Wilson, 1988; Nisbett and Cohen, 1996). The SHR circumstance code was used to include cases *only* from dispute-related homicides.[7] Cases were excluded if one or more of these criteria were coded as unknown.

Homicides were aggregated at the county level into five-year age group categories from age 10 to 59 corresponding to the census data categories (e.g., 10–14, 15–19). To reduce the number of parameters in the models, age categories were aggregated into *four* age categories (e.g., 10–20, 20–30, 30–40, and 40–59) for the U.S. level analysis of White males. Due to the small number of counts, age categories were aggregated into *two* categories for the Native American and Louisiana analyses. To determine if different breaks of the age categories influenced results, age categories for both analyses were divided at age 30, 35 and 40 (e.g., 10–29, 30–59; 10–34, 35–59; 10–39, 40–49). I contrast the results of these different "bins" in the results section.

Although SHR data are highly correlated with homicide data available from the National Center for Health Statistics (NCHS), underreporting of homicides by local agencies to the FBI

[7] Dispute-related homicides were those classified in the SHR as originating from lovers triangles, brawls under the influence of alcohol, brawls under the influence of narcotics, arguments over money or property, and other arguments. Felony homicides were classified as originating from rapes, robberies, burglaries, larcenies, motor vehicle thefts, arson, prostitution and commercialized vice, other sex offenses, narcotics and drug offenses, other felonies not specified, and suspected felonies.

database results in biases. In a recent reexamination of Reaves' dissertation (1992), Chu et al. (2000) conclude that White male homicides are not more likely to occur in southern regions more suitable for herding as Reaves hypothesized. Comparing data from the NCHS and SHR, Chu et al. find similar homicide rates across southern sub-regions because of underreporting of homicides in the SHR, especially in rural areas. Although missing data may bias my results, my estimates are less likely to be inflated to the degree as presented in Chu et al, (2000) because the Poisson regression method I use reduces the problem of large variances caused by counties with low counts and small populations.

Population and Explanatory Variables

County level age and sex specific population data were taken from census data available from the ICPSR website (www.icpsr.com).

Explanatory variables were taken from the 1980 and 1990 *Census for Population and Housing* compiled on the *USA Counties 1998* database. Urban and rural codes were taken from the *Economic Research Service's* ten category Beale codes based on population and proximity to metropolitan areas. In the U.S. analysis of White males, the Beale codes (URB/RUR) were aggregated into four categories (**1** = Beale codes 0,1,2,3; **2** = Beale 4,5; **3** = Beale 6,7; **4** = Beale 8,9,). For the Louisiana analysis, a two-category urban/rural variable was formed with all Beale codes greater than 5 forming the rural category.

Index variables were constructed by standardizing and averaging together related census variables. A *residential mobility* index (RESMOBindex) includes the proportion of people in a county for the last five years who have 1) lived in the same house 2) lived in the same county and 3) are not foreign residents. *Family stability* (FAMILYindex) includes the proportion of

households in a county that are 1) family households 2) married households 2) married households with children, and the inverse proportion of families that are 3) headed by a female 4) headed by a female with children and 5) are non-family households. *Education* (EDUCATIONindex) includes the proportion of individuals in a county who have 1) completed high school 2) completed college (and lower degrees) and 3) completed a four-year college (and lower degrees).

Unemployment (%UNEMPLOYMENT) includes the yearly percentages of county unemployment averaged over the years from 1978 to 1982 and from 1988 to 1992. *Divorce* (%DIVORCE) includes the percentage of individuals divorced in each county averaged from 1979 to 1981 (1980 analysis) and the 1988 rate (1990 analysis). *Poverty* (%WHITEPOV1990, %INDIANPOV) is calculated from race-specific proportions of individuals below the poverty line, divided by the race-specific total population. Race-specific per capita income variables (INDIANPERCAPINCOME, WHITEPERCAPINCOME) were calculated similarly. The percentage of individuals living in the state they were born in (%BORNST) was used in addition to the residential mobility index. Because variables other than poverty and per capita income include *all* races, a *Black* (%BLACK) variable was constructed for the total percentage of a county that is Black. This variable is used to control for potential biases in race-aggregated variables. Table 1 displays the mean and standard deviation for explanatory variables for each analysis.

STATISTICAL MODELS

Osgood (2000) discusses that Poisson regression techniques have yet to be applied to aggregate crime studies (but see Bailey et al. 1994; Sampson et al. 1997), even though this method is useful, especially if populations are small or events are rare (e.g., homicide in rural areas). Because my analyses explicitly incorporate hypotheses about rural counties, Poisson regression is preferable over ordinarily least square regression (OLS). In OLS regression, Osgood (2000) argues that the assumption of normality of error variance is often violated, because crime rates are calculated across units with low populations or when low frequencies of crimes (and zero values) occur. In contrast, because the variance equals the mean in the Poisson distribution, the distribution skews towards zero when there are few counts. As the mean count increases, the Poisson [p1]distribution increasingly approximates the normal.

In all the models, age and race-specific population data were used to form homicide *rates* with an offset command in the PROC GENMOD statement available in SAS statistical software. All Poisson models were fitted by first including all of the variables of interest, and subsequently using stepwise techniques to individually remove non-significant variables. This was done to identify which variables might diminish the effect of the interaction variable of interest (Age x Region), and avoid problems of multicollinearity. Type III tables produced in SAS were used to obtain chi-squared statistics to assess the overall significance of both continuous and categorical variables added in the model. Parameter estimates are provided in the table for each analysis and the exponent (EXP) of the parameters represent the multiplicative effect of each variable on the log homicide counts, all other variables held constant. Least squares means tables were produced in SAS to visualize higher-order interaction effects. This method takes an average effect of each variable level (instead of comparing each level to *one* reference level) thus allowing easier interpretations of the influence of specific categorical levels. Overdispersion was not a problem

in any of the models, but as a conservative method to reduce error in the significance of parameter estimates, scale terms were added to each model. Standardized residuals were plotted against predicted values to detect heteroscedasticity and the influence of possible outliers. These plots are more difficult to interpret than similar plots from OLS regression because predicted values from low counts are distorted by the log transformation. However, no problems were found in any of the models presented. Finally, in all the models, pseudo-R squared values were calculated by subtracting residual sum of squares (RSS) of a model including only a constant, from the RSS of the fitted model divided by the constant RSS (See Cameron and Trivedi, 1998).

RESULTS

Analysis of Age by Region Interaction Effects

In this section, I look at the interaction effects between age, region and urban/rural to evaluate hypotheses 1 and 2. I evaluate White males in all northern and southern counties in 1980 and 1990, and White males within Louisiana in 1980 and 1990.

U.S. Counties: White Males.

For White males, Table 2 shows that the third-order interaction term (Region x Urban/Rural x Age) is significant in both the 1980 and 1990 samples as shown by the chi-squared values ($c^2 <$ 0.0001 for both samples).[8] A number of the explanatory variables are significant predictors in the model, but do not influence the significance of the interaction effect. To determine whether the direction and magnitude of the interaction term support hypotheses 1 and 2, I graph age-specific

parameter estimates for northern and southern counties using least squares means from SAS output. Figures 4 and 5 illustrate that although the southern region has absolutely higher homicide rates for most age groups, slopes as a function of age are the same in northern and southern urban counties. In contrast, slope as a function of age differs in the older age groups (30−40 and 40−59) between the North and the South in rural counties. These results support both hypotheses 1 and 2; older males are more likely to be involved in homicides in southern rural counties where honor institutions are most likely to remain intact. Another way to look at these results is through the odds ratio estimates. In the 1980 sample, rural northern counties are 2.71 times more likely to have a homicide event in the 20−30 category as compared to the 40−59 year age category. In southern rural counties homicides are only 1.11 times more likely in the 20-30 category as compared to the 40-59 category. The results for 1990 are similar; homicides are 4.06 times more likely in younger age groups in the rural North, and 2.01 times more likely in younger age groups in the rural South. However, the magnitude of the homicide estimate for the 20−30 age group in the most rural northern counties is surprisingly large, and may reflect the small sample of homicides that occur in the rural North. Nevertheless, the slopes of the parameter estimates as a function of age are similar in both periods in the rural North and South, and reflect a smaller relative decrease in homicide among older southern males in rural areas. Finally, the slope of homicide between younger and older age groups in the rural South is steeper in the 1990 sample as compared to the 1980 sample, and suggests that the age effect may be diminishing over time. This supports the explanation that honor institutions are decaying through time in the U.S. South (McCall et al, 1992; Jacobson, 1975; Cohen and Vandello, n.d.).

[8] The chi-squared values are very close the F test values given in SAS. These statistics are used to determine the

Louisiana Counties: White Males

Southern French Catholic and northern Protestant Louisiana parishes offer an additional opportunity to test the hypotheses. In this analysis, because of few homicide events relative to degrees of freedom, I limit the analysis to *rural* counties and use *two* age categories. Table 3 presents chi-squared significance tests, and shows that the Region x Age interaction effect is significant in the 1990 sample ($p = 0.029$) but not in the 1980 sample ($p = 0.212$). Further, in the 1990 sample, the interaction effect is significant only when age 35 is used to separate the two groups (age 30 and 40 breakpoints are non-significant).

Although the interaction term is non-significant in the 1980 (and with different breakpoints separating age groups), the effect size of the least squares means estimates are large (fig. 6). In both 1980 and 1990, the slope is flat for northern counties but declines with age in the southern counties, thus suggesting that failure to reach significant levels may reflect the small sample sizes. In sum, the effect sizes are substantial in both samples and go in the direction predicted—the slope as a function of age is flat in the northern parishes, but declines rapidly in the older age category in the southern French parishes. Although inconclusive, this analysis lends partial support to hypotheses 1 and 2.

Effects of Explanatory Variables

Although my main goal is to evaluate the interaction effect between age, region and urban/rural, I discuss the effects of my control variables, because some of these indirectly support hypotheses 1 and 2. The control variables, with a few exceptions, conform with results

---

overall significance of categorical variables with many levels, while at the same time controlling for all other variables.

from other authors interested in correlates of homicide in the U.S (see summary in Parker et al. 1999).

U.S. Counties: White Males

The effect size and significance of explanatory variables in the analysis of White males within all U.S. counties are shown in Table 2. The variables presented are the ones that remained in the models after non-significant variables determined from the SAS type III table were individually removed. For the 1980 sample of the U.S. analysis of White males, five variables were removed from the model (%DIVORCE x REGION, %WHITEPOV1990 x REGION, FAMILYindex x REGION, %WHITEPOV1990 and %BORNST). More variables remained significant in the 1990 sample, and only three variables were removed (FAMILYindex x REGION, %UNEMPLOYMENT, %DIVORCE x REGION). The direction and magnitude of the explanatory variable effects largely conform to results from other homicide studies (McCall et al., 1992; Parker et al., 1999). In both samples, a one-unit increase in the standard deviation in the FAMILYindex and EDUCATIONindex reduces the likelihood of homicide by 0.9 and 0.79 times in the 1980 sample and 0.87 and 0.45 times in the 1990 sample. In other words, as families become more organized and stable, and a greater proportion of individuals in a county have attended high school and college, the likelihood of a homicide decreases. Next, a one percent increase in the poverty and divorce measures in both models increase the likelihood of homicide (See the EXP Column in Table 2). Unpredictably, the signs of the percent Black variable are different in each year, but may be because the explanatory variables (except poverty and percapincome) include *all* races. Thus, the percent Black variable controls for the other independent variables influenced by race. Finally, the sign of the unemployment variable is

unpredictably negative. This suggests that the unemployment effect may be the result of another unmeasured process important in White conflict homicides because I expect the likelihood of homicide to increase, rather than decrease with each percent increase in unemployment.

The interaction between %WHITEPOVERTY1990 and Region, shows that a one percent increase in poverty increases the likelihood of homicide a greater amount in the North as compared to the South. In other words, there is a greater effect on homicide as poverty increases (i.e., steeper slope) in the North than in the South. Williams and Flewelling (1988) find a similar effect in their analyses. In considering both ecological and institutional theories (Chapter 6), it is plausible that the ecology of poverty is not the main determinate of violence. More likely, poverty leads to risk taking behavior in the North as predicted by ecologists, but is less clearly associated with violence in the South because of the lagging honor institutions once important among *wealthy* southerners.

The third-order interaction between residential mobility, the percent born in the state, and region (%BORNST x RESMOBindex x Region) results in an interesting effect in 1990, but fails to reach significance in 1980. Table 2 shows that this third-order interaction effect produces a significant decrease in the homicide in the North, but not in the South. In other words, as the standard deviation increases within counties for percent of population born in the state (%BORNST) *and* become more socially organized because of *decreased* residential mobility (RESMOBindex), the likelihood of homicide decreases in the North (0.85 times for one standard deviation) but increases in the South by a small amount (1.02 times for one standard deviation). Similarly, Cohen (1998) using the same measures of residential mobility in his 1980 analysis of White conflict homicides, found that a decrease in residential mobility leads to lower homicide rates in the North, but higher homicide rates in the South. He argues that residential stability in

the South increases the likelihood that violent "cultures of honor" continue to function, whereas in the North, more residential stability increases the likelihood that traditional peacemaking institutions exist to limit violent conflict.

Finally, I included a variable that nests states within regions to control for intra-regional variation. This variable is [p2]highly significant, and likely reflects that some states within regions have substantially higher homicide rates. For example, homicide is much more common in Louisiana as compared to Maryland. Nevertheless, including this variable does not influence the interaction effects, and suggests that the method of using regions as institutional areas is valid; controlling for variation within regions does not reduce the overall significance of regions as a whole. The variation may be caused by the differential decay of institutions within regions. States with high homicide rates, such as Kentucky and Louisiana, have been slower to be incorporated into the modern U.S. economy.

Louisiana Counties: White Males

In the 1980 sample, %BLACK, %FAMILYPOV1980, %BORNST, RESMOBindex and RESMOBindex x REGION were removed from the model. In this analysis, only EDUCATIONindex remained significant, with an estimated 0.35 reduction in the likelihood of homicide for each standard deviation increase in the amount of education. In the 1990 sample, EDUCATIONindex, %BORNST, %WHITEPOV, %BLACK, RESMOBindex, and RESMOBindex x REGION all were non-significant and were individually removed from the model. The only variable that remains significant was the age, region and urban/rural third-order interaction effect.

DISCUSSION

The Ecological Fallacy

Some criminologists have been concerned with the ecological fallacy in cross-sectional studies of crime—or the concern of explaining *individual* level homicide events with population, structural, and institutional variables measured at the level of the county. The results presented here, however, are unlikely to be relevant to the ecology fallacy because macro-level institutions exist at scales captured in the analyses. By using counties classified by urban and rural codes along with regions, I am likely to closely map onto the presence of relevant institutional forces that influences the behavior of individuals.

Model Specification Errors

The validity of my results may be problematic because I assume that I have not left out any important explanatory variables. An important variable not included in the models is the varying regional availability and general experience with using firearms. Kleck's (1991; 1997) data from the General Social Survey (GGE) shows that southern regions have the highest proportion of individuals reporting to own guns. Nevertheless, the West North Central census division also has high proportions of firearm owners (fig. 3).[9] Because this region has almost the same percentage of individuals owning firearms as southern census regions, it is possible that the important factor relates less to gun ownership and availability, but to willingness to carry guns and use them in situations that require self-help justice. In other words, the availability of guns is similar between the West North Central region (where homicide is relatively rare) and southern

[9] Percentages of respondents reporting to own guns and handguns (guns/handguns) for census regions are as follows: New England (17.3/9.4), Middle Atlantic (17.8/7.9), East North Central (24.7/14.6), West North Central

census regions. Thus, there seem to be additional motivational factors to use guns in violent conflict.

Unfortunately, few studies to date have been able to adequately measure how much both institutional (or cultural) variation and gun availability explain homicide patterns. Dixon and Lizotte (1987) stress the importance of being socialized into hunting culture if an individual was born in the South, and especially the rural South. The authors, however, did not find any association between attitudes, violence, and gun ownership, and thus conclude that "cultures of violence" are unlikely to explain southern violence. I believe that the attitude measures used in their studies are only a partial indicator for social acceptance to using self-help justice, and are subject to interpretation and measurement errors. In contrast, in specifically thinking not only about attitudes, but also the rules people follow, Nisbett and Cohen (1996) analyze patterns of gun control laws in the U.S. and find substantially less strict gun control laws in the South. Further, there are less strict retreat laws related to self-defense violence in the South.

Another potential variable absent in my models relates to Doerner's (1983) argument that the availability and quality of medical resources varying between northern and southern regions may be largely responsible for explaining the higher rates of homicide in the South. However, as shown here, the South not only has higher absolute violence rates, but also higher relative proportions of older offenders. Differential medical treatment is likely to influence *equally* victims of both young and old offenders, and thus is unlikely an important explanation for age and region relationships.

(35.1/12.8), South Atlantic (30.0/18.3), East South Central (41.0/24.6), West South Central (39.2/26.9), Mountain (31.0/23.8) and Pacific (23.2/14.7).

Summary of Findings

Aside from problems in measurement and the possibility of model specification errors, in general, I find support for my hypotheses. First, with respect to White males in both northern and southern regions, the third-order interaction term was significant in both 1980 and 1990. This effect, visualized in Figure 4 and 5 shows that older males are more likely to be involved in homicides in the South rather than the North; the distribution is more peaked in the North compared to the flatter slope in the South. The pattern was less pronounced in 1990 (Fig. 5), and may reflect the decay of southern honor institutions through time as proposed by others (Brearley, 1935; Jacobson, 1975; Meyers, 1980). Further, because the interaction effect was only significant in rural counties, I find support for the hypothesis that honor institutions remain relatively stronger in these areas due to weaker modernization forces that alter institutional arrangements. The Louisiana analyses (although non-significant in the 1980 analysis, and only significant when 35 was used to make the break in the two age categories) show strong effect sizes in the direction predicted—the slope of the age interaction is much flatter in the Protestant North compared to the French Catholic southern parishes.

CONCLUSIONS

First, my findings support the conclusions of other studies finding that the age correlation with interpersonal violence is regionally dependent. I present evidence that a potential cause of this dependency may be related to the relative importance of types of social control institutions (honor and peacemaking) present in a society. Pampel and Gartner (1995) argue that government institutions can reduce male competition and subsequent violence. Similarly, I think that the

relative importance of honor institutions as compared to peacemaking institutions influence patterns of age-specific violence by producing rule induced sanctions that influence men of all ages to resolve their disputes personally. In contrast to the invariance hypothesis from Daly and Wilson (1988), the data here illustrate that regional patterns of male interpersonal violence depend on age.

Second, my conceptualization of institutional types, along with empirical evidence showing these exist in various forms in the U.S., provide a more concrete theory of how "culture" influences violence. In my view, "cultures of violence" (or cultures of peace) involves sets of institutional rules that influence how individuals mediate disputes. My results contribute to the large literature involving the debate about cultural and structural explanations of regional patterns of violence in the U.S. (Nisbett and Cohen 1996; Land et al 1990) by providing a new test to evaluate the importance of institutional (cultural) explanations. If age-specific homicide rates are an adequate independent measure of the influence of institutional factors (culture), then the results support other studies arguing that institutional factors are decaying because of increased residential mobility and other modernization forces within the South (Brearley, 1935; McKinney and Bourque, 1971; Jacobson, 1975; Meyers, 1980).

I argue that age-specific homicide rates provide an additional independent test of the institutional hypotheses already receiving substantial support by Nisbett and Cohen (1996), and conclude that my hypotheses are confirmed in general. The slope of the homicide/age interaction effect is flatter in rural southern counties, where historical and modern data have shown honor institutions are stronger than peacemaking institutions, as compared to *rural* northern counties. Finally, I find Cohen's (1998) study of the differential effects of social disorganization in the North and South interesting compared to the interaction variable in my study between social

organization, percent born in the state and region. Some criminologists find that social *disorganization* leads to higher rates of violence due the breakdown of social control. However, they assume that institutions existing in communities are peacemaking types that *limit* violence. If honor institutions exist, social disorganization might reduce the relative importance of violent honor institutions relative to peacemaking institutions that reduce levels of violence. My results support Cohen's (1998) results—high proportions of native-born southerners in a county along with low levels residential mobility (e.g., less disorganized) leads to higher levels of homicide. In contrast, high proportions of native-born northerners in a county along with residential stability leads to lower homicide rates. In other words, traditional counties in the South seem to continue to be influenced by strong honor institutions whereas traditional northern counties rely more on peaceful third-party institutions. This pattern in addition to the age/region interaction effects confirms the institutional hypothesis.

In conclusion, interpersonal violence is influenced by structural variables such as poverty, peacemaking and honor institutions, and possibly even innate psychological mechanisms. The empirical goal is to untangle the relative importance of these factors. The analyses here suggest that institutions are important in influencing rates of interpersonal violence, and bring us closer to understanding how researchers can better conceptualize, measure, and incorporate institutions as independent variables.

REFERENCES

Anderson, E.
1999 *Code of the Street: Decency, Violence, and the Moral Life of the Inner City*. 1st ed. New York: W.W Norton.

Ayers, E.L.
1984 *Vengeance and Justice: Crime and Punishment in the 19th-Century American South.* New York Oxford: Oxford University Press.

Bachman, R.
1992 *Death and Violence on the Reservation: Homicide, Family Violence, and Suicide in American Indian Populations*. New York: Auburn House.

Bankston, W.B., and H.D. Allen
1980 Rural Social Areas and Patterns of Homicide: An Analysis of Lethal Violence in Louisiana. *Rural Sociology* 45:223-237.

Blumstein, A.
1995 Youth Violence, Guns, and the Illicit-Drug Industry. *Journal of Criminal Law and Criminology* 86:10-36.

Brearley, H.C.
1932 *Homicide in the United States*. Chapel Hill,: The University of North Caolina Press.

Britt, C.L.
1992 Constancy and Change in the U.S. Age Distribution of Crime: A Test of the Invariance Hypothesis. *Journal of Quantitative Criminology* 8:175-187.

Britt, C.L.
1997 Reconsidering the Unemployment and Crime Relationship: Variation by Age Group and Historical Period. *Journal of Quantitative Criminology* 13:405-428.

Cameron, A.C., and P.K. Trivedi
1998 *Regression Analysis of Count Data.* Cambridge, UK ; New York, NY, USA: Cambridge University Press.

Cash, W.J.
1941 *The Mind of the South.* [Vintage Books paperback] ed. New York: Random House.

Chu, R., C. Rivera, and C. Loftin
2000 Herding and Homicide: An Examination of the Nisbett-Reaves Hypothesis *Social Forces* 78:971.

Cohen, D.
1998 Culture, Social Organization, and Patterns of Violence. *Journal of Personality and Social Psychology* 75:408.

Cohen, D., and J. Vandello
n.d. Honor and "Faking" Honorability.

Cohen, L., and K.C. Land
1987 Age Structure and Crime: Symmetry Versus Asymmetry and the Projection of Crime Rates through the 1990's. *American Sociology Review* 52:170-183.

Cohen, L.E., and M. Felson
1979 Social Change and Crime Rate Trends: A Routine Activity Approach. *American Sociology Review* 44:588-608.

Cook, P.
1983 The Influence of Gun Availability on Violent Crime Patterns. In *Crime and Justice: An Annual Review*, ed. M. Tonry, and N. Morris. 49-90. Chicago: University of Chicago Press.

Cooney, M.
1998 *Warriors and Peacemakers: How Third Parties Shape Violence.* New York: New York University Press.

Cornell, S., and J.P. Kalt
1995 Where Does Economic Development Really Come from - Constitutional Rule among the Contemporary Sioux and Apache. *Economic Inquiry* 33:402-426.

Cornell, S., and J.P. Kalt
1998 Sovereignty and Nation-Building: The Development Challenge in Indian Country Today. *American Indian Culture and Research Journal* 22:187.

Daly, M., and M. Wilson
1988 *Homicide*. New York: A. de Gruyter.

Dixon, J., and A.J. Lizotte
1987 Gun Ownership and the Southern Subculture of Violence. *American Journal of Sociology* 93:383-405.

Doerner, W.C.
1983 Why Does Johnny Reb Die When Shot? The Impact of Medical Resources Upon Lethality. *Sociological Inquiry* 53:1-15.

Ellickson, R.C.
1991 *Order without Law: How Neighbors Settle Disputes*. Cambridge, Mass.: Harvard University Press.

Ellison, C.G.
1991 An Eye for an Eye? A Note on the Southern Subculture of Violence Thesis. In *Social Forces*. 1223.

Fischer, D.H.
1989 *Albion's Seed: Four British Folkways in America*. New York: Oxford University Press.

Flinn, M.V., and B. Low
1986 Resource Distribution, Social Competition, and Mating Patterns in Human Societies. In *Ecological Aspects of Social Evolution*, ed. D.I. Rubenstein, and R.W. Wrangham. Princeton: Princeton University Press.

Fox, J.A.
2000 *Uniform Crime Reports [United States]: Supplementary Homicide Reports, 1976-1998* [computer file]. Ann Arbor: Inter-University Consortium for Political and Social Research.

Gartner, R., and R.N. Parker
1990 Cross-National Evidence on Homicide and the Age Structure of the Population. *Social Forces* 69:351.

Gastil, R.
1971 Homicide and Regional Culture of Violence. *American Sociology Review* 36:412-427.
Gorn, E.J.
1985 "Gouge, and Bite, Pull Hair and Scratch": The Social Significance of Fighting in the Southern Backcountry. *American Historical Review* 90:18-43.
Greenberg, D.F.
1994 The Historical Variability of the Age Crime Relationship. *Journal of Quantitative Criminology* 10:361-373.
Greenburg, D.F.
1985 Age, Crime and Social Explanation. *American Journal of Sociology* 91:1-21.
Hirchi, T., and M. Gottfredson
1983 Age and the Explanation of Crime. *American Journal of Sociology* 89:552-584.
Hoebel, E.A.
1954 *The Law of Primitive Man*. Cambridge,: Harvard University Press.
Horwitz, A.V.
1990 *The Logic of Social Control*. New York: Plenum Press.
Jacobson, A.L.
1975 Crime Trends in Southern and Non-Southern Cities: A Twenty-Year Perspective. *Social Forces* 54:226-242.
Kleck, G.
1991 *Point Blank: Guns and Violence in America*. New York: A. de Gruyter.
Kleck, G.
1997 *Targeting Guns: Firearms and Their Control*. New York: Aldine de Gruyter.
Knauft, B.M.
1987 Reconsidering Violence in Simple Human Societies: Homicide among the Gebusi of New Guinea. *Current Anthropology* 28:457-500.
Land, K.C., P.L. McCall, and L.E. Cohen
1990 Structural Covariates of Homicide Rates - Are There Any Invariances across Time and Social Space. *American Journal of Sociology* 95:922-963.
LeBlanc, S.A.
1999 *Prehistoric Warfare in the American Southwest*. Salt Lake City: University of Utah Press.
Levitt, S.D.
1999 The Limited Role of Changing Age Structure in Explaining Aggregate Crime Rates. *Criminology* 37:581.
Liao, T.F.
1994 *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models*. Thousand Oaks, Calif.: Sage.
Luckenbill, D.F.
1977 Criminal Homicide as a Situated Transaction. *Social Problems* 25:176-186.

McCall, P.L., K.C. Land, and L.E. Cohen
1992 Violent Criminal Behavior - Is There a General and Continuing Influence of the South. *Social Science Research* 21:286-310.

McKinney, J.C., and L.B. Bourque
1971 The Changing South: National Incorporation to a Region. *American Sociology Review* 36:399-412.
McWhiney, G.
1988 *Cracker Culture: Celtic Ways in the Old South.* University, Ala.: University of Alabama Press.
Merton, R.K.
1938 Social Structure and Anomie. *American Sociology Review* 3:672-682.
Messner, S., L. Anselin, D.F. Hawkins, G. Deane, S.E. Stewart Tolnay, and R.D. Baller
2001 An Atlas of the Spatial Patterning of County-Level Homicide, 1960-1990. National Consortium on Violence Research (NCOVR).
Miller, W.I.
1990 *Bloodtaking and Peacemaking: Feud, Law, and Society in Saga Iceland*. Chicago: University of Chicago Press.
Myers, H.P.
1980 An Ecological Study of Southern Homicide. Florida State University.
Nisbett, R.E., and D. Cohen
1996 *Culture of Honor: The Psychology of Violence in the South.* Boulder, Colo.: Westview Press.
Osgood, D.W.
2000 Poisson-Based Regression Analysis of Aggregate Crime Rates. *Journal of Quantitative Criminology* 16:21-43.
Pampel, F.C., and R. Gartner
1995 Age Structure, Socio-Political Institutions, and National Homicide Rates. *European Sociological Review* 11:243-260.
Parker, K., P. McCall, and K. Land
1999 Determining Socio-Structural Predictors of Homicide. In *Homicide: A Sourcebook of Social Research*, ed. M. Dwayne Smith, and Margaret A. Zahn. xi, 356. Thousand Oaks, Calif.: Sage Publications.
Parker, R.N.
1989 Poverty, Subculture of Violence, and Type of Homicide. *Social Forces* 67:983-1007.
Peterson, R.D., and L.J. Krivo
1993 Racial Segregation and Black Urban Homicide. *Social Forces* 71:1001.
Reaves, A.L.
1993 The Cultural Ecology of Rural White Homicide in the Southern United States. University of Michigan.
Sampson, R.J.
1997 Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy. *Science* 277:918.
Sampson, R.J., and J.H. Laub
1992 Crime and Deviance in the Life Course. *Annual Review of Sociology* 18:63-84.

Steffensmeier, D., and C. Streifel
1991 Age, Gender, and Crime across 3 Historical Periods - 1935, 1960, and 1985. *Social Forces* 69:869-894.

Steward, J.H.
1997 *Basin-Plateau Aboriginal Sociopolitical Groups*. Salt Lake City: University of Utah Press.
Vandal, G.
2000 *Rethinking Southern Violence: Homicides in Post-Civil War Louisiana, 1866-1884*. Columbus: Ohio State University Press.
Waldman, C.
2000 *Atlas of the North American Indian*. Rev. ed. New York: Facts On File.
Williams, K.R., and R.L. Flewelling
1988 The Social Production of Criminal Homicide: A Comparative Study of Disaggregated Rates in American Cities. *American Sociological Review* 53:421.
Wilson, W.J.
1989 *The Ghetto Underclass: Social Science Perspectives*. Newbury Park Calif.: Sage.
Wolfgang, M.E., and F. Ferracuti
1967 *The Subculture of Violence: Towards an Integrated Theory in Criminology*. London; New York: Tavistock Publications.
Wyatt-Brown, B.
1982 *Southern Honor: Ethics and Behavior in the Old South.* New York: Oxford University Press.

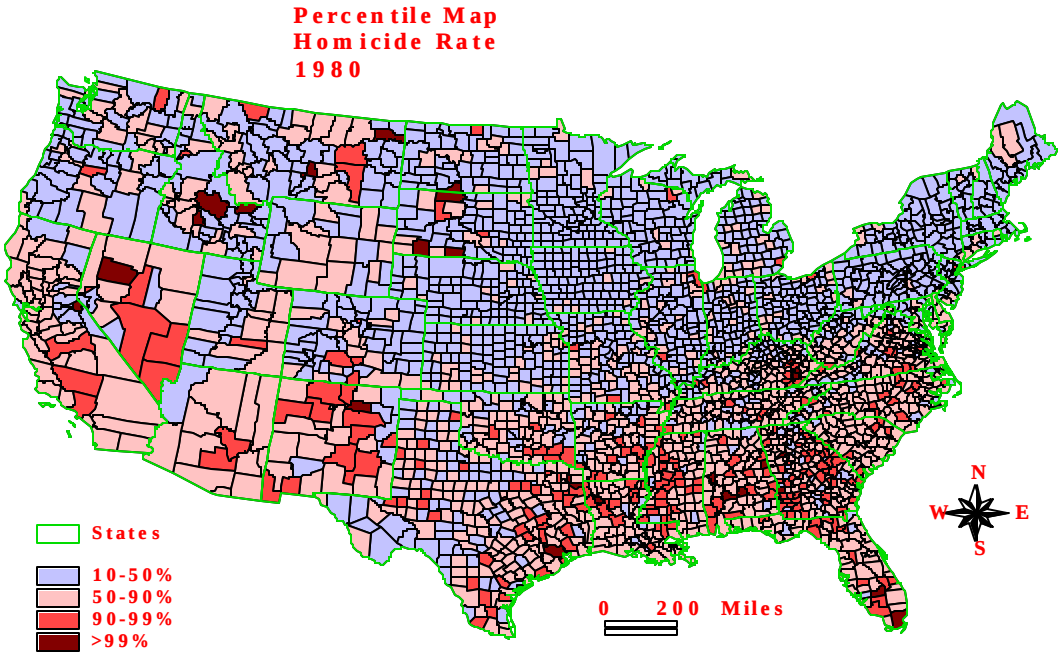

Figure 1. Crude homicide rates 1980. From Messner et al. (2001).

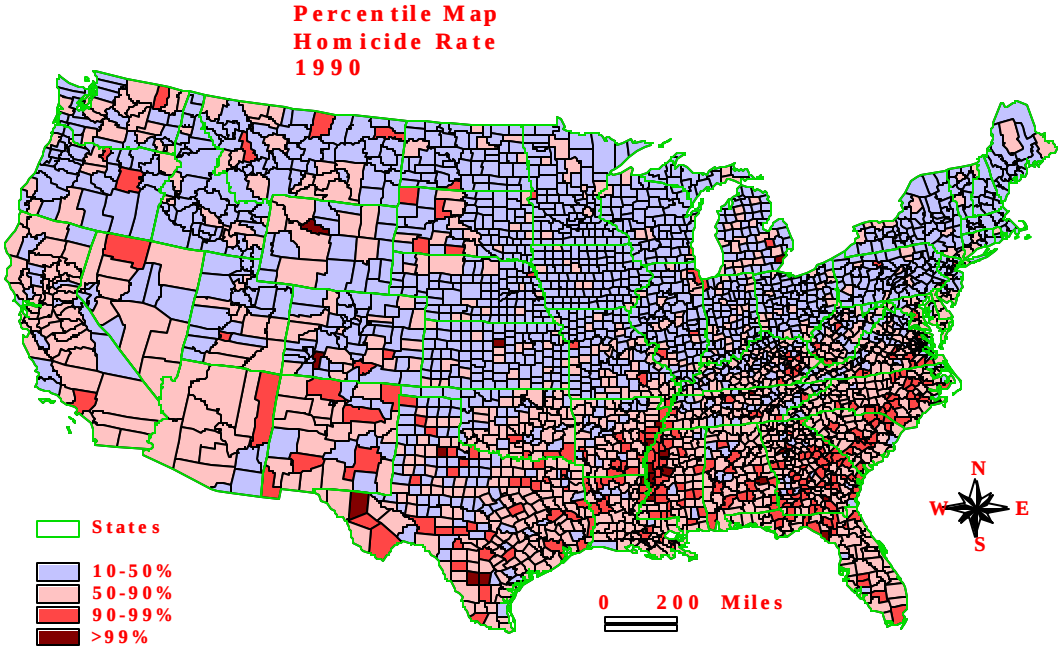

Figure 2. Crude homicide rates 1990. From Messner et al. (2001).

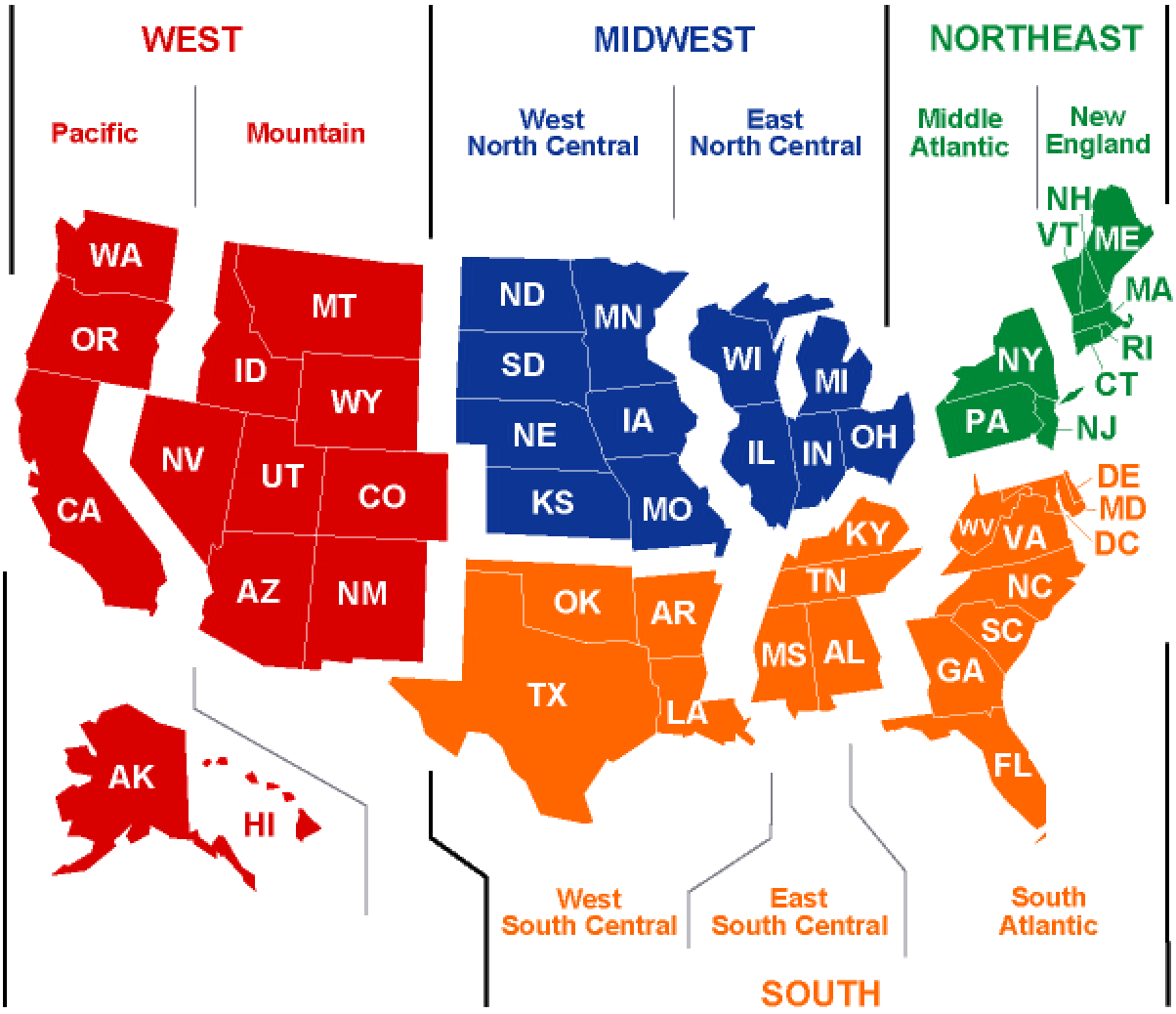

Figure 3. Census regions and divisions.

U.S. Counties 1980			Louisiana 1980			Native Americans		
	Mean	S.D.		Mean	S.D.		Mean	S.D.
FAMILYindex	0.015	0.68	%FAMILYPOVERTY	20.3	4.42	RESMOBindex	-0.202	0.652
%UNEMPLOYMENT	7.77	3.08	EDUCATIONindex	-0.85	0.3	%INDIANPOVERTY	13.81	30.87
EDUCATIONindex	-0.088	0.74	RESMOBindex	-0.08	0.22	INDIANPERCAPINCOME	8240	3747.8
WHITEPOV1990	14.5	7.16	%BLACK	29.5	11.91	%BLACK	6.505	9.88
%BLACK	7.32	11.26				%UNEMPLOYMENT	6.87	2.95
%DIVORCE	4.94	2.08				FAMILYindex	-0.238	0.687
%FAMILYPOVERTY	12.08	6.39				EDUCATIONindex	0.303	0.579
RESMOBindex	0.022	0.366						
%BORNST	76.21	10.49						

U.S. Counties 1990			Louisiana 1990		
	Mean	S.D.		Mean	S.D.
FAMILYindex	-0.044	0.672	%WHITEPOV1990	19.54	4.47
%UNEMPLOYMENT	7.06	2.8	EDUCATIONindex	-0.65	0.33
EDUCATIONindex	-0.012	0.66	RESMOBindex	0.45	0.24
WHITEPOV1990	13.6	6.99	%BLACK	26.7	11.1
%BLACK	10.51	13.66			
%DIVORCE	4.77	1.85			
RESMOBindex	0.092	0.503			
%BORNST	74.5	11.6			

Table 1. Descriptive statistics for all analyses

1980						1990					
	BETA	**EXP**	**S.E.**	**CHI-SQR**	**ROB > CHISQ**		**BETA**	**EXP**	**S.E.**	**CHI-SQR**	**PROB > CHISQ**
INTERCEPT						INTERCEPT					
AGE 10-20	-9.0744		0.0786	367.65	<.0001	AGE 10-20	-9.055		0.0922	208.55	<.0001
AGE 20-30	-7.8395		0.048			AGE 20-30	-7.8785		0.0543		
AGE 30-40	-7.973		0.0553			AGE 30-40	-8.2148		0.0587		
AGE 40-59	-8.3689		0.0594			AGE 40-59	-8.7362		0.0672		
REGION	-8.5811		0.0764	76.56	<.0001	REGION	-8.5253		0.0815	24.85	<.0001
REGION	-8.0472		0.0418			REGION	-8.41173		0.0341		
URB/RUR	-8.5811		0.0433	65.28	<.0001	URB/RUR	-8.65		0.0438	44.04	<.0001
URB/RUR	-8.5224		0.0569			URB/RUR	-8.7602		0.0696		
URB/RUR	-8.2694		0.0476			URB/RUR	-8.412		0.0492		
URB/RUR	-7.8838		0.0949			URB/RUR	-8.0623		0.0169		
REGION*URB/RUR	SEE GRAPH			30.18	<.0001	REGION*URB/RUR	SEE GRAPH			29.26	<.0001
AGE*REGION	SEE GRAPH			11.36	.0099	AGE*REGION	SEE GRAPH			5.78	.123
AGE*REGION*URB/RUR	SEE GRAPH			61.76	<.0001	AGE*REGION*URB/RUR	SEE GRAPH			78.56	<.0001
FAMILYindex	-0.1062	0.90	0.02760	14.75	.0001	FAMILYindex	-0.143	0.87	0.02920	24.26	<.0001
%UNEMPLOYMENT	-0.0414	0.96	0.00800	27.73	<.0001	EDUCATIONindex	-0.7962	0.45	0.05000	251.36	<.0001
EDUCATIONindex	-0.2357	0.79	0.04140	32.38	<.0001	%WHITEPOV1990	-0.0166	0.98	-0.02480	0.14	.7124
%BLACK	-0.0071	0.99	0.00210	7.1	.0077	%BLACK	0.0036	1.00	0.00020	42.17	<.0001
%DIVORCE	0.036	1.04	0.00830	18.94	<.0001	%DIVORCE	0.0349	1.04	0.00980	12.74	.0004
%FAMILYPOVERTY	0.0299	1.03	0.00460	42.04	<.0001	RESMOBindex	0.1081	1.11	0.05590	0.86	.3534
RESMOBindex	0.2464	1.28	0.05120	54.76	<.0001	%BORNST(STANDARDIZED)	-0.1528	0.86	-0.20150	12.48	.0004
RESMOBindex*REGION	0.1891	1.21	0.08540	4.92	.0265	WHITEPOV*REGION	0.0292	1.03	0.00880	10.7	.0011
BLACK*REGION	0.0251	1.03	0.00300	7.016	<.0001	BLACK*REGION	0.021	1.02	0.00280	55.95	<.0001
ST(REGION)	SEE RESULTS			503.7	<.0001	BORNST*REGION	0.1205	1.13	0.05100	5.64	.0176
						RESMOBindex*REGION	-0.3046	0.74	0.08990	11.42	.0007
						BORNST*RESMOB*REGION(NORTH)	-0.1648	0.85	0.04370	16.24	.0003
						BORNST*RESMOB*REGION(SOUTH)	0.0182	1.02	0.02080		
						ST(REGION)	SEE RESULTS			776.96	<.0001
PSEUDO R-SQUARE = 36.7						PSEUDO R-SQUARE = 34.9					

Table 2. Parameter estimates: northern and southern counties.

1980						1990				
	BETA	**EXP**	**SE**	**CHISQR**	**P>CHISQR**		**BETA**	**SE**	**CHISQR**	**P>CHISQR**
INTERCEPT						INTERCEPT				
AGE -YOUNG	-7.45			1.9	0.1681	AGE -YOUNG	-7.3	0.162	3.65	0.0561
AGE -OLD	-7.77					AGE -OLD	-7.79	0.226		
REGION - N	-7.92			2.52	0.1126	REGION - N	-8.11	0.257	16.11	<.0001
REGION - S	-7.29					REGION - S	-6.98	0.153		
AGE*REGION	SEE GRAPH			1.58	0.2087	AGE*REGION	SEE GRAPH		4.45	0.0349
EDUCATIONindex	-1.041	0.353101404	0.41	6.89	0.0087					
PSEUDO-R-SQR = .06						PSEUDO-R-SQR = .14				

Table 3. Parameter estimates: Louisiana northern and southern counties.

	BETA	EXP	S.E.	CHI-SQR	P > CHISQR
INTERCEPT	-5.441		0.682		
AGE YOUNG	-6.48		0.065	62.96	<.0001
AGE OLD	-7.42		0.15		
URBAN/RURAL	-6.89		0.086	0.89	0.344
URBAN/RURAL	-7.01		0.1207		
REGION - NORTH	-6.67		0.1258	28.01	<.0001
REGION - SOUTH	-6.76		0.0797		
REGION - BASIN	-6.53		0.1507		
REGION -SW	-7.38		0.09		
REGION - CA	-6.58		0.157		
REGION - PLAINS	-7.67		0.4179		
REGION - NW	-7.08		0.2256		
AGE*REGION	SEE GRAPH			21.25	0.0017
RESMOBindex	0.2914	1.338	0.0959	9.54	0.002
INDIANPERCAPINCOME	-0.0084	0.992	0.0021	16.15	<.0001
%INDIANPOVERTY	-0.0032	0.997	0.0011	7.92	0.0049
%UNEMPLOYMENT	-0.0382	0.963	0.0176	4.93	0.0264
PSEUDO R-SQR = 47.8					

Table 4. Parameter estimates: Native American regions.

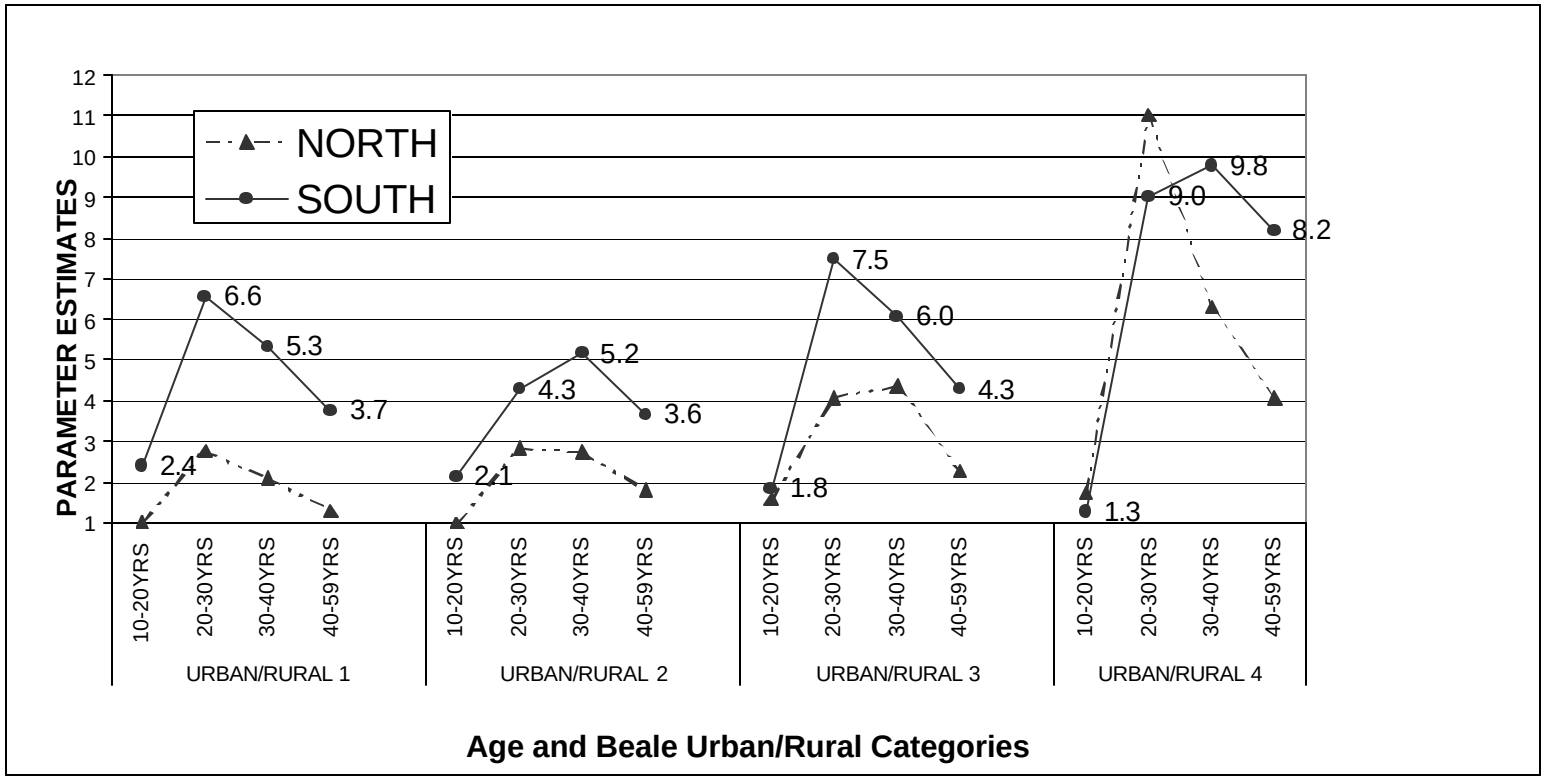

Figure 4. White homicide: comparing northern and southern U.S. counties for the 1980 sample. NOTE: The parameter estimates can be used to calculate odds ratios by dividing one age category estimate by another. For example, in the urban/rural 1 category southern offenders are 2.75 times more likely to be in the 20-30 year old category as compared to the 10-20 year old category (e.g., 6.6 / 2.4 = 2.75).

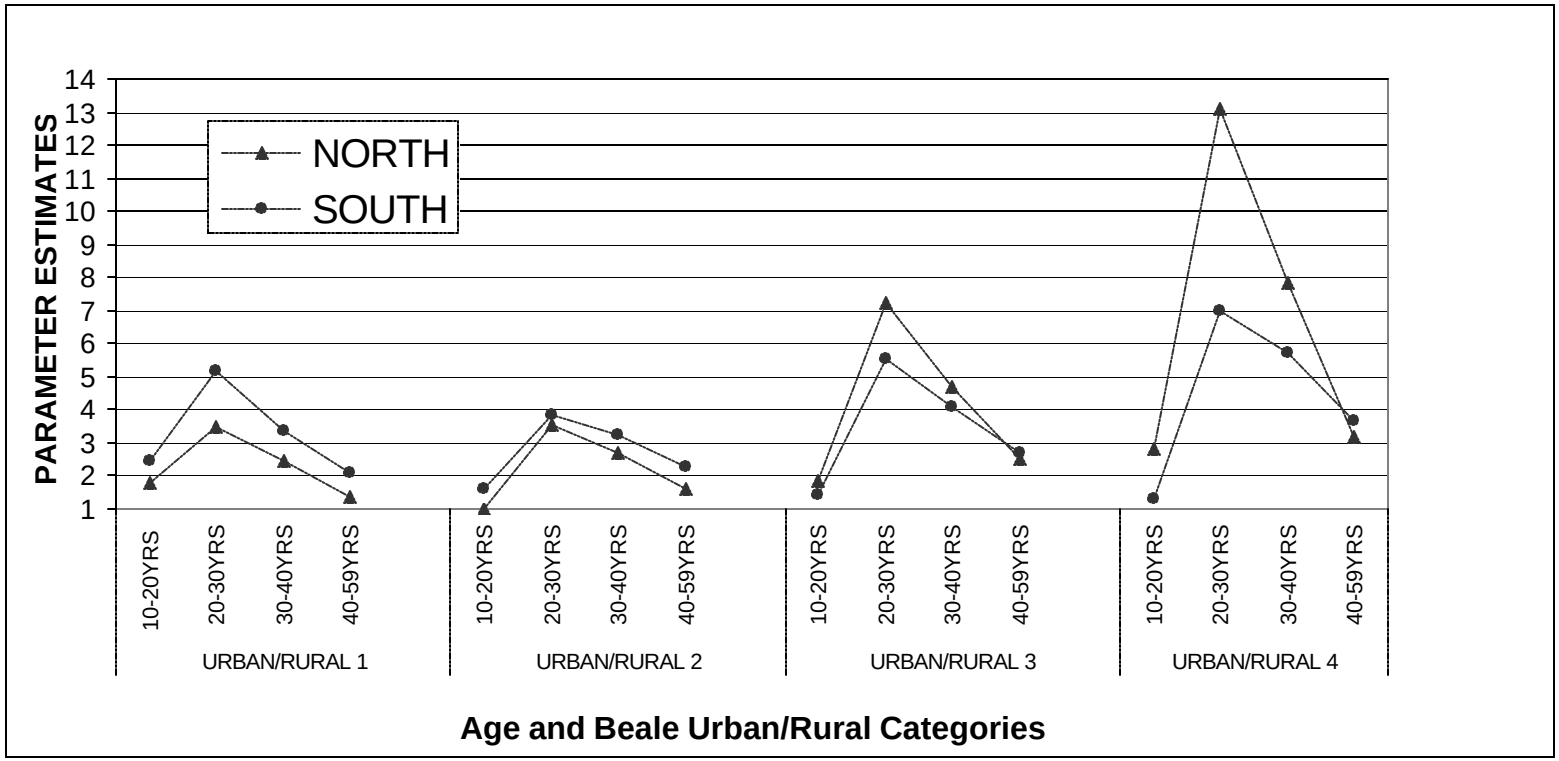

Figure 5. White homicide: comparing northern and southern U.S. counties for the 1990 sample.

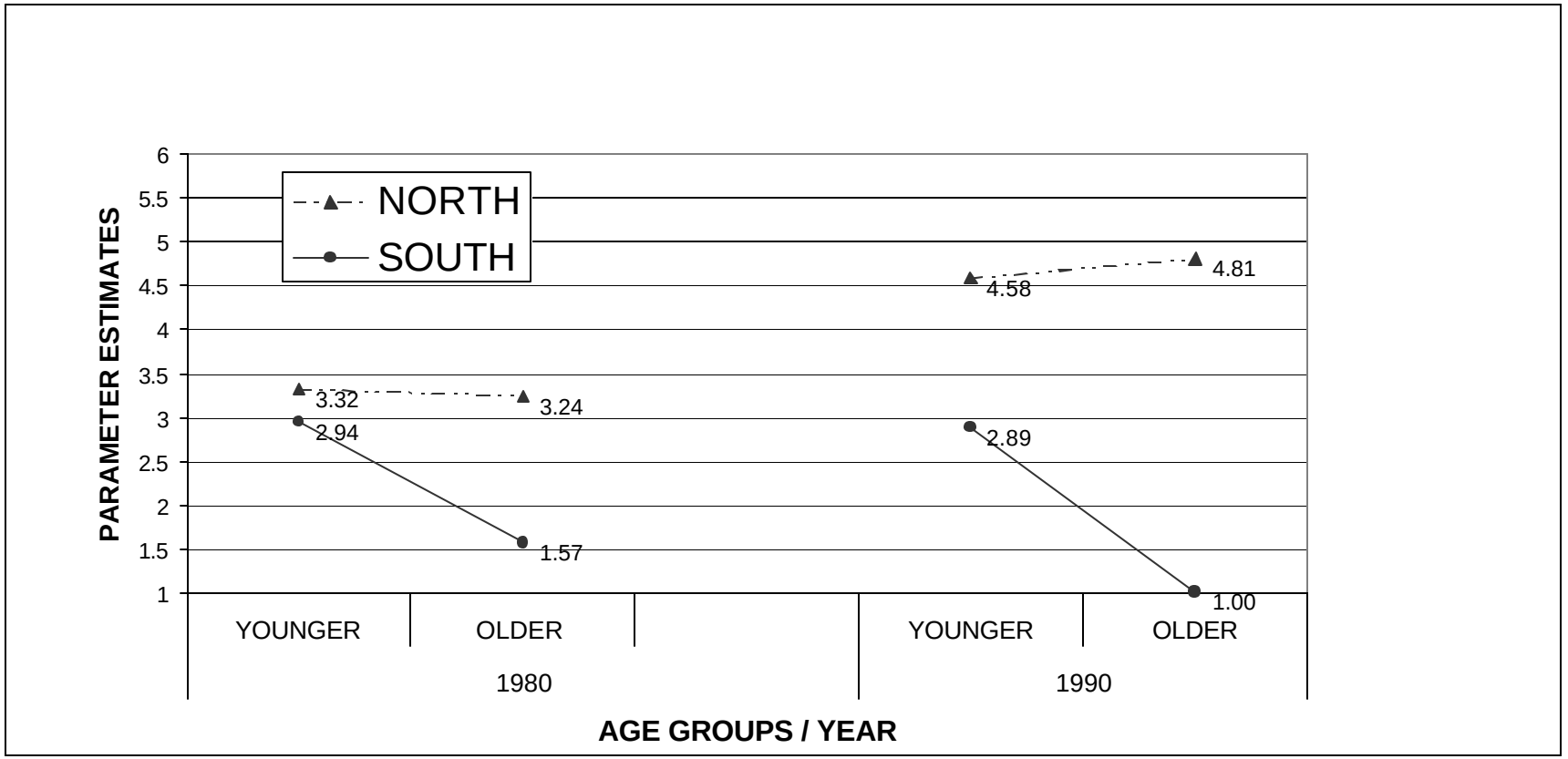

Figure 6. White homicide: comparing northern and southern Louisiana for 1980 and 1990 samples. NOTE: Parameter estimates are used to calculate odds ratios by dividing the younger age category by the older age category. For example, in 1990 homicides are 2.89 times (2.89 / 1) more likely in the younger category in southern counties, and 1.06 times less likely in the younger age category in northern counties.

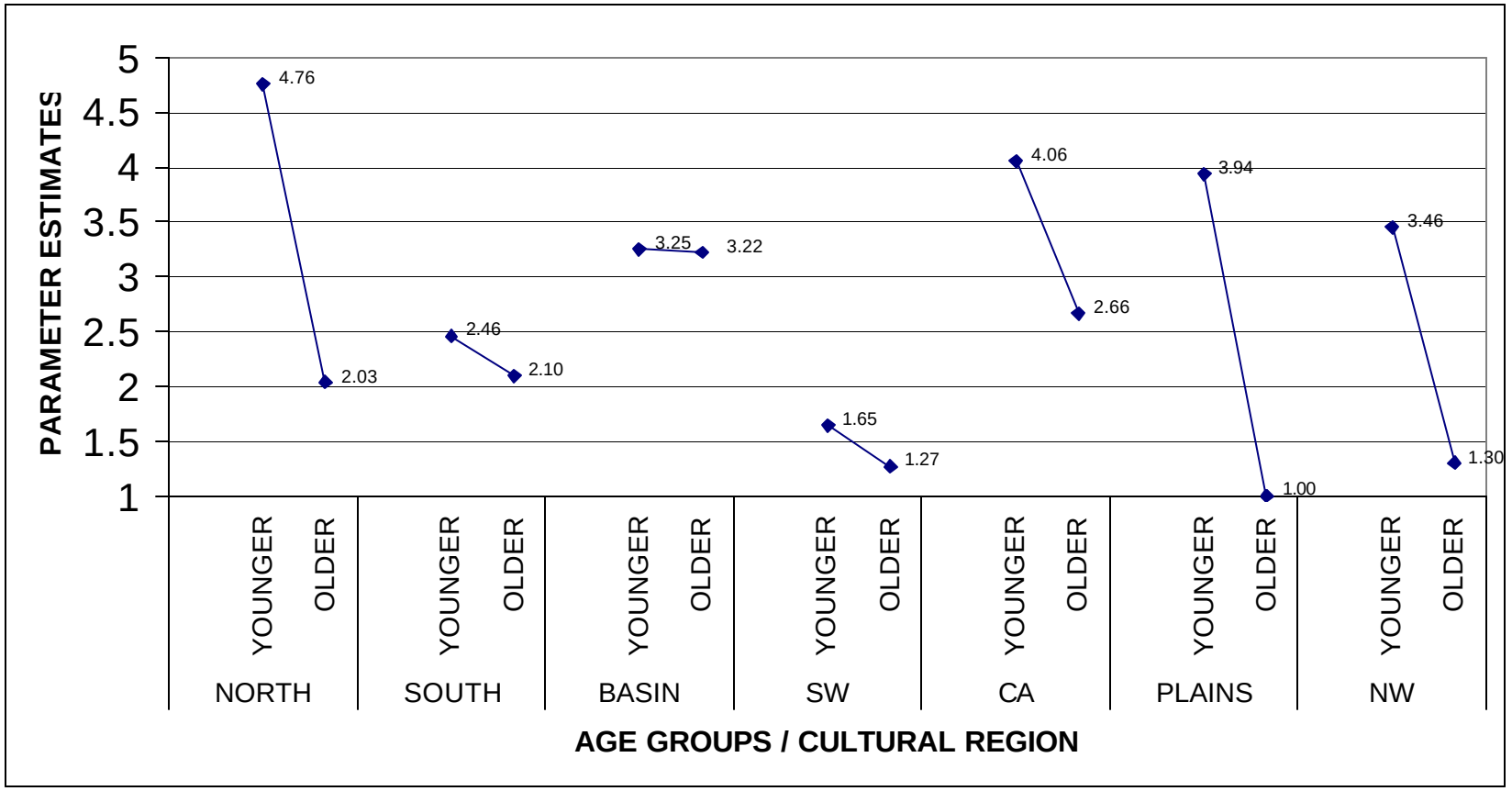

Figure 7. Native American homicide: comparing cultural regions (30 used to break age categories). NOTE: Parameter estimates are used to calculate odds ratios by dividing the younger age category by the older age category. For example, homicide events are 1.01 times (3.25 / 3.22 = 1.01) more likely to occur in the younger age category in the Basin region, and 3.94 times to occur in the younger age category in the Plains region.

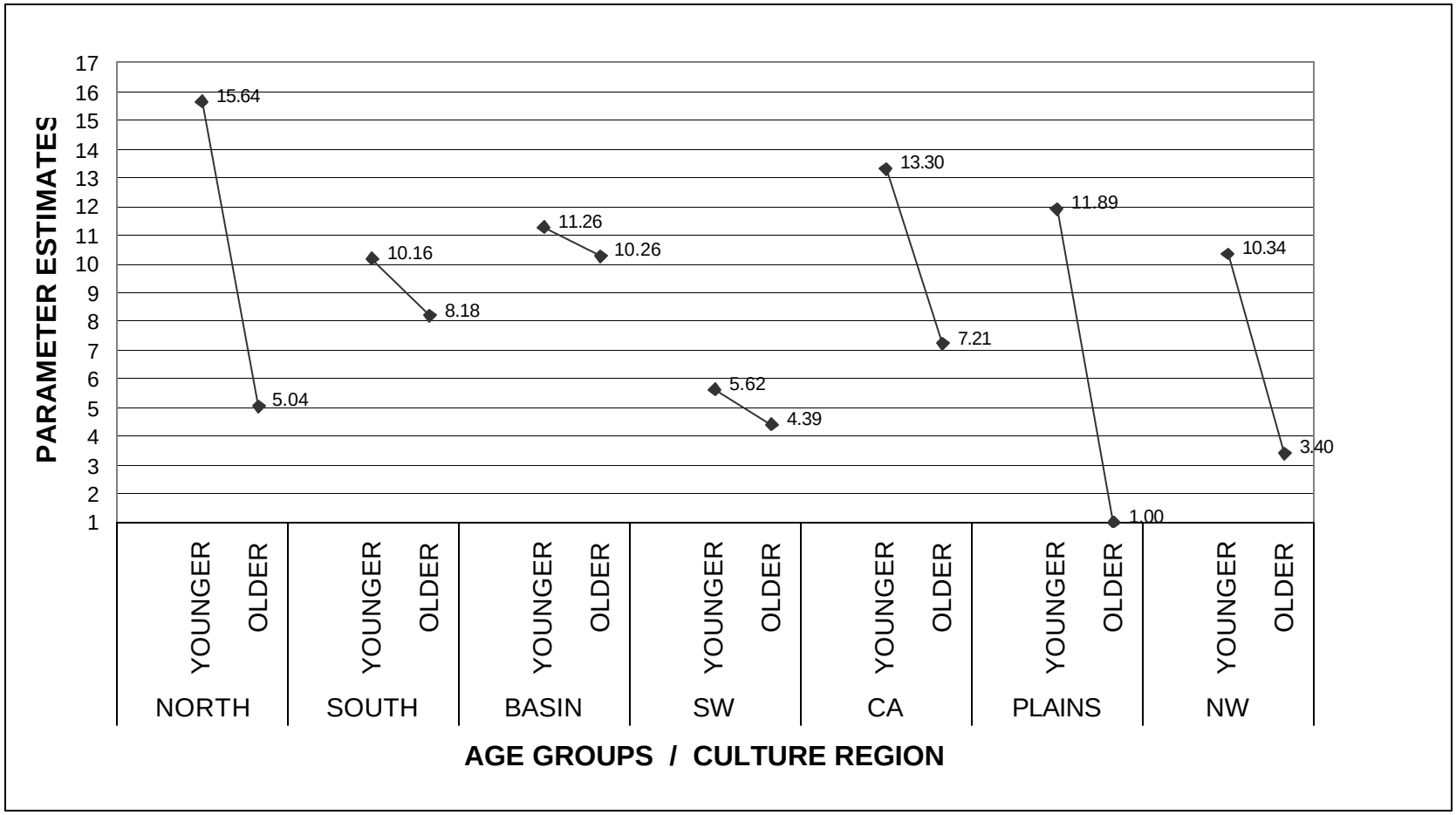

Figure 8. Native American homicide: comparing cultural regions (35 used to break age categories).