The Influence of Prison Gang Affiliation on Violence and Other Prison Misconduct

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Abstract

Most of the empirical research and practically all of the fieldwork conducted on gangs has been devoted to street gangs. In this paper, automated data from the Bureau of Prisons were used to evaluate the contribution of prison gang affiliation to violent and other forms of misconduct within the institution. We also examined a measure of gang embeddedness to see if, similar to the street gang research, it can be shown that core members of a prison gang were more likely to commit violent and other kinds of misconduct than more peripheral members. A composite measure of gang misconduct is also presented to represent the threat that a particular gang poses to prison order. The "threat index" is model-based and provides a graphical representation of the relative magnitude and heterogeneity of threat posed by different gang affiliations.

The Influence of Prison Gang Affiliation on Violence and Other Prison Misconduct

Although prison gangs are a pervasive problem in many correctional jurisdictions, there has been very little empirical analysis of the impact of prison gang membership on violent and other kinds of prison misconduct. In this paper, we provide such an analysis. We also develop a model-based "threat index" that can be used to portray a composite representation of the impact of a gang on prison order.

Most of our knowledge on prison gangs is based on responses to surveys of institutions or jurisdictions (American Correctional Association, 1993; Camp and Camp, 1985; Knox, 2000). Information collated from these survey responses specify, among other things, the extensiveness of gangs, the problems they cause, and the strategies jurisdictions use to monitor and suppress gang activity. There have been a few in-depth studies of prisons and their respective systems that have featured the growth of prison gangs as one aspect of a broader analysis. Crouch and Marquart (1989) described the emergence of prison gangs in the power vacuum that occurred in the Texas prison system during the *Ruiz* era. Jacobs (1977) analyzed the ascendancy of Chicago street gangs into powerful and controlling groups in Stateville penitentiary in the mid-1970's. Irwin (1980) formulated some of the following reasons for the evolution of prison gangs in California: changes in prisoner culture; increasing numbers of violent, poor, minority, state-raised youth to a level of concentration that they could no longer be controlled by older, less violent inmates; the radicalization of the prison population in conjunction with external political movements; and, what he characterized as the repressive response by prison officials to the

attempt by inmates to share in prison decision-making. Both Crouch and Marquart, and Jacobs described the political, legal, administrative, and social context that served as a backdrop for the elevation of prison gangs into their positions of influence. There has been no field study of prison gangs analogous to the rich literature of field research on street gangs (Decker and Van Winkle, 1996; Fleisher, 1998; Hagedorn, 1988; Moore, 1978, 1991; Padilla, 1992; Sanchez-Jankowski, 1991; Thrasher, 1927; Vigil, 1988).

The empirical evidence on the relationship between prison gang affiliation and misconduct is rather limited. Ralph and Marquart (1991) and Fong, Vogel, and Buentello (1992) provided data on violent offenses, primarily gang-related, prior to, during, and after the "war years," 1984 to 1985, in the Texas prison system. According to Fong et al., (1992) of the 25 homicides in 1984, 20 were gang-related. Twenty-three of the 27 homicides in 1985 were gang-related. In 1972, 30 of 36 murders in the California prison system were committed by one gang–the Mexican Mafia (Fong et al., 1992 p. 68). Huff and Meyer (1997) reported that three gangs emerged as the riot organizers and negotiators during the 1993 Lucasville, Ohio riot in which one correctional officer and nine inmates were killed.

Shelden (1991) found that gang members in a Nevada prison had more total arrests, more juvenile court referrals, more felony arrests, and were more likely to have used a weapon in their last crime than a sample of inmates not in a gang. Shelden also found that gang members were far more likely to commit prison rule infractions, especially drug and fighting infractions, than non-gang inmates. However, Shelden did not control for individual risk factors, other than gang

participation that predispose inmates to prison misconduct. The Ohio Department of Rehabilitation and Correction (1998) conducted a similar study showing that gang members were more likely to commit prison infractions than non-gang members. However, even though they measured other background individual differences between gang and non-gang members, those variables were not used as controls in the comparison between gang and non-gang rates of misconduct. Although there is much qualitative and anecdotal evidence, and there have been specific periods in the history of some correctional systems that gang violence has been extremely high, what is lacking is systematic research to demonstrate whether gang membership increases the likelihood of violence or other forms of prison misconduct above the factors that predispose inmates toward violence.

The state of prison gang literature is analogous to the early street gang literature prior to studies that established that street gang membership does indeed increase delinquency and criminal behavior above the level that would be found among delinquent individuals not considered to be members of gangs. There has been a consistent finding that in impoverished and marginal communities gang membership increases the likelihood of delinquency (Esbensen and Huizinga, 1993; Fagan, 1989; Spergel, 1990; Thornberry et al., 1993). Sampson (1986) evaluated the impact of neighborhood and individual levels of SES on police contacts and court referrals. Although it was not a primary consideration of the study, he found that delinquent peer affiliation and not gang membership accounted for police contact. Esbensen and Huizinga (1993) found that even though delinquents who became street gang members had high delinquency rates prior to their gang involvement, their delinquency rates increased during their gang affiliation and dropped

off when they left the gang. More recent work has shown that gang membership does increase self-reported and court-reported delinquency above and beyond the effect of having delinquent friends, which itself is a strong predictor of delinquency (Battin, Hill, Abbott, Catalano, and Hawkins, 1998).

Testing the impact of gang membership on violent misconduct presupposes one can distinguish a gang affiliation from a peer relationship, or that one can identify a gang member at all. Klein (1998) makes this point about street gangs, characterizing them as informal social groups. Thus, establishing membership is one essential criterion to our understanding. Recent work by Curry (2001) showed that in a small youth cohort (429 youth), police-identified gang members were a subset of individuals who self-reported gang involvement. The data also showed that 43.6 percent of the police-identified gang members did not identify themselves as either delinquents or gang-involved. In the present research, we were unable to separately measure self- and official-gang identification. In fact, the official measure of gang identity we used has as one component, self-identification.

Klein (1998) has also addressed what we should count as gang-related crime. The member-based definition implies that any crime committed by the gang is an instance of gang crime. Those who adopt the motive-based definition, count only those crimes that further the goals or interests of the gang. We adopted the member-based definition of misconduct rather than the motive-based definition. We counted any instance of violent or other misconduct committed by a gang member. The data did not allow us to sort out motive from member-based misconduct.

Defining gang membership can be a controversial issue. There has been a debate in the street gang literature whether delinquency and criminal activity should be a prerequisite for defining a group as a gang (Klein, 1995). Even the definition of membership can be elusive. A youth's affiliation with a gang can be very short term or quite marginal; someone can move in and out of a gang continually (Esbensen and Huizinga, 1993; Thornberry, et al., 1993). We suspect the boundaries between members and nonmembers is less permeable in prison than on the streets, although we have no evidence either way. However, the definition of a gang member for the purpose of this study was established by Bureau of Prisons (BOP) policy. Gangs have been defined based on their actual or perceived threat to the orderly management of the prison. Specific gang membership was based upon identifying signs, symbols, correspondence, prior official records, associations, or self admission of inmates; however, there was no prerequisite that a prison gang member had to be involved in prison misconduct. The present study allows us to evaluate the relationship of this kind of operational definition of gang and gang membership with criminal behavior and rule violations within the prison setting.

We used data from automated information systems of the Bureau of Prisons. In addition to the identification of specific gang membership, the Bureau of Prisons uses a three-tiered system to establish gang identity differentiating between members, suspects, and associates[1]. This three-tiered system is used to distinguish how embedded a particular prisoner is in the gang. A member is viewed as a full-fledged, core gang member. In a few gangs, this means "blood in, blood out." Someone has to kill to become a member; someone has to be killed to "leave" the gang. A suspect is thought to be a gang member whose credentials have not been fully established. An

associate is someone whose actions indicate he is conducting business or looks out for the interests of a gang but has not joined the gang, or by virtue of one's race, ethnicity, residence, or cultural background cannot join the gang[2]. All other inmates, except inmates associated with organized crime, were unaffiliated.

Currently, this three-tiered system only applies to the most organized and "menacing" gangs in the BOP, officially called "disruptive groups"; however, a two-tiered classification exists for all other gang members. They are either suspects or associates. If this identification system is meaningful, we would expect that members would be most likely to commit violent misconduct, suspects, the next most likely, and associates the third most likely when compared to unaffiliated inmates after controlling for other variables that predispose an inmate to commit violence. This embeddedness hypothesis is based on the supposition that the more entrenched a gang member is, the more likely he will use violence to carry out the mission of the gang and to enforce the gang's hegemony over other gangs and the unaffiliated inmate population. There is an analog in street gang research which has shown that core members are more likely to be engaged in delinquency and violence than fringe members (Klein, 1995; Spergel, 1995).

To test the impact of gang membership on violence, we will present both a model which incorporates specific gang affiliation and a second model which uses the member, suspect, associate, classification system[3]. The former model's weakness is that not all gangs will be associated with increased violent activity since some gangs are more benign than others. The latter model's weakness is that the classification system representing the level of embeddedness of

a gang member is partially confounded with the fact that the full embeddedness classification only applies to the most menacing gangs.

A second purpose of this research was to try to identify a model-based "threat index" that could be used to characterize the propensity of a gang toward violence and other forms of misconduct. Such an index is already in use by BOP authorities; however, it is based upon the unadjusted rates of serious misconduct. We developed an approach based on a multivariate statistical model that incorporated gang affiliation in the prediction of different forms of misconduct.

METHODS

RESEARCH DESIGN AND TIME FRAME

A referent population was chosen representing sentenced male inmates in the custody of the Federal Bureau of Prisons on March 1, 1997 who were housed in facilities operated by the Bureau. The Bureau also has jurisdiction over other inmates held in contract facilities; however, the recording of misconduct and gang membership in those facilities is not as consistent or systematic. The sample was restricted to men for whom we could determine a security-custody score, a measure of misconduct risk that we define later. This restriction would exclude primarily pre-trial inmates who had not yet received a sentence and a small number of inmates who were sentenced but whose security-custody score had not yet been determined. Women were excluded because there were so few with a gang affiliation and few with violent misconduct, the primary

dependent variable in this analysis[4]. There were 82,504 male inmates in this sample, and 7,445 (9.02 percent) were considered gang affiliated. We obtained misconduct data for the year following the reference date. If an inmate left the system, his risk period was adjusted. While this cross-section prevents us from analyzing certain causal relationships, such as whether gang identification precedes or follows from increased misconduct, it does provide a rich data set of inmates and gang members with variable amounts of time in prison and variable amounts of time left to serve. Both of these factors have been found to be quite important in analyzing prison misconduct (Toch and Adams, 1988).

DEPENDENT VARIABLES

All of the dependent variables in the analyses were based upon a finding of guilt in an administrative hearing conducted by Bureau of Prisons staff. There is a policy statement governing the procedures of a disciplinary hearing. The hearing officer receives special training and has no other duties except conducting hearings. We used two dependent measures of violence. The first, violent misconduct, consisted of the following behaviors: homicide or attempted homicide, aggravated assault, setting a fire, possessing a dangerous weapon, rioting, encouraging others to riot, taking hostages, possessing a hazardous tool, fighting, threatening bodily harm, extortion/blackmail, using martial arts or boxing skills, and simple assault. If an inmate committed any of these types of misconduct, he was recorded as having committed a count of violent misconduct. Although violent misconduct is the primary concern of prison officials with respect to maintaining prison order (Bottoms, 1999), of particular concern is

whether the violent misconduct results in injury or harm to the victim. Thus, we had a measure of serious violence based on whether the violent act resulted in an injury or whether a weapon was used in commission of the violence regardless of whether the victim was an inmate or staff member.

Weapons categories included: bodily fluids, hands, legs, and lethal objects. Injury could be anything from minor to fatal. Only 8 percent of staff suffered an injury, while 62 percent of inmates suffered an injury from violent attacks. While most of the inmate related injuries were minor and were treated at the prison (45.7 percent), 11.1 percent required treatment at an outside hospital and were considered moderate, 4.2 percent were life threatening (major), and 1.0 percent were fatal.

When a victim was attacked, weapons were used 49.5 percent of the time against staff and 86.1 percent of the time against inmate victims. The weapon of choice against inmates or staff was hands or fists. However, the second most likely weapon to be used against inmates was a solid or blunt object, while the second most likely weapon to be used against staff was bodily fluids. Stabbing (7.0 percent) and cutting objects (4.3) were much more likely to be used against inmates than staff (1.2 and 1.0 percent respectively).

In addition to violent misconduct, we examined other misconduct categories including: drug, accountability, property, security, sexual misconduct, and other. Although violent and drug misconduct are considered the most serious with regard to the safety and security of inmates and

staff, other forms of misconduct can indicate systemic problems in the maintenance of prison order. Accountability misconduct was based on prohibited acts related to the inmate's being in unauthorized areas or his unwillingness to follow orders including work assignments[5]. Property misconduct included prohibited acts related to theft, gambling, and property damage. Security misconduct included serious escape attempts and behavior designed to disrupt the orderly running of the institution. Sexual misconduct included sexual misbehavior and exposure. Other misconduct was a catchall for anything else that was not included in the above categories. We also did an analysis of the total amount of misconduct committed by gang members and other inmates during the study period.

For each inmate in the study, we were able to record the number of occurrences of a misconduct category in the year following the reference date. The mean, standard deviation, minimum, and maximum values for these count variables appear in Table 1. Table 1 also contains descriptive statistics on variables indicating the inmate's history of committing these specific kinds of misconduct. In each analysis, we incorporated the history of a specific kind of misconduct into the structural model as an independent variable. For the models evaluating violent and serious violent misconduct we used the history of violent misconduct as a covariate, since the history of serious violent misconduct was not available prior to the reference period.

BACKGROUND VARIABLES

All of the variables used as background covariates in these analyses were culled from the

automated records of the Bureau of Prisons. Most of these variables have been used in other analyses of prison misconduct (Harer and Langan, 2000) and are known to be related to violent misconduct. Table 2 lists the background variables, the mean, standard deviation, minimum, maximum, and reference category if the variable was a dummy code.

The security-custody score is a continuous scale that is used by the Bureau of Prisons to classify inmates. The higher the score, the more likely an inmate is expected to commit violent misconduct. Inmates with higher security-custody scores are placed in prisons that have more procedural controls (e.g. controlled movement, pass system, areas out-of-bounds) and more internal and external physical security (e.g. fence alarms, razor wire, double fences, guard towers). The security-custody score is based on criminal history, sentence length, severity of the commitment offense, history of violence (most of which occurred during prior offenses), escape history, drug abuse history, adjustment in prison, and categories of prison misconduct. A great deal of empirical work has gone into assessing and improving this measure (Harer and Langan, 2000).

Citizenship was entered as a series of dummy variables with U.S. citizenship as the referent. Citizens of Columbia and Mexico were distinguished for several reasons. One reason is because they comprise the two largest citizen groupings other than the U.S. A second reason for entering Mexican citizenship was because many gangs are composed of Mexican inmates both of U.S. and Mexican origin and we wanted to disentangle the influence of Mexican nationality from the influence of the gangs composed of Mexican Nationals. A third reason for this citizenship

distinction was that these two citizenship groups were hypothesized to be involved in a high proportion of drug trafficking, and we wanted to test the relationship of citizenship to drug trafficking and drug use within prison. A small number of inmates (1.1 percent) had missing citizenship values and these were represented with a dummy variable coded as 1 if the data were missing, 0 otherwise.

Ethnicity, age, and race were recorded. The referent for Hispanic inmates was Non-Hispanics. White inmates were the referent for African American, Native American, and Asian races. Age was transformed using the natural logarithm. The amount of time already served by an inmate was recorded and was also transformed by taking its natural logarithm.

The security level of the prison in which an inmate was housed on the referent day was recorded. Theoretically there are two competing influences of prison security level. Higher security levels result in higher levels of custody staff and more rigorous security procedures to prevent violence. Recent evidence by Berk and de Leeuw (1999) demonstrated the inhibiting influence of greater security procedures on violence in the California prison system. However, because of inmate classification assignments, the higher prison security levels are composed of inmates who are more likely to commit violence. This should serve to increase violence at these security levels. The prison security levels were coded as dummy variables using the lowest security level, minimum, as a referent. The administrative security level is composed of jails and medical centers. We coded a dummy variable (Security Level -- Florence/Marion) if the inmate's institution was ADX Florence or USP Marion because these institutions house the most dangerous inmates.

However, the security procedures are extremely tight including 24 hour lock-down for many of the inmates.

Finally, days at risk was the number of days for the 1-year follow-up period an inmate was still in the custody of the Bureau. Inmates who died or were released were censored and their risk days were adjusted to the appropriate value.

GANG VARIABLES

Variables representing gang affiliation, length of time in the gang, and the variables measuring how embedded an individual was in the gang are represented in Table 3. The mean, standard deviation, minimum and maximum values, and reference category for dummy variables are listed in Table 3. Time in the gang is represented in months. All of the gang participants have as their referent anyone not in a gang, namely someone who is unaffiliated. Gang embeddedness represented by the variables member, suspect, associate, and organized crime also have as their referent the unaffiliated inmates. Organized crime members were given their own special category because of their allegiance to their organization.

STATISTICAL MODEL

Since the dependent variable in each model was the number of occurrences of misconduct in one year, a count model was chosen to analyze the data. A negative binomial regression model was

selected since a Poisson regression model assumes that the conditional variance is equivalent to the conditional mean and this is rarely true in practice (Long, 1997, p. 230)[6]. For each model, we conducted a test of overdispersion that is a likelihood ratio test of the differences in the log likelihood between the negative binomial and Poisson regression models. This is actually a test of whether an error term is needed in the structural model relating the expected count of violence to the background and gang variables. The statistical program STATA 6.0 was used which allowed us to use days-at-risk as the variable exposure period to control for different risk periods for each inmate.

RESULTS

SPECIFIC GANG AFFILIATION

For each dependent variable, we adopted the same analytical strategy. We first tested the relationship between the background variables and the dependent variable in the absence of any information about gang affiliation. STATA provides a likelihood ratio test of overdispersion indicating whether the negative binomial model is a better fit to the data than the Poisson allowing us to choose the appropriate model. If the model was statistically significant, we added time in the gang, an indicator of multiple gang affiliation, and dummy variables representing the specific gang affiliation. To test whether the additional gang specification variables informed our understanding, we conducted a P^2 test of twice the difference in the log likelihood values of the model with the background variables and the model with additional gang affiliation variables[7]. For example, for

the model assessing the impact of background variables on violence, the global likelihood ratio P^2 of all the parameters was 4,604.7 (df=17), $p < 0.000$. The pseudo R^2 was .119. The overdispersion test showed that a negative binomial model was more appropriate than the Poisson. The additional gang variables added important information to the prediction of violence. The P^2 was 171.88 (df=29), $p < .001$. This same approach was repeated for all 9 dependent variables. With the exception of sexual misconduct, in every case, the model relating background variables to the dependent variable was significant, a negative binomial regression was more appropriate than a Poisson, and the additional gang variables statistically improved the fit of the model[8]. Because sexual misconduct was so rare -- only .61 percent of the sample committed any sexual misconduct in one year -- we also used a complementary log log regression. The sexual misconduct was dichotomized and then analyzed using STATA's cloglog procedure (STATA Reference A-G, 1999 P. 217-224). The complementary log log distribution is intended for rare events (Agresti, 1990). All of the models did converge; however, the model which added specific gang variables did not improve the fit above the baseline model to warrant interpreting the gang coefficients.

The main purpose of our analyses was to test the implication of gang affiliation and the background variables were used to control for potential differences in individual inmates that previous research has shown to be related to violent and other misconduct. To simplify our presentation of all of these models, we symbolically depict only the gang coefficients since the background coefficients were secondary to our purpose. Later in this paper, we indicate in a more substantively meaningful way, the relative influence of the background and the gang variables.

The influence of specific gang affiliation on all forms of prison misconduct is represented in Table 4. The gang variables (time in the gang, multiple gang affiliation, and specific gang membership) are depicted in the rows of Table 4. The prison misconduct categories are represented in the columns. Thus, each column represents the results of a model in which we added specific gang affiliation to the models containing only the background characteristics. An "I" in Table 4 indicates that a Wald test ($p<.05$) demonstrated that the coefficient was significant and increased the predicted count of misconduct. A "D" indicates the variable was significant and was associated with a decrease in the predicted misconduct. Blank cells indicate the variable was not significant.

As can be seen in Table 4, specific gang affiliation was associated with an increase in the probability of violence for 20 of the 27 gangs, and an increase in serious violence for 18 of the 27 gangs. Gang affiliated inmates were more likely to be involved in drug, property, accountability, and, to some extent, other misconduct as well. The analog R^2 values at the bottom of the table show that there was actually a slightly better fit of the serious violence model than the model examining violence. The worst fitting model was for property misconduct. Time spent in the gang decreased the amount of violence, while having more than one affiliation was not significant. No gang was associated with a lower probability of violence relative to the unaffiliated inmates. However, many gangs were no more violent than their unaffiliated peers. Furthermore, membership in some of the gangs such as the Texas Syndicate and the Mexakanemi was associated with increases in almost all forms of misconduct.

GANG EMBEDDEDNESS

We used the same analytical strategy to test the gang embeddedness hypothesis. Instead of using a specific gang affiliation, dummy variables representing the degree of gang embeddedness (member, suspect, associate) were used. Once again, the unaffiliated inmates were used as the referent. These models also incorporated time in the gang and the multiple gang affiliation variable. Rather than evaluate every dependent variable, we examined violence, serious violence, drug, and total misconduct.

The results of these analyses are shown in Table 5. As with the specific gang affiliations, in this model, time in the gang was significant and decreased the probability of violent misconduct. The three gang affiliation variables were all significant and indicated a higher likelihood of violent misconduct compared to unaffiliated inmates with similar background characteristics. Once again, the fit for the serious violence model was the best. The embeddedness hypothesis implies that the member coefficient should be greater than the suspect coefficient, which should be higher than the associate coefficient. This was in fact the case. To establish statistical differences among the coefficients, we conducted a Wald test of the difference in those coefficients. For the violence analysis, a Wald test of the coefficients showed that the member coefficient was statistically different from the suspect coefficient, $P^2 = 33.19$ (df=1), $p < 0.000$. The member coefficient was statistically different from the associate coefficient, $P^2 = 37.7$ (df=1), $p < 0.000$. Finally, the suspect coefficient was statistically different from the associate coefficient, $P^2 = 5.18$, (df=1), $p < 0.023$, confirming the embeddedness hypothesis.

Because gang embeddedness is partially confounded with gang affiliation in these data, we ran a model that included only those gangs for which someone could be classified as a member, suspect, or associate. As mentioned before, these gangs are called disruptive groups and are supposed to be the most structured and organized gangs. The count of violent misconduct was the dependent variable and we used the same specification as the previous violence model except that we excluded the variable representing organized crime because it was not a disruptive group. The reduced sample size was 82,442 and included all unaffiliated inmates and the inmate affiliates of the 6 prison gangs that were considered disruptive groups. The model yielded a likelihood ratio P^2 of 3,938, df = 20, $p < 0.000$, pseudo $R^2 = .120$. The variables of interest were member, suspect, and associate. Member was significant, $z = 8.911$, $p < 0.000$. Suspect was also significant, $z = 3.00$, $p < 0.003$; however, associate was not significant, $z = 0.100$, $p < .920$. Thus, when compared to unaffiliated inmates, members and suspects were more likely to commit violent misconduct; however, associates, those thought to be least embedded in these highly organized gangs, were no more violent than their unaffiliated peers at least for those gangs identified as disruptive groups.

Since time in the gang was consistently negatively related to all forms of misconduct, it deserves a discussion. We can only speculate post hoc why we found a negative relationship. It is possible that the time-in-the-gang result represents burnout -- prolonged gang activity becomes so stressful that longer periods of activity reduce violent behavior. Since we controlled for age of the inmate, it is unlikely that longer gang participation represents an aging out phenomenon. Another possibility is that the time-in-the-gang phenomenon is a proxy for the suppression effect of greater

scrutiny and custody of gang members. The longer an inmate is in a gang, the more likely prison authorities will elevate their security. Since we did control for security-custody score and their institution security level this explanation is also less satisfactory, however, still tenable. Yet, a third possibility is that the longer one is in a gang, the more likely one will become a leader or "supervisor" and therefore will be more likely to give orders related to violent and other misconduct rather than commit the misconduct oneself. Of course, this explanation would have to account for violent misconduct committed by members, suspects and associates. Irrespective of whether one was a member, suspect, or associate, the longer one was in a gang, the less likely he committed violent misconduct. Since the ranks of the gang leadership came from members or suspects, and they were more likely to commit almost any kind of misconduct than unaffiliated inmates, one would have to speculate, that the leadership positions from within members and suspects were composed of inmates who had spent the longest time in the gang. A final explanation may have to do with initiation rituals. New gang members have to prove loyalty by assaulting rival gang members or fighting other inmates. Thus, gang members with shorter durations of time in the gang represent those who are in the process of demonstrating their loyalty. While we cannot support one explanation to the exclusion of the other, the fact that time in the gang is consistently associated with lower misconduct should be explored further and replicated in other prison gang research to inform our understanding of this phenomenon.

CHANGES IN THE DISCRETE PROBABILITY OF VIOLENT AND TOTAL MISCONDUCT ASSOCIATED WITH GANG CLASSIFICATION VARIABLES

To gain further substantive clarification of gang affiliation, we used several algorithms developed by J. Scott Long (2000) to examine how the discrete probability of violent, serious violent, drug, and total misconduct changes as a result of the background and gang embeddedness variables. Instead of evaluating the expected count, we constructed a binary variable for whether a misconduct episode occurred during the one-year risk period. We analyzed the data using STATA's probit regression routine and then applied Long's interpretation algorithms "prchange," and "prvalue".

The LR P^2, degrees of freedom, , p-value, and pseudo R^2 for the probit regression of violence, serious violence, drug, and total misconduct are reported at the bottom of Table 6. All of the probit regressions were significant. The structural relationships for the probit model were the same as they were for the negative binomial. All of the variables significant in the negative binomial model were significant in the probit and all the variables which were not significant in the negative binomial model were not significant in the probit. Because both the probit and the negative binomial models are nonlinear, changes in the dependent variable depend on the level of all other variables in the model, in addition to the value of the particular variable in which one is interested.

Long's prchange interpretation algorithm is designed to hold all other variables at a level of one's choosing (e.g. mean, median, or a particular value) while the variable of interest is varied in a particular way and the discrete change in probability of the depended variable is recorded. While Long uses a number of different variations in changing the variable of interest, we report only

two. In the results reported here, we hold all other variables at their mean level. In the case of the dummy variables, we report the discrete changes in probability as the dummy variables change from 0 to 1. In the case of continuous variables, the Long procedures use various ranges, but here we report the values associated with varying the continuous variables from - ½ standard deviation to + ½ standard deviation about each variable's mean. In Table 6, we report discrete changes in the probability of misconduct associated with gang embeddedness for violent infractions, serious violent infractions, drug violations, and total misconduct. The same conventions were adopted for all of the dependent variables. Only the statistically significant variables ($p<.05$) are indicated in the table.

Table 6 contains a great deal of information on the substantive meaning of both the background variables and gang embeddedness. Examining the continuous variables, a one standard deviation about the mean of the security custody score was associated with an increase in the probability of violence of .082, while a one standard deviation increase in the natural log of age was associated with a decrease in the probability of violence of .066. Gang embeddedness has a profound influence on the risk of violence holding all other variables at their mean. A gang member increases the probability of violence by .207, serious violence by .079, drug misconduct by .059, and total misconduct by .259 in the reference year. Suspects and associates also increase these kinds of misconduct quite dramatically, much more than background characteristics such as race, and ethnicity, and citizenship.

GRAPHICAL REPRESENTATION OF A COMPOSITE GANG THREAT INDEX

We also computed the discrete change in the probabilities of misconduct associated with specific gang membership to create a model-based, composite gang threat index. The discrete changes in probability in violent, serious violent, and drug misconduct associated with specific gang affiliation are graphically depicted in a stacked bar chart in Figure 1. Although these probabilities are, strictly speaking, not additive, the stacked bar does convey the relative problem behaviors associated with gang membership in each of the gangs. It also quickly conveys the type of misconduct in which gangs specialize and whether that affiliation increases or decreases the probability of misconduct relative to unaffiliated inmates. For example, even though the Border Brothers had a quite high discrete change in the probability of violent misconduct, relative to affiliation with the Texas Syndicate, or inmates designated as being in Multiple Gangs-None Monitored[9], they had a lower probability of serious violent misconduct. Affiliation in the Mexican Mafia lowered the probability of drug misconduct. Affiliates of the Texas Syndicate were less likely than the Border Brothers to commit violent misconduct but more likely to commit drug misconduct. This graphical depiction of the threat index allows one to quickly inspect, not only the severity of the collective gang threat, but the composition of the threat as well. Furthermore, this alternative index is model-based and has a straightforward interpretation. The composite gang threat index shows the relative probability of violent, serious violent, and drug misconduct for the referent year while simultaneously controlling for background factors of the individual gang participants that predispose them to misconduct. The graphical depiction also demonstrates the heterogeneity in the effect gang affiliation has on forms of misconduct.

CONCLUSIONS

As far as we know, this paper represents the first comprehensive multivariate analysis of the effect of gang affiliation on prison misconduct. Similar to previous research on street gangs, we found that membership does increase violent and almost all other forms of prison misconduct, whether these misbehaviors are rule infractions or actual crimes. We have demonstrated that gang affiliation increases the likelihood of violent and other forms of misconduct, even after controlling for individual characteristics of inmates that prior research has established are associated with a violent predisposition. Thus, after controlling for a measure of violent risk (security-custody classification), a previous history of violence, and other background factors, gang affiliation increases the probability of violence and other misconduct.

Secondly, we have also demonstrated that gang-embeddedness that distinguishes whether someone is a core or more peripheral member of a gang, was also related to the level of violence. Core members were more likely than more peripheral affiliates to commit violent misconduct. And furthermore, the more peripheral members (suspects and associates) were more likely to commit violent misconduct than their unaffiliated peers. This also is analogous to findings in the street gang literature (Klein, 1995; Spergel, 1995).

While this study was prospective, it was not longitudinal with respect to gang affiliation. Therefore, we must qualify some of the causal conclusions. Although we controlled for factors that predispose inmates toward violence and other forms of misconduct, it is possible that these predisposing indicators became elevated after an inmate joined a gang. Another possibility, although we think less likely, was that inmates were more likely to be designated as gang

members, suspects, or associates because of their tendency to misconduct, and therefore, what we were observing was the result of labeling rather than some gang phenomenon? Mitigating this interpretation is the fact that gang membership within the Bureau of Prisons is based upon signs, symbols, and intelligence about gang communications rather than the misconduct of an individual.

The consistent finding that time in the gang reduces the amount and probability of misconduct bears further study. Is this gang burnout or quite the opposite? Is it, in fact, evidence that the longer one is an affiliate, the more one takes on a leadership position, and orders, rather than commits gang misconduct. Or, is it that the longer one is in the gang, the more authorities respond by monitoring and suppressing one's activities. Since the meaning of this phenomenon is quite important for gang intervention strategies, it bears further study.

The model-based gang threat index provides an alternative assessment of composite gang activity. The graphical representation also showed that there was a great deal of heterogeneity in aggregate measures of gang misconduct after controlling for factors that would predispose individuals to misconduct. Any jurisdiction that can track similar information could develop such a model-based threat index to monitor gang activity.

While this analysis does yield information on the influence of individual gang affiliation on misconduct, it does not indicate the influence of institutional gang composition on misconduct. To what extent is individual misconduct influenced by the number and proportion of gang affiliates in the institution. Do institutions which have larger gang membership have more violence than other

institutions? Is there a specific aggregate composition of certain types of gangs or certain levels of embeddedness that influences misconduct? Are there certain gang antagonisms that result in higher individual level violence? To answer these questions we will conduct further analyses to disentangle institutional gang composition from individual gang affiliation using hierarchical linear models (Bryk and Raudenbush, 1992).

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Table 1. Descriptive statistics on misconduct count variables and variables involving the inmate's history of these kinds of misconduct, N=82,504. DV represents a dependent variable and IV represents an independent variable.

Variable	Percent Having at Least One Incident	Mean	Std. Dev.	Min.	Max.
Violent Misconduct (DV)	5.1%	0.070	0.373	0	15
Serious Violent Misconduct (DV)	1.7%	0.021	0.201	0	18
History of Violent Misconduct (IV)		0.308	1.243	0	57
Drug Misconduct (DV)	5.4%	0.073	0.354	0	11
History of Drug Misconduct (IV)		0.309	1.179	0	30
Accountability Misconduct (DV)	12.1 %	0.187	0.693	0	42
History of Accountability Misconduct (IV)		0.703	1.896	0	59
Property Misconduct (DV)	6.6 %	0.081	0.342	0	14
History of Property Misconduct (IV)		0.259	0.781	0	39
Security Misconduct (DV)	4.8 %	0.056	0.275	0	9

History of Security Misconduct (IV)		0.172	0.547	0	16
Sexual Misconduct (DV)	0.6 %	0.007	0.112	0	8
History of Sexual Misconduct (IV)		0.027	0.234	0	19
Other Misconduct (DV)	5.3 %	0.067	0.335	0	16
History of Other Misconduct (IV)		0.240	0.852	0	32
All Misconduct (DV)	25.9 %	0.484	1.248	0	61
History of Any Misconduct (IV)		1.812	4.116	0	134

Table 2. Summary statistics on the background variables used in the analyses, N=82,504.

Variable	Mean	Std. Dev.	Min.	Max.	Referent for Dummy Vars.
Security Custody Score	6.545	5.916	0	34	--
Citizenship – Columbian	0.041	0.197	0	1	U.S.
Citizenship – Missing	0.011	0.105	0	1	U.S.
Citizenship – Mexican	0.081	0.273	0	1	U.S.
Citizenship – Other	0.099	0.299	0	1	U.S.
Hispanic	0.245	0.430	0	1	Non-Hispanic
Age (Natural Log)	3.575	0.276	2.833	4.489	--
Time Served (Natural Log)	3.192	1.226	0	5.951	--
Race -- Asian	0.014	0.116	0	1	Caucasian
Race -- African American	0.407	0.491	0	1	Caucasian
Race – Native American	0.017	0.127	0	1	Caucasian
Florence/Marion	0.008	0.087	0	1	Minimum

Security Level – Administrative	0.079	0.270	0	1	Minimum
Security Level – High	0.116	0.320	0	1	Minimum
Security Level – Medium	0.324	0.470	0	1	Minimum
Security Level – Low	0.286	0.452	0	1	Minimum
Days at Risk	322.953	89.873	1	364	–

Table 3. Descriptive Statistics for Gang Variables (all inmates, n=82,504).					
Variable	Mean	Std. Dev.	Min.	Max.	Referent for Dummy Vars.
Time-in-the-gang (Months)	2.748	9.870	0	52	--
Multiple Gang Affiliation	0.004	0.064	0	1	One or None
Southeast Asian Org. Crime	0.001	0.038	0	1	Unaffiliated
Aryan Brotherhood	0.002	0.045	0	1	Unaffiliated
Black Guerilla Family	0.001	0.027	0	1	Unaffiliated
Mexican Mafia	0.003	0.051	0	1	Unaffiliated
Texas Syndicate	0.002	0.044	0	1	Unaffiliated
Organized Crime	0.005	0.069	0	1	Unaffiliated
Dirty White Boys	0.003	0.055	0	1	Unaffiliated
Mexakanemi	0.004	0.061	0	1	Unaffiliated
Netas	0.002	0.045	0	1	Unaffiliated
White Supremacy Groups	0.005	0.073	0	1	Unaffiliated
Bloods	0.005	0.080	0	1	Unaffiliated
Crips	0.014	0.117	0	1	Unaffiliated
Black Gangster Disciples	0.006	0.080	0	1	Unaffiliated
Border Brothers	0.001	0.030	0	1	Unaffiliated
Latin Kings	0.005	0.067	0	1	Unaffiliated

Table 3. Descriptive Statistics for Gang Variables (all inmates, n=82,504).					
Variable	Mean	Std. Dev.	Min.	Max.	Referent for Dummy Vars.
Vice Lords	0.002	0.048	0	1	Unaffiliated
Drug Cartel No Other	0.002	0.044	0	1	Unaffiliated
Drug Cartel Other	0.005	0.068	0	1	Unaffiliated
Anti-Government	0.002	0.042	0	1	Unaffiliated
Motorcycle	0.004	0.060	0	1	Unaffiliated
Prison Gangs Modern	0.001	0.026	0	1	Unaffiliated
Jamaican Posse	0.002	0.046	0	1	Unaffiliated
New York Street Gangs	0.001	0.038	0	1	Unaffiliated
Misc City	0.011	0.105	0	1	Unaffiliated
DC Crews	0.001	0.022	0	1	Unaffiliated
Multiple Gangs – None Monitored	0.001	0.020	0	1	Unaffiliated
Multiple Gangs – Monitored	0.001	0.036	0	1	Unaffiliated
Member	0.005	0.074	0	1	Unaffiliated
Suspect	0.069	0.253	0	1	Unaffiliated
Associate	0.014	0.118	0	1	Unaffiliated
Organized Crime	0.001	0.038	0	1	Unaffiliated

Table 4. Summary table of specific gang coefficients which increase (I) the expected count of a specific kind of misconduct and those coefficients which decrease (D) the expected count of the target misconduct.

Variable	Viol.	Serious Viol.	Drug	Acct.	Prop.	Secur.	Sex Misc.	Other	All
Time-in-the-gang (Months)	**D**	**D**	**D**	**D**	**D**			**D**	**D**
Multiple Gang Affiliation									
Southeast Asian Org. Crime		**I**							
Aryan Brotherhood	**I**	**I**	**I**		**I**				**I**
Black Guerilla Family	**I**								
Mexican Mafia	**I**	**I**							**I**
Texas Syndicate	**I**	**I**	**I**	**I**	**I**	**I**		**I**	**I**
Organized Crime	**I**	**I**	**D**		**I**			**I**	**I**
Dirty White Boys	**I**	**I**	**I**		**I**			**I**	**I**
Mexakanemi	**I**	**I**	**I**	**I**	**I**			**I**	**I**
Netas					**I**				
White Supremacy Groups	**I**	**I**	**I**	**I**	**I**			**I**	**I**
Bloods	**I**		**I**			**I**			**I**

Table 4. Summary table of specific gang coefficients which increase (I) the expected count of a specific kind of misconduct and those coefficients which decrease (D) the expected count of the target misconduct.

Variable	Viol.	Serious Viol.	Drug	Acct.	Prop.	Secur.	Sex Misc.	Other	All
Crips	**I**	**I**	**I**	**I**	**I**			**I**	**I**
Black Gangster Disciples	**I**	**I**	**I**	**I**	**I**				**I**
Border Brothers	**I**	**I**	**I**	**I**	**I**			**I**	**I**
Latin Kings	**I**	**I**	**I**		**I**				**I**
Vice Lords	**I**	**I**							**I**
Drug Cartel No Other	**I**	**I**							
Drug Cartel Other									
Anti-Government				**I**				**I**	**I**
Motorcycle			**I**	**I**					**I**
Prison Gangs Modern	**I**	**I**							**I**
Jamaican Posse	**I**				**I**				**I**
New York Street Gangs	**I**				**I**				
Misc City	**I**	**I**	**I**	**I**	**I**	**I**		**I**	**I**
DC Crews									

Table 4. Summary table of specific gang coefficients which increase (I) the expected count of a specific kind of misconduct and those coefficients which decrease (D) the expected count of the target misconduct.

Variable	Viol.	Serious Viol.	Drug	Acct.	Prop.	Secur.	Sex Misc.	Other	All
Multiple Gangs – None Monitored		**I**		**I**					
Multiple Gangs – Monitored	**I**	**I**	**I**		**I**				**I**
Model Fit Statistics	LR P^2= 4776.6 (df=47), p<0.000	LR P^2= 4439.5 (df=47), p<0.000	LR P^2= 4587.4 (df=47), p<0.000	LR P^2= 6234.6 (df=47), p<0.000	LR P^2= 1992.1 (df=47), p<0.000	LR P^2= 1741.2 (df=47), p<0.000	[1]	LR P^2= 3413.5 (df=47), p<0.000	LR P^2= 11958 (df=47), p<0.000
Pseudo R^2	.124	.136	.112	.078	.043	.050		.084	.081

1. Model converged; however, gang variables did not significantly increase the fit of the model.

Table 5. Summary table of specific gang coefficients which increase (I) the expected count of a specific kind of misconduct and those coefficients which decrease (D) the expected count of the target misconduct.

Variable	Viol.	Ser. Viol.[1]	Drug	All
Time-in-the-Gang (Months)	**D**	**D**	**D**	**D**
Multiple Gang Affiliation				
Member	**I**	**I**	**I**	**I**
Suspect	**I**	**I**	**I**	**I**
Associate	**I**	**I**	**I**	**I**
Organized Crime	**I**			
Model Fit Statistics	LR P^2= 4783.6 (df=23), p<0.000	LR P^2= 4345.2 (df=23), p<0.000	LR P^2= 4519.5 (df=23), p<0.000	LR P^2= 11903 (df=23), p<0.000
Pseudo R^2	.124	.135	.110	.081

Table 6. Discrete changes in the probability of different types of misconduct for variables holding constant all other variables at their mean. The discrete changes in probability are indicated only for statistically significant variables ($p<.05$).

Dependent Variables:	Violent		Serious Violent		Drug		Total	
Predictor Variables	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.
	0 -> 1	- + SD/2	0 -> 1	- + SD/2	0 -> 1	- + SD/2	0 -> 1	- + SD/2
Security Custody Score		**.082**		**.005**		**.018**		**.068**
Number of Prior Total Acts		**.044**		**.003**		**.017**		**.091**
Citizenship – Columbian	**-.034**		--		**-.027**		**-.060**	
Citizenship – Missing	--		--		--		--	
Citizenship – Mexican	**.051**		**.005**		**-.005**		--	
Citizenship – Other	**.043**		--		**-.021**		--	
Hispanic	**.015**		--		--		--	
Age (Natural Log)		**-.066**		**-.005**		**-.014**		**-.068**
Time Served (Natural Log)		--		--		--		**-.021**
Race -- Asian	--		**-.005**		**-.019**		--	

Table 6. Discrete changes in the probability of different types of misconduct for variables holding constant all other variables at their mean. The discrete changes in probability are indicated only for statistically significant variables ($p<.05$).

Dependent Variables:	Violent		Serious Violent		Drug		Total	
Predictor Variables	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.
	0 -> 1	- + SD/2	0 -> 1	- + SD/2	0 -> 1	- + SD/2	0 -> 1	- + SD/2
Race -- African American	**.019**		--		**-.019**		**.010**	
Race – Native American	**.045**		**.004**		--		--	
Florence/Marion	**-.064**		**-.005**		**-.036**		**-.200**	
Security Level – Administrative	**.110**		**.011**		**-.012**		**-.025**	
Security Level – High	**.060**		**.004**		**-.008**		**-.079**	
Security Level – Medium	**.044**		**.003**		--		**-.024**	
Security Level – Low	--		--		--		**-.026**	
Time-in-the-gang (Months)		**-.024**		**-.002**		**-.005**		**-.026**
Multiple Gang Affiliation		--		--		--		--
Riskdays		**.071**		**.003**		**.010**		**.061**

Table 6. Discrete changes in the probability of different types of misconduct for variables holding constant all other variables at their mean. The discrete changes in probability are indicated only for statistically significant variables (p<.05).

Dependent Variables:	Violent		Serious Violent		Drug		Total	
Predictor Variables	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.	Dummy Variables	Continuous Vars.
	0 -> 1	- + SD/2	0 -> 1	- + SD/2	0 -> 1	- + SD/2	0 -> 1	- + SD/2
Member	**.207**		**.079**		**.059**		**.259**	
Suspect	**.156**		**.014**		**.034**		**.129**	
Associate	**.102**		**.009**		**.022**		**.114**	
Model Fit Statistics	LR P^2= 5,068.32 (df=23), p<0.000, pseudo R^2=.152.		LR P^2=2,167.30 (df=23), p<0.000 , pseudo R^2=.156.		LR P^2=4,937.34 (df=23), p<0.000 , pseudo R^2=.142.		LR P^2= 11283(df=23), p<0.000 , pseudo R^2=.120.	

Figure 1 Model-Based Misconduct

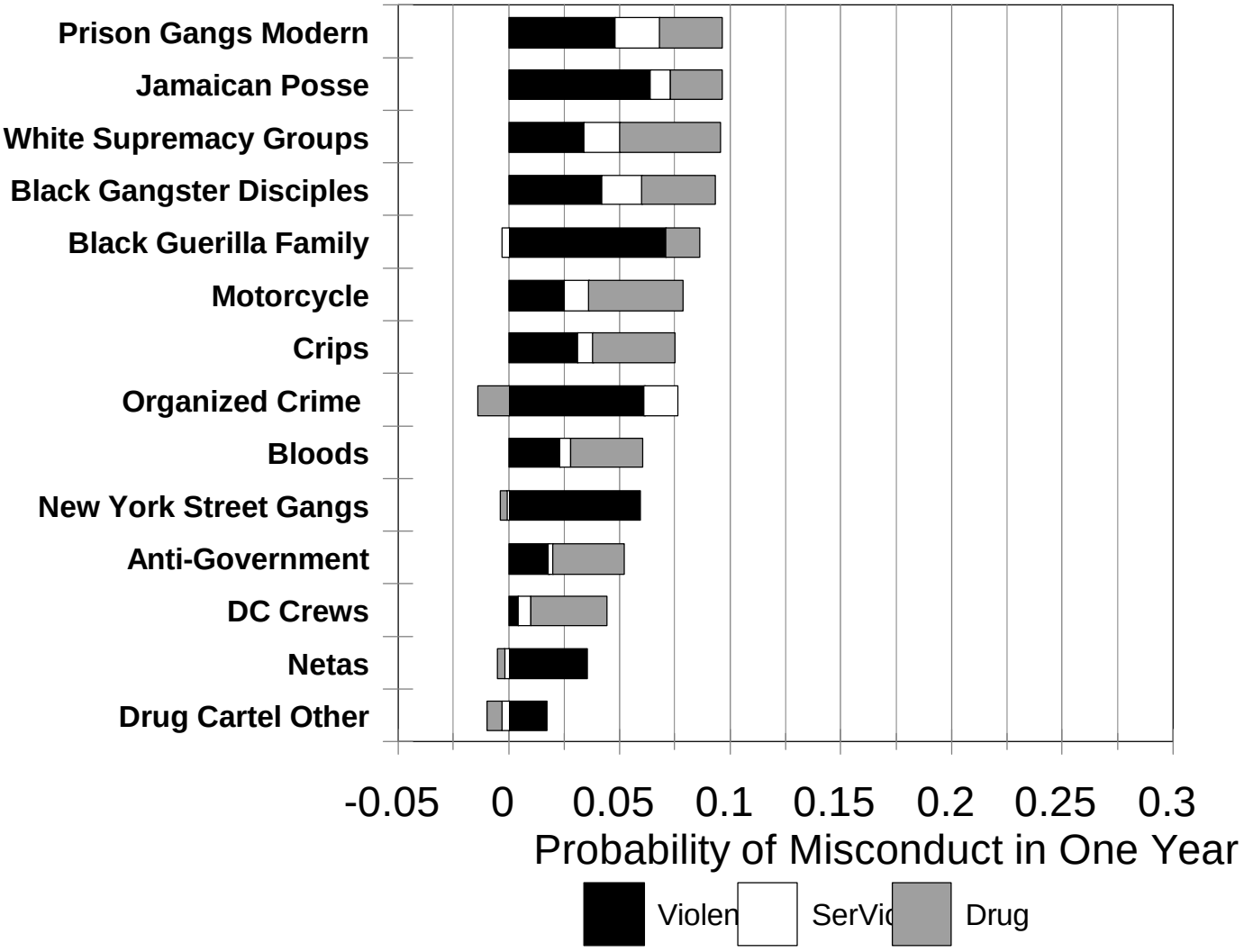
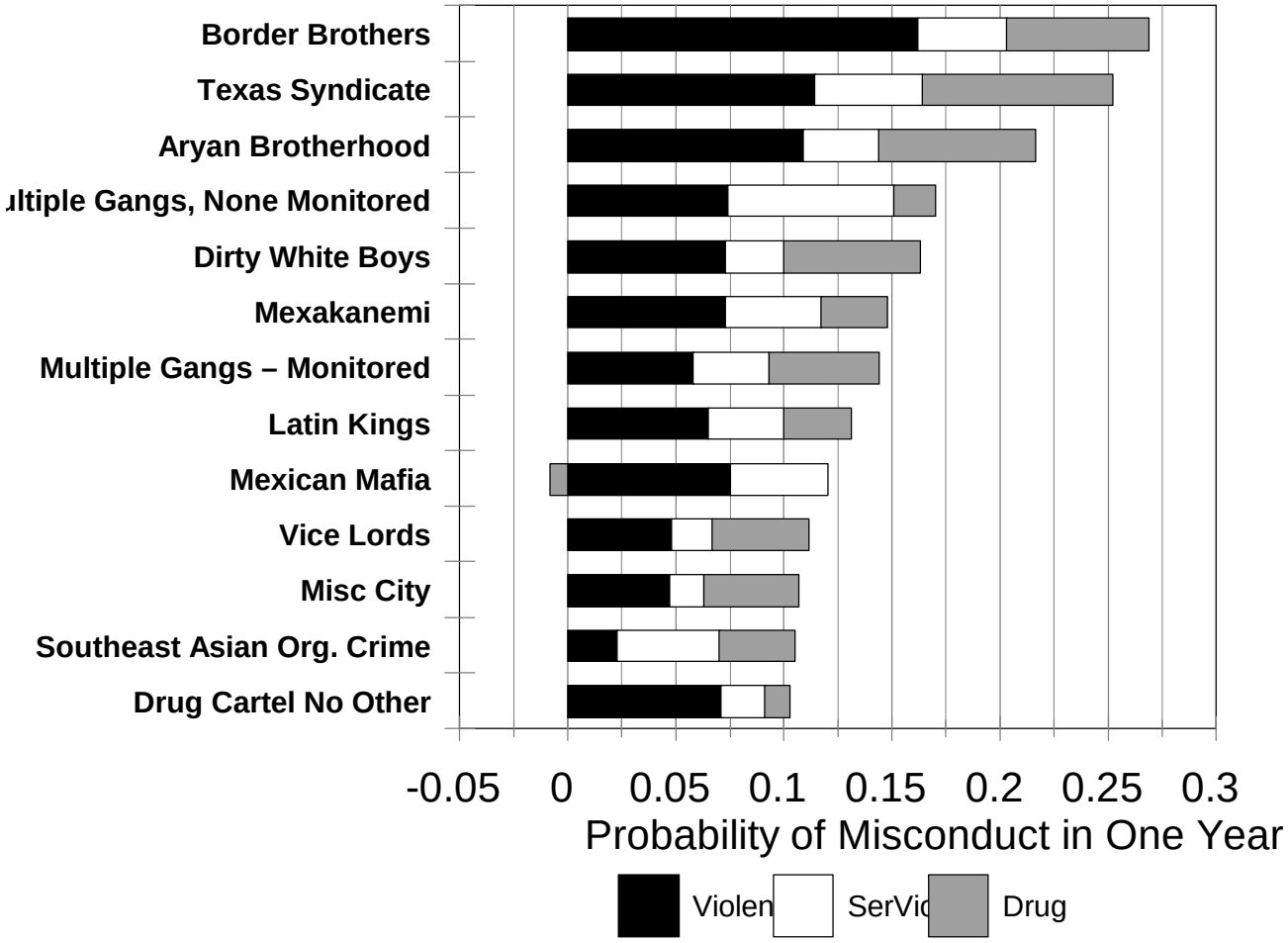


Figure 1. Model-Based Miscondu



Endnotes

1. Only certain staff at an institution are allowed to enter the member, suspect, associate label into the computer-based file. These are staff most familiar with the policy governing these designations and whose job it is to ascertain and validate the use of these labels.

2. Many gangs have racial, ethnic, citizenship, residence, or cultural prohibitions on who can be a gang member. Thus, certain inmates may be doing the gang's business but that person is precluded by his background from becoming a gang member.

3. We could not test these variables simultaneously, since they are linearly dependent.

4. Of the 6,736 women in the original sample, 133 had a gang affiliation distributed over 21 different gangs. There were only 189 women who had a violent misconduct.

5. The complete list for every misconduct coded in any one of these categories is available from the first author.

6. We also experimented with hurdle or zero-inflated regression models which allow the analyst to develop a structural model that determines whether any misconduct might occur and a second structural model associated with the count of misconduct. Although these models almost always converged and yielded statistically significant results, we had no real theoretical basis for specifying the different structural models. In the interest of parsimony, we abandoned the hurdle models in favor of the negative binomial models.

7. This likelihood ratio test is implemented in STATA's lrtest ado file. This difference $-2(L_1 - L_0)$ is distributed as χ^2 with $d_0 - d_1$ degrees of freedom (STATA Reference H-O, 1999 P. 246-250).

8. Chi-square values and their associated probabilities demonstrating the fit of each model are available upon request from the first author.

9. Some gangs are closely monitored by staff while others are not. Inmates designated as being in this category were not closely monitored.