Gang Violence in the “Balance”:
A Triadic Analysis of Rivalries and Allies

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Abstract
The very existence and purpose of street gangs is predicated on having an external threat or enemy. It is also recognized that gangs form allies as well as rivals with other gangs. The fact that gangs are embedded in an intricate structure of both positive (ally) and negative (rivalry) relationships has rarely been explored in terms of understanding the levels and the patterns of gang violence. In this paper, we use structural balance theory along with its applications in the international relations literature to examine whether certain triadic structures in which two rival gangs \( i \) and \( j \) are related to a third gang with either an ally or rival relationship is linked to the levels of violence that \( i \) will inflict upon \( j \). We analyze the data on inter-gang relations and violent incidents among the gangs in Long Beach, CA using multiple regression quadratic assignment procedure (MRQAP). Our results indicate that the actual violent incidents between two rival gangs are not only the product of their feuding relationships but also the third gangs and the nature of their relationship with the two gangs. The results can potentially contribute to the formulation of effective strategy to manage gang violence and allocate law enforcement resources to gang conflicts that are likely to escalate.
Introduction

When the leaders of a nation-state consider whether or not to wage a war against another nation-state they must carefully survey the larger landscape of international relations. They need to know how other countries will react to the decision, particularly those that might be pulled into the conflict on the side of the initial opponent. Therefore, in calculating the probability of winning the war, the strength of the initial opponent along with the strength of the potential opponents must both be considered. Though the decision making process is in reality quite complex, in most cases the observed outcome often follows a very simple heuristic. That is, the decision of whom to forge an alliance with or whom to enter into a conflict with often follows the familiar Arab proverb, the enemy of my enemy is my friend or the enemy of my friend is my enemy. Students of international relations and security find that having common enemies presented in the first part of the proverb do in fact induce alliances among nations (Mearsheimer 1994-5). Similarly, the second half of the proverb often results in a process of “chain-ganging” (Christensen and Snyder 1990) wherein a country enters a conflict on the behalf of a “friend.”

Acts of interpersonal violence are no different. Even when only a single offender and single victim are involved in an initial confrontation, the decision of whether or not to escalate to the point of interpersonal violence is often shaped by assessing the roles and actions of others. For example, consider two possible settings in which one person slights or “disrespects” another by violating a normative script or code (e.g. Anderson’s “code of the street”, 1999). If the violation of the code occurs in a vacuum where no other actors are present, then it is likely that no escalation of violence will occur between
the two parties. However, if the same slight were committed in the presence of a group, then group norms and peer-pressure may require that “justice” be meted out against the offending party.

The role played by the actors other than the pair of actors involved in an initial confrontation, has been formalized within two criminological traditions. The “situated transaction” framework developed by Luckenbill (1977) illustrated the dynamic process of escalation of violence by which offenders and victims act, not only based on each other’s action, but also on the audience’s cues such as approval of certain actions. Donald Black’s theory of the third party (1993) explains the escalation and de-escalation of conflict between two parties by the patterns of social distance between the third parties and the two parties in conflict. Using Black’s theory, Cooney (1998) and Phillips and Cooney (2005) demonstrate that conflicts are likely to escalate into violence when third parties have a close relation with one of the principal combatants and a distant relation with the other; such third parties lend one-sided partisan support.

The study of conflict among nations and the study of individual-level violence that take into account the role played by third parties are both rooted in the sociological traditions of George Simmel (1950). Simmel argued that examining phenomenon at the dyadic level (i.e., relations among only two actors, be they collectives or individuals) ignored the larger structure in which the actors were embedded. Specifically, he argued that when one moved to the triadic level, the resulting structure was much more complex than one might expect from the simple addition of just one additional actor. Most importantly he demonstrated that triads can be inherently constraining because unlike a dyad, the interests of individual members can be suppressed by the majority, the coalition
of two members. More generally, one’s behavior toward another member of the triad is constrained by the indirect relationship through a third party.

Balance theory (Cartwright and Harary 1956; Heider 1946) also recognizes the importance of triadic structures. Briefly, the theory predicts that actors, whether they are individuals or groups, will tend towards “balanced” triadic structures. That is, when two actors are friends, they will both want to be friends with the third member of a triad. The second form of balance occurs when one pair of actors shares affective feelings toward each other but holds feelings of enmity with the remaining third actor. When either of these configurations are violated (e.g., the friend of my friend is my enemy or the enemy of my enemy is my enemy), each actor in the triad will feel stress. The members of the triad may strive for a balanced state; however, this stress often results in tension among the members.

Though balance theory has received much attention from students of international relations, it has not been developed within the criminological context. We address this omission by extending this theory, along with the third parties framework, to the study of gang violence. Violence within the context of gangs is a natural application of balance theory for several reasons. First, the very existence and purpose of urban street gangs is predicated upon having an external threat or enemy (Esbensen et al. 2001; Klein 1995; Thrasher 1963). Second, it is recognized that gangs form allies as well as rivals with other gangs (Decker and Van Winkle 1996). The fact that gangs are entrenched in a structure of both positive (ally) and negative (rivalry) relationships has rarely been explored in terms of understanding the levels and the patterns of gang violence (for
notable exceptions, see Papachristos 2006; Tita 2006). By applying balance theory, we offer a new framework for the study of gang violence.

Clearly, it would not be surprising to find that an enemy relationship between two gangs is associated with violence (Block et al. 1996; Klein and Maxson 1989). However, by considering the triad, we hope to gain further insight into the levels of violence committed by, or against, a particular gang. That is, do conditions of balance or imbalance among triads of gangs result in greater levels of violence? Balance theory, however, does not predict the directionality of attacks. Therefore, we assess how the presence of a third gang (and their role as friend or foe) influences the directionality in gang violence. If gang “A” knows that their rival (“B”) has an ally (“C”), how does that play into the likelihood (or intensity) that the “A” will initiate an attack against “B”? Does the fact that “B” has an ally increase or decrease the probability that they will attack a rival?

The remainder of the paper is organized as follows. We begin with the sociological importance of triads and the discussion of why ignoring third parties may lead to an incomplete picture of the phenomena of interest. We then discuss the treatment of third parties in the study of interpersonal violence. Next we briefly review balance theory, specifically as it has been used within the international relations literature. After outlining a set of propositions, we describe our methodology and data. Our results suggest that triadic structures matter in understanding the levels and the direction of inter-gang violence. We find that that imbalance is associated with a higher level of violence and by applying the same logic that explains the violence-imbalance association, we demonstrate that among the two configurations of balanced triads, one configuration
leads to a higher likelihood of attacks than the other. We conclude by discussing the implications of these findings.

From Dyads to Triads

The dyad, two social actors and the relation between them, is often the most tractable unit of observation to understand social interactions. However, it soon becomes clear that in reality dyads are rarely isolated from other actors. They are part of a larger social structure by being embedded in a web of relations with other actors. Thus, in order to capture the effect of being situated in a structure, dyadic relations need to be interpreted in the context of the additional relations that the two actors have with other members of the structure (Wellman 1988). The addition of a third actor into a dyadic relation, the formation of a triad, brings about a new structural property (Barnes 1972; Krackhardt 1999; Lee, Muncaster, and Zinnes 1994; Simmel 1950). The leap from the dyad to the triad is not simply an addition of another entity but an introduction of an indirect relationship (Simmel 1950). When three entities, A, B, and C, form a triangular structure, A and B are connected not only by a direct relationship but also by an indirect relationship via C. According to Simmel (1950), “the dyad is inseparable from the immediacy of interaction” and its elements are not confronted by “the super-individual unit” (p. 126). What we are interested in is this super-individual unit, a structure beyond each entity; and how this affects the social interactions occurring at the dyadic level, in particular violent interactions.

Third Parties in Criminology Literature

Typically, studies of interpersonal violence focus only on the principal parties involved in the conflict. Criminologists try to understand violent events in terms of the
actors’ social and demographic characteristics as well as the dyadic relationship they share (e.g., “friends”, “strangers”, “familial ties”). However, there is a tradition within criminology to move beyond the principal parties and to look at the role played by third parties in shaping violence. Luckenbill (1977) was the first to demonstrate the important role that audiences play in shaping the escalation of violence. He argues that victims and offenders, who often change roles throughout the “situation transaction,” react not only to the moves of the opponent, but also to the cues provided by bystanders with respect to the approval of the moves undertaken by the combatants. Similarly, a smaller combatant may back down from a challenge from a physically more powerful foe unless there are others present who can be expected to offer their aid, should the fight get out of hand.

Beyond the descriptive illustrations of how third parties can shape the dyadic violence between two individuals, Black (1993) developed a predictive theory of third parties, and his colleagues have extended and tested his theory (Baumgartner 1988; Cooney 1998; Phillips and Cooney 2005). Black’s theory allows one to predict whether interpersonal conflicts escalate to actual violence based on how the two principal combatants are related to the third party. In particular, third parties that are “close” (e.g., friends or belonging to the same social group such as family or gangs) to one combatant, but distant to the other tend to act as partisan and escalate the conflict into violence (Phillips and Cooney 2005).

In Black’s framework, third parties need not be present during the fight between the two principal parties nor do they have to be directly involved in the course of conflict to shape the escalation of violence. That is, third parties can be defined as those who “know or might know of the conflict” involving two principal parties (Cooney 1998: 6).
An example that illustrates this point is found in the case of conflict between marriage partners. Baumgartner (1993) analyzes the role of third parties in shaping domestic violence and shows that it is not necessarily the physical presence of third parties that matters most, but rather the fact that these third parties are “structurally” present through their relationships with the immediate combatants. Whether or not a husband escalates a verbal dispute into an act of physical violence may depend upon his spouse’s relationship with his blood-relatives. If the wife has affective relationships with members of his family, then the husband may be less prone to violence. If, however, the family disapproves of his wife, then he may interpret their disapproval as support for more violent actions. The third parties, the husband’s kin, probably know of the simmering conflict between the husband and the wife, but are unlikely to be physically present when the conflict escalates. Therefore, they shape the conflict without providing any sort of physical support to either side.

When the interest is whether or not a conflict escalates into violence, the research cited above clearly demonstrates the value of moving beyond the dyad (the relation between the two principal parties) and focusing on the triad. It is not until the third parties and indirect relations are considered that one can begin to appreciate the fuller scope of the processes that shape interpersonal violence. Though the role of third parties has proved to be important, it does not provide a framework to analyze the effect of third parties on dyadic violence in which relations between participants are clearly defined in terms of “like” and “dislike” or “rival” and “ally.” To assess the impact that indirect ties (be they positive or negative in nature) to third parties have on dyadic relationships, we turn to balance theory.
Balance Theory, Conflict and Violence

Balance theory was conceived by Heider (1946) as a psychological theory explaining the process that social actors tend to seek a balanced state. Balance is defined as certain arrangements of affective relations, described either by positive emotion (like) or negative emotion (dislike), among three actors (P, O, X in Figure 1). In Figure 1, the top 4 triads are said to be balanced because none of them cause any tension or strain in the focal person P. For example, in the balanced triad b), P’s attitude toward X and O’s attitude toward X are both negative while P and O have a positive attitude towards each other. In other words, this is a situation in which you dislike someone that your friend dislikes, which should not create any tension in P. In contrast, in the imbalanced triad f), P likes O; however, P dislikes X, who is friends with O, which would produce tension in P. This tension acts as a force that tends to pull the structure towards balance. If tension is created by imbalance, then changes such as altering attitudes occur, in order to reduce the tension.

The concept of balance has a simple and intuitive appeal. Yet, the objective of this paper, namely the examination of the relationship between the triadic gang structure (balance/imbalance) and the dyadic behavioral outcome (violence), requires more than what balance theory was originally designed to answer. The theory does predict that a structure formed by social actors moves toward balance, but it does not address the observable effect/consequence of a balanced or an imbalanced structure on the actors involved, in particular a negative consequence such as violence. This motivates us to turn to studies in international relations, which have strong resemblances to gang relations and have been traditionally linked to the concept of balance and balance theory.
Balance in International Relations

Balance theory was originally developed to explain interpersonal relationships. However, Newcomb (1961) states that “Groups, or collectives, of persons have their properties, at their own level, that are no more and no less real than those of individuals, at their own level” (p. 11). Harary (1961) also generalizes balance theory to the group level by referencing Guetzkow (1957), who treats the behaviors of a nation state as an “individual” by arguing that, like a person, nations are affected by the factors within themselves and from factors in their environment. Harary (1961) also employed the theory of structural balance to study how the Middle East Crisis of 1956 impacted relations within the international system. The field of international relations exhibits many other examples where balance theory has been used to study behaviors among aggregate units of analysis (Harary 1961; Healy and Stein 1973; Maoz et al. 2007; McDonald and Rosecrance 1985; Moore 1978).

As noted earlier, the familiar Arab proverb, *the enemy of my enemy is my friend, the enemy of my friend is my enemy, the friend of my enemy is my enemy, the friend of my friend is my friend*, exhibits the intuitiveness of balance theory. The proverb has been used to make hypotheses regarding conflict at the nation-state level, and it fits within the two major paradigms in international relations theories: Realism and Liberalism. In contrast to liberalism that holds an optimistic view towards the possibility of cooperation among nation states, the realist perspective of the international system assumes that every state is driven by a motivation for its own survival (Waltz 1979). Survival, however, is not always completely within the control of the particular state. This prompts the state to form alliances, particularly alliances induced by having common enemies (Mearsheimer
1994-5). Sharing a common enemy provides a strong incentive for a nation to make allies with its enemy’s enemy. Thus, this is consistent with the first part of the proverb.

The other two parts of the proverb also find support within the international relations literature. The second part of the proverb corresponds to the fact that being part of an alliance leads the state to be drawn into a conflict on behalf of an ally (Christensen and Snyder 1990). The fact that states regard allies of enemies as potential enemies (Walt 1987) – coincides with the third part. Nation states view their enemies combined with friends of their enemies as a large coalition of enemies.

The implication of balance at the international system level is the bipolarization of the system (Harary 1961; Lee, Muncaster, and Zinnes 1994). In other words, if each nation follows balance theory in a simple triadic structure, the whole international system becomes bipolarized such that it can be divided into two poles of nations. The connections within the pole nations is affinity and the connections between the pole nations is enmity. There are two opposing arguments regarding whether balance (to be used interchangeably with bipolarization hereafter) is associated with higher or lower probability of wars (Deutsch and Singer 1964; Waltz 1979). This tension will be translated into competing predictions regarding levels of gang violence below. We exploit this interchangeability between the concepts of triadic balance and bipolarization and use the international relations literature on polarization to derive our predictions at the triadic level.

Applying Balance Theory to Gang Conflicts

Gangs are known to form rival relationships (Esbensen et al. 2001; Klein 1995; Thrasher 1963) and often maintain allies with other gangs (Decker and Van Winkle
This system of rivalries and allies provides a unique structure that researchers interested in gang violence are just now beginning to explore (Braga et al. 2001; McGloin 2005; Papachristos 2006; Tita 2006; Tita et al. 2003). Using spatial regression techniques, Tita (2006) finds that the spatial distribution of gang violence is better explained by socio-spatial gang rivalry networks rather than geographic proximities. Papachristos (2006) employs social network analysis to model the process of social contagion in gang homicides in Chicago.

The application of balance theory to the study of gang violence has many parallels to the study of conflict among nations. First, each entity forming relations in international relations is a nation-state, which is a collective of individuals as is a gang. Second, both international and inter-gang relations are allowed to be assigned as either positive (friendly) or negative (hostile). Similar to the landscape of international relations, some gangs have antagonistic relations, while others are either “cool with” one another or have no identifiable relation. Third, studies in international relations actually observe behavioral outcomes such as conflicts between nations in the forms of militarized disputes and wars, similar to violent attacks between gangs, and they also recognize a phenomenon that “[a] few rivalries will break out into war but, by no means, can one equate rivalry with war” (Colaresi and Thompson 2003). This observation corresponds to an important parallel phenomenon in the nature of rivalries and violence among gangs. Rival gangs are more likely to fight with one another than otherwise, but not all rivalries cause violent confrontation. Some rivalries “flare up” while others remain dormant (Braga et al. 2001).
To date, no study has directly tackled the relationship between gang violence and balance/imbalance of gang relationships. Consequently, the literature does not provide us with any empirical examples specific to gangs from which to formulate our expectations as to how balance or imbalance in their relations with other gangs might affect the extent and direction of gang violence. Thus, we draw upon the international relations literature to guide our predictions.

1. Clear division of allies and enemies

In the study of international relations, some theorists argue that bipolarization leads to greater conflict (e.g., Deutsch and Singer 1964). When the international system can be divided into two opposing poles, i.e. the relations within the poles are friendly, and the relations between the poles are not friendly, it becomes obvious whether a state is a friend or an enemy from a focal state’s perspective. In other words, there is no ambiguity as to who one’s enemy is and who one’s friend is, and in this sense leads to a balanced situation. This situation will allow the focal state to attack its enemy without repercussions. Such protection would also include, for example, attacking the friend of its friend, by mistake. Since the boundaries are clear in this balanced situation, then all parties would likely quickly determine that the attack was indeed a mistake and would not therefore incite or require retaliation.

On the other hand, if the system is not bi-polarized, and therefore imbalanced, a focal state is uncertain as to whether a given state is in fact its enemy (and its allies’ enemy) or the friend of its friend. For example, if one were to mistakenly attack another who is a friend of a friend, but this friend of a friend is also an enemy, or perhaps a friend
of an enemy, then this ambiguity will lead others to conclude that it was not really a mistake and therefore might warrant retaliatory action.

Being uncertain and cautious in such a way discourages the focal state’s willingness to initiate an attack on enemy ties. Extrapolating to gangs, we offer the follow propositions:

**Prediction 1(a): Balance leads to a higher level of violence**

Balanced structure is characterized as a structure in which the distinction between one’s enemies and one’s friends is clear. This gives gang $i$ the confidence and license to initiate a violent attack along enemy ties without any backlash. This structure increases gang $i$’s assurance that the gang that gang $i$ is about to attack is indeed its enemy.

Therefore, balanced structure leads to a higher level of violence.

**Prediction 1(b): Imbalance leads to a lower level of violence**

Relations in an imbalanced structure, on the other hand, are unclear in terms of whether they represent indirectly entangled friendly relations or antagonistic relations. Attacking a presumed enemy who is also a friend of a friend may have unforeseen repercussions on one’s alliances. This unpredictable instability could result in today’s friends becoming tomorrow’s enemies, or vice versa. This uncertainty, the argument goes, will motivate gangs to withhold their initiation of attacks. In other words, the ambiguous relations lead to reticence and thus lower probability of violent attacks.

2. **Deterrence**

In contrast to the above argument, other theorists in the field of international relations contend that increased bipolarity (balance) “tends to stabilize the system because each bloc deters the other from attacking” (Maoz 2006: 392), which leads to a
lower level of conflict (e.g., Mearsheimer 1990; Waltz 1979). In cases where the lines are clearly drawn between friends and foes, attacking an enemy risks retaliation from a host of the enemies’ allies. Thus, balance is a state where the potential costs are too high to initiate attacks on enemies. Indeed, a recent paper by Maoz et al. (2007), which examined the relationship between balance and the level of conflict at the triadic level, found the relationship to be negative. Based on this line of reasoning, the following pair of predictions is formed:

**Prediction 2(a): Balance leads to a lower level of violence**

Balance structure is characterized as stable in a sense that each gang is deterred to attack along its enemy ties. The situation remains status quo with the stability of mutual deterrence. Therefore, a balanced structure is less likely to result in escalation of violence.

**Prediction 2(b): Imbalance leads to a higher level of violence**

Imbalanced structure described as unstable may reduce the fear of organized or even coordinated retaliation, which in turn may result in more unrestrained exchanges of violence between gangs. Gangs embedded in this structure are likely to be hypersensitive to ambiguous cues and have no inhibition against attacks on their enemies. As a result, this structure can easily trigger violent confrontation.

Thus, there are opposing theories on the effect that balance might have on gang violence. It is our intent to shed light on this controversy by observing which, if either, set of predictions better matches the frequency of violent attacks of one gang against another.
**Method**

**Data**

Our data are from the Long Beach Police Department (LBPD). The network data identifies the rivalry and ally relationships among 40 known gangs in Long Beach. We also have attribute data for each of the gangs including the race/ethnicity of the gang (Asian, Black, Latino, White, Pacific Islander, Samoan, Mixed), and the number of members in the gang. The information of the relationships among the gangs is based on expert knowledge, namely the gang detectives in LBPD. Another part of our data is the count of inter-gang violent incidents recorded and compiled by LBPD. There were 105 violent incidents involving shootings between gangs for the period of 2002 through 2005. The original file provided by the LBPD contained 887 incidents that were clearly identified as gang involved (either victim or attacker is identified as a gang member). Of these, 157 incidents qualify as gang-on-gang incidents where both victim and attacker are identified as gang members. The remaining incidents either involved individuals who were not gang members or incidents where the identity of the victims or offenders was unknown. An additional 53 incidents involved members of gangs from areas outside of Long Beach providing a final sample of 104 incidents. Though the need for complete information excludes many of the incidents, there is no reason to believe that the final sample is biased to include some gangs but not others.

It is important to note that there is a clear distinction between how a rivalry relationship is assigned to a pair of gangs and whether there is a violent incident occurring between the pair of gangs. Often in gang-on-gang violence, the relationship between the victim and the offender is likely to be based on gang affiliation rather than
personal contacts, and in fact majority of the participants do not know each other prior to the incidents (Maxson, Gordon, and Klein 1985). This evidence leads us to believe that gangs function as collectives when engaging in violence against other gangs, and it is similar to how interfamilial and intertribal feuds occur, namely “an offense against one of its members is held to be an offense against all” (Gould 2000; Peters 1967: 263). The enemy relationships identified by the gang detectives are long standing, historical relationships analogous to the feud that “knows no beginning, and it has no end” (Gould 1999, 2000; Papachristos 2006; Peters 1967: 268). In that sense, the negative inter-gang relationships are institutionalized and not based on some particular previous incidents.

It is fair to point out that the gang’s antagonistic acts against another gang often does take a form other than violence, such as threatening graffiti (often crossing out the graffiti by a rival gang) and disrespectful remarks toward members of rival gangs. However, acts of violence are signs of culminated aggression from one gang against another, which present a great risk of initiating a cycle of retaliation. Considering this critical consequence of violence, it is not unreasonable to speculate that the decision to physically attack a rival gang involves a whole gang, not simply the momentary acts of individual members. This will make our analogy of gangs and nations more plausible since a nation’s decision to attack another sovereign nation surely signifies a very clear antagonism.

Figure 2 shows a network of gangs in Long Beach. The gangs (squares) are either connected with enemy relations (thick lines), friendly relations (thin lines), or no identifiable relation (no line). It is evident that the enemy relations outnumber the friendly relations. Figure 3 visualizes the presence and the level of violent incidents
among the LB gangs with the coordinates of Figure 2 retained. The picture supports the claim that gang relations are not simply a reflection of recent incidents; not all enemy relations are accompanied by violent incidents. Hence, the objective of our current paper is to discern the additional power of gangs’ structural embeddedness over the mere presence of historical hostile relations to explain the variation in the frequency of inter-gang violence incidents.

Measures of dependent and independent variables

**Dependent Variable**

The dependent variable, the count of violent incidents among the 40 gangs, is presented in a matrix. The rows and the columns of the matrix correspond to attacker gangs and victim gangs respectively. The entries \( <i, j> \) of the matrix denote the number of violent incidents perpetrated by gang \( i \) against gang \( j \). For example, a 3 in the cell \( <9, 5> \) of the matrix would indicate that gang number 9 committed 3 acts of violence against gang number 5 over the four year period studied.

**Independent Variables**

Similar to the dependent variable, the independent variables are represented as matrices. Some of the independent variables are strict control variables, permitting us to address possible alternative explanations for any observed results. Other independent variables represent the structural conditions that are the focus of this study.

- Control variables

While the hypothesized variables are clear, there are alternative explanations for differential violence rates that we must control for. First, it is important to remove the
main effect of enemy relations, or more specifically, for the lack of allies or even neutral relations between gangs.

- **Enemy, Null and Ally relations**

  The entries of the enemy relation matrix, denoted as $N$ (for “negative” ties), describe whether a pair of gangs $<i, j>$ has an enemy relation. Thus, $N_{ij}=1$ if and only if $i$ is judged to be an enemy of $j$; else=0. The ally relation matrix, denoted $P$ (for “positive” ties), is constructed in the same way. Thus, $P_{ij}=1$ if and only if $i$ and $j$ are judged to be allies; else=0. The null relation, denoted $O$, the complement of the union of the $N$ and $P$ relations, indicates that no relation exists between the two gangs. Thus, $O_{ij}=1$ if and only if $i$ and $j$ have neither an enemy nor an ally relation with each other; else=0.

- **Size of the gangs (Attacker gang and Victim gang)**

  An important possible predictor of violent attacks is the size of the attacking and attacked gangs. One could argue that large gangs are more likely to attack others because they are fearless. Likewise, small gangs are more likely to be attacked because they are easy marks with fewer resources for retaliation. Since these size effects could be confounded with the tendency towards balance in a set of relations, we control for this potential alternative explanation by creating the following two control variables:

  **Attacker Size (AS) and Victim Size (VS).** Attacker size is defined as the number of members in the attacking gang, and the victim size is defined as the number of members in the attacked gang. Specifically, $AS_{ij}$ = the size of gang $i$; $VS_{ij}$ = the size of gang $j$. Thus, $AS$ and $VS$ are the transpose of each other.
- **Number of attacks and Number of victimizations**

Another possible predictor of violent attacks is how aggressive and how vulnerable each individual gang is. It could be the case that some gangs have a higher propensity to attack (“aggressiveness”), while some gangs have a higher propensity to be victimized (“vulnerability”). These propensities might be confounded with the effect of structural balance. Thus, we control for these effects by creating two variables: # Attacks and # Victimized. # Attacks is the number of attacks that each gang inflicted, either on other gang members or non-gang members; # Attacks\(_{ij}\) = the number of attacks that gang \(_i\) committed. # Victimized is the number of times each gang was attacked by other gang or non-gang members; # Victimized\(_{ij}\) = the number of attacks that gang \(_i\) received.

- **Gang turf adjacency**

One of the important characteristics of gangs is their tendency to have geographical territories. Inter-gang violence is often a result of conflict regarding turf (Block and Block 1993; Decker and Van Winkle 1996), and it is possible that violence is likely to erupt between the gangs that share the turf border. Moreover, the gangs whose turfs are next to each other are likely to run into each other and be involved in disputes, which might in turn lead to more violent confrontations. Thus, it is possible that the gangs whose turfs are geographically adjacent are more likely to engage in violence than the gangs whose turfs are not geographically neighboring. In order to control for this possibility, we create a variable Geographical Adjacency; Geographical Adjacency\(_{ij}\) = 1 if and only if gang \(_i\)’s turf is adjacent to gang \(_j\)’s turf; else=0.
- **Ethnicity match**

  Racial and ethnic compositions of gangs are often homogeneous. Thus, this makes it possible to characterize gangs by their race and ethnicity such as Black gangs and Latino gangs. It is also known that, traditionally gang violence has been characterized largely by intra-race intra-ethnic phenomenon (Block, 1993; Klein 1997; Maxson et al. 1985). For this reason, it is important to control for the match of race and ethnicity between gang \( i \) and gang \( j \). The variable controlling for this effect is **Ethnicity Match**; \( \text{Ethnicity Match}_{ij} = 1 \) if and only if gang \( i \)'s race/ethnicity is the same as gang \( j \)'s race/ethnicity; else=0. Race/ethnicity categories considered in the study are Asian, Black, Latino, White, Pacific Islander, Samoan, and Mixed.

- **Enemy and Ally degree (Attacker gang and Victim gang)**

  It could be that gangs have an inherent enemy-generating propensity or “personality.” Thus, some gangs have more enemies than others. These gangs could be more likely to engage in violent acts against others. In addition, such gangs could also induce more gang violence towards them. Again, such a tendency could be confounded with structural balance. To control for this possibility, two additional variables were created. **Attacker Enemy Degree (AED)** is the number of enemies that the attacking gang has; specifically, \( \text{AED}_{ij} \) = the number of enemies that gang \( i \) has. **Victim Enemy Degree (VED)** is the number of enemies that the victimized gang has; that is, \( \text{VED}_{ij} \) = the number of enemies that gang \( j \) has. Thus, \( \text{AED} \) is the transpose of \( \text{VED} \).

  Conversely, a gang with many allies may be less likely to feel threatened or the need to attack others; and such a gang may be less likely to be attacked because of the number of allies that might be called on to retaliate. Two more variables were created to
control for this possible confound with balance. **Attacker Ally Degree (AAD)** is the number of allies that the attacking gang has; specifically, $\text{AAD}_{i,j} =$ number of allies that gang $i$ has. **Victim Ally Degree (VAD)** is the number of allies that the victimized gang has; that is, $\text{VAD}_{i,j} =$ the number of allies that gang $j$ has. And, as in the previous pairs of controls, AAD is the transpose of VAD.

**Central Hypothesized Structural Variables**

It is almost tautological that violent incidents occur between gangs that are “enemies”. Our interest is not in this trivial prediction but rather in exploring how some enemy ties are more likely to induce more acts of violence than other enemy ties, based on the structural indirect patterns surrounding these enemy relations. Thus, we will construct a set of compound relations that denote the presence of these micro structural contexts.

**Imbalanced Triples**

**NN**: The most basic triad is the all-enemy triple (figure 4a). Given that there is an enemy tie between $i$ and $j$, the question we want to address is whether such a tie is embedded in many $\langle i,k,j \rangle$ triples wherein all three gangs are enemies of each other. That is, how many triples does the $\langle i,j \rangle$ pair belong to that are of this type? This number is easily calculated in two steps. The first step captures the number of triples $\langle i,k,j \rangle$ wherein $i$ is an enemy of $k$ and $k$ is an enemy of $j$. The second step ascertains whether $i$ and $j$ are themselves enemies.

The matrix (inner product) multiplication of $\mathbf{N}$ times itself gives the number of two-step links for each pair of nodes. That is, $\text{NN}_{i,j} =$ the number of $k$’s that exist in $\mathbf{N}$ such that $i$ has an enemy tie with $k$ and $k$ has an enemy tie with $j$. This is exactly the
number we need for step one. We only care about those cases, however, where \( i \) is also an enemy of \( j \). We can capture this subset by element-wise multiplying \( \mathbf{N}_N \) by \( \mathbf{N} \) again, yielding \( \mathbf{N}_N \cdot \mathbf{N} \). The result of this compound relation is that \( \mathbf{N}_N \cdot \mathbf{N}_{i,j} = \) the number of \( k \)'s that have enemy relations to both \( i \) and \( j \) if \( i \) and \( j \) are enemies; else, \( \mathbf{N}_N \cdot \mathbf{N}_{i,j} = 0 \). That is, it is the number of \(<i,k,j>\) enemy triples of the form designated in Figure 4a that \( i \) and \( j \) are embedded in.

**PP:** The variable name \( \mathbf{PP} \) (figure 4d) is calculated as \( \mathbf{PP} \cdot \mathbf{N} \). \( \mathbf{PP} \cdot \mathbf{N}_{i,j} = \) the number of \( k \)'s that have ally relations to both \( i \) and \( j \) if \( i \) and \( j \) are enemies; else \( \mathbf{PP} \cdot \mathbf{N}_{i,j} = 0 \).

**Balanced Triples**

**NP:** The variable name \( \mathbf{NP} \) (figure 4b) is calculated as \( \mathbf{NP} \cdot \mathbf{N} \). \( \mathbf{NP} \cdot \mathbf{N}_{i,j} = \) the number of \( k \)'s that have an enemy relation to \( i \) and an ally relation to \( j \) if \( i \) and \( j \) are enemies; else \( \mathbf{NP} \cdot \mathbf{N}_{i,j} = 0 \). That is, it is the number of \(<i,k,j>\) triples of the form represented in Figure 4b that \( i \) and \( j \) are embedded in.

**PN:** The variable name \( \mathbf{PN} \) (figure 4c) is calculated as \( \mathbf{PN} \cdot \mathbf{N} \). \( \mathbf{PN} \cdot \mathbf{N}_{i,j} = \) the number of \( k \)'s that have an ally relation to \( i \) and an enemy relation to \( j \) if \( i \) and \( j \) are enemies; else \( \mathbf{PN} \cdot \mathbf{N}_{i,j} = 0 \).

Table 1 lists the structural variables that correspond to balance and imbalance and the references to the graphical representations in Figure 4. The union of \( \mathbf{NP} \) and \( \mathbf{PN} \) represents balance and is named BALANCE, whereas the union of \( \mathbf{NN} \) and \( \mathbf{PP} \) represents imbalance and is named IMBALANCE.\(^1\)

\(^1\) It should be noted that in our data there is only one \( \mathbf{PP} \) triad. Therefore, IMBALANCE is mostly represented by the \( \mathbf{NN} \) structure.
Analysis

We use multiple regression quadratic assignment procedure (MRQAP) to examine the relationship between the configurations and the frequency of violent incidents (Dekker, Krackhardt, and Snijders 2005; Krackhardt 1987, 1988). QAP is a procedure that is suitable to determine an association between matrices when there is an autocorrelation in the data as is the case in the dyadic network data. It provides a statistical significance test by randomly permuting the dependent variable matrix and calculating a regression statistic every time the matrix is permuted. This random permutation will produce a reference distribution, against which the observed statistic is compared. The statistic is deemed significant if a critical fraction of the statistical values generated under permutation of the data are less than (or greater than) the observed statistical value. Dekker, Krackhardt, and Snijders (2005) found that different methods of performing this permutation test were not equivalent. Further, they discovered that a new method they developed, called the “Double Dekker Semi-Partialling” method available in UCINET (Borgatti, Everett, and Freeman 2002) is robust against reasonable conditions of multicollinearity, network autocorrelation, and skewness in the data if a non-pivotal statistic is used, such as a t-statistic. In accordance with their recommendations, we use a pivotal statistic (the t-statistic) in the tests of these regression parameters.

Results

The descriptive statistics and the correlations among the variables are shown in Table 3. The average number of attacks each gang committed against other gangs is 2.73 (=0.7*39). The zero-order correlations in Table 3 show that both BALANCE and IMBALANCE are positively correlated with our dependent variable. It is our interest to
examine these two effects when other variables are controlled for using MRQAP. The MRQAP results testing the basic prediction models are summarized in Table 4. The coefficient estimates of the structural variables should be assessed in comparison with the structural variables that are not included in the model (analogous to reference categories in regression with dummy variables). Remember that the structural variables represent all configurations of \(<i,k,j>\) triples where the \(<i,j>\) pair is negative (enemy). Structural variables that are not in the model (let us call them reference variables) are negative (enemy) ties embedded in incomplete triples (Figure 5). Among those incomplete triples, the configuration represented by Figure 5e – the case where a third gang, \(k\), has no ties to either \(i\) or \(j\) - is by far the most common (\(OO\) in Table 2), and thus it is reasonable to consider the configuration of “the simple presence of an enemy relation” as our reference variable and assess the coefficient estimates accordingly.

The results for Model 1 suggest that there is a negative relationship (\(\beta = -.054\)) between balance and the number of violent attacks, but the relationship does not reach statistical significance. Thus the extent to which one’s enemy is an enemy of a friend or a friend of an enemy only has a marginally negative effect on the extent to which the gang will inflict violence on that enemy. Balance in this case seems to predict very little. On the other hand, IMBALANCE (Model 2) is strongly positively related to the number of violent attacks (\(\beta = .837\)).

Model 3, containing both IMBALANCE and BALANCE as predictors, essentially confirms the results for Model 1 and Model 2. Thus, as the degree of balance surrounding the gang’s enemy relations increases, there does not appear to be an associated increase in violence along those relations. But, as the extent of imbalance
along those same negative ties increases, the frequency of violent confrontations increases markedly: For each imbalanced triple surrounding the negative tie, on average there is almost one more (.8) violent incident.

Let us reiterate the two predictions regarding the relationship between balance and violent attacks. **Prediction 1** is based on the argument that balance is linked with a higher level of violence due to the clarity in who one’s friends are and who one’s enemies are. **Prediction 2** asserts that balance is linked with a lower level of violence because of the deterrence effect induced by balance. Although balance is weakly associated with a lower level of violent attacks, the fact that balance seems not to have a strong relationship with the count of violent incidents prevents us from firmly determining whether **Prediction 1** or **Prediction 2** is the correct one. However, the strong negative link between IMBALANCE and the level of violence suggests that imbalance in fact induces a much higher probability of violent attacks from gang i to gang j. Thus, the combined results give weight toward **Prediction 2** and its attendant argument that a preponderance of imbalanced relations reduces the gang’s fear of organized retaliation against their provocative acts of violence.

**Beyond Balance**

Returning to our earlier discussion, the primary argument for imbalance increasing the level of attacks was because the ambiguous structure of alliances reduced the fear of organized retribution. If that is true, then we might see a difference in the two balanced structures (NP and PN) in terms of the extent to which they enhance or detract from this fear. Both are balanced (equally clear on alliances); but they do not put each party in an equally powerful position vis-a-vis the other gang. If fear of organized
retaliation is inhibiting acts of violence against specific other gangs, then the NP relation is decidedly more difficult for gang i than gang j. That is, if gang i is considering taking action against gang j, and gang i is facing a group of enemy k’s that are allies with j, then there are serious potential consequences to i attacking j. On the other hand, if i has many allies that are enemies of j (that is, a high PN count), then gang i should feel much less concern about possible retaliation and thus would be more likely to initiate the violence against gang j. These predictions are congruent with what is found in the studies of the effect of third parties on interpersonal violence. Black (1993) and his colleagues (Baumgartner 1988; Cooney 1998; Phillips and Cooney 2005) found that the “partisan structure”, which is characterized by a third party k giving support to one of the two principal parties in conflict i but not to the other j, leads to a higher likelihood of i attacking j. This structure is essentially the same as PN, and the finding points towards a positive association between PN and a high level of violence instigated by gang i against j.

To explore this more nuanced view of the effect of balanced structures on violence, we separated the BALANCE variable into its two constituent parts, NP and PN (see Table 5), and included them separately in a subsequent MRQAP analysis (Table 6). The results are consistent with the Prediction 2 reasoning. We find that those gangs faced with balanced NP triples are much less likely to initiate violence against gang j ($\beta=-.209$, highly significant). This is a much stronger effect than when we pooled all balanced relations together (-.054). Moreover, by contrast, when the balance structure is characterized by gang i having a positive tie with an enemy of j (PN), they are more likely to instigate violence ($\beta=+.102$, $p=.023$), even though it is a balanced relation. This
is consistent with the “fear factor” explanation. Clear, balanced relations will intimidate gangs from instigating violence if the balance emphasizes the coalition of gangs that might retaliate to a first attack. If, however, the balance indicates a coalition on the part of gang \( i \) (PN), then gang \( i \) has less to fear, and indeed gang \( j \) may have more to fear in retaliation. This reduces gang \( i \)'s fear, resulting in somewhat more acts of violence instigated by gang \( i \) against \( j \).

Model 5 includes both balanced relations and IMBALANCE, and the results are unaffected by the inclusion of the IMBALANCE term. Indeed, we find that while clear coalitions on the part of gang \( j \) represented by the NP triple reduces \( i \)'s aggressive behavior; however it pales in comparison to the effect of Imbalanced triples, which still dominate in predictive power (\( \beta = .835 \)).While the results for Model 1, 2, and 3 demonstrate that the balanced triads (characterized by a variable: BALANCE) are marginally negatively related to the number of violent attacks, the two models essentially ignore whether the attacker is linked to the third gang by an enemy relation or an ally relation (b and c in Figure 4). That is, while NP and PN both represent equally balanced relations, they do differ in their configuration. The difference rests in whether the attacker is one with a negative tie to the friend of the victim (NP); or whether the attacker is one with a positive tie to an enemy of the victim (PN). In this section, we are interested in distinguishing NP from PN and how each relates to who initiates the violence.

**Conclusion and Discussion**

The findings of this paper suggest the structure in inter-gang rivalries and allies has important implications for patterns of violence. Seemingly random violent attacks that occur between gangs are in fact constrained by certain patterns of relations that gangs
form among themselves, an observation that is not possible if one only looks at dyadic relationships. The current research demonstrates the advantage of adding one more actor into the picture and examining the indirect relationship between the two parties in conflict via the third.

Balance theory reveals the importance of considering the third party in terms of violence among groups. Balance theory has found its applications in the field of international relations, helping tackle the demanding question of how alliances and rivalries are related to the occurrence of conflicts and the maintenance of peace. The current findings partially support the link between balance theory and the level of gang violence. Balance has only a weak relationship with the occurrence of gang violence, while there is a strong positive association between imbalance, characterized by the 3-negative triad, \( \text{NN} \), and the number of violent attacks. One might expect either balance to have a catalytic effect on violence due to a clear distinction of enemies and friends, or a pacifying effect of balance due to deterrence. Our results are generally supportive of the latter: lack of deterrence signifies volatility. This suggests that the situation in which each gang in a triad is facing the other two in a hostile manner is a sign of doom, in terms of the level of violence that is expected to erupt among them.

According to balance theory, the similarities between \( \text{NP} \) and \( \text{PN} \) are highlighted, i.e. they are both balanced. However, if our results above suggest that imbalance signifies the lack of fear of organized retaliation which in turn leads to a higher level of violence, we would see a difference in a frequency of attacks by \( \text{gang } i \) against \( \text{gang } j \) for the same reason that we found a difference in the level of violence between balance and imbalance. Black’s theory of third party (1993) also motivates this direction of reasoning such that
what differentiates NP and PN is whether the third gang provides support to one of the two gangs involved. The results support our theoretical predictions.

It should be noted that we successfully controlled for the alternative explanations of the frequency of violence from \(i\) to \(j\). Null relation and ally relation show substantial size in their coefficients: they reduce the number of violent attacks. This is consistent with our baseline prediction, which says that having a rival relation leads to more violence than either null relation or ally relation. Attribute-level controls appear to explain relatively little of the occurrence of violence. Having another ally or another enemy as either an attacker or as a victim induces or curbs a mere 1/100 of an act of violence perpetrated by the attacker on the victim. It is true that the number of members in the victimized gang increases its immunity, but the size of this effect is modest at best: adding 100 members to the gang decreases by a mere .02 the number of violent acts committed against the gang by any other particular gang. The aggressiveness and the vulnerability of the gang significantly increase the number of violent acts, but the magnitude is far from substantial (< .01).

Given that we are only concerned with the violent attacks that occur along enemy relations, this clearly indicates that the actual violent incidents between gang \(i\) and gang \(j\) are not only the product of their feuding relationships but also the third gangs and the nature of their relationship with \(i\) and \(j\). That is even underlined by the fact that given that two gangs have an enemy relation, depending on how they are related to a third gang, their enemy relation leads to more violence than the mere existence of an enemy relation, and leads to less violence than the existence of an ally relation.
Gang violence continues to plague many urban communities across the country. The value of using basic descriptive network analysis of gang rivalries in the design and implementation of violence reduction strategies has been demonstrated on numerous occasions (Braga et al 2001; Tita et al 2003). The current work takes the next step and looks specifically at the structure of these relationships within a system of gang rivalries and allies. This more nuanced approach has the potential to further impact the formulation of effective strategy to manage gang violence and allocate law enforcement resources to gang conflicts that are likely to escalate.

There are several ways that the current study can be improved. First, it is important to consider time. By incorporating a temporal component, which is relevant considering gangs’ inclination for retaliation. Given that a gang attacks another gang, is the likelihood that the attacked gang will retaliate dependent on the nature of the relations it has with a third gang? Analysis of sequences of violence mediated by the triadic structure formed by inter-gang relations will provide a deeper understanding of the process by which gang violence is driven. Second, the findings of the current study need further replication using data from different locations. The nature of gangs (e.g., history, ethnic composition, turf orientation, etc) and gang violence are fairly unique to the location where the gangs are. Thus, it is important to test how common or unique the patterns and the structure of gang violence found in this study are.

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Figure 1. Balanced and Imbalanced Triads

Balanced

a) \( \begin{array}{c}
+ \quad X \\
P \\
+ 
\end{array} \quad + \quad \begin{array}{c}
+ \quad X \\
P \\
+ 
\end{array} \quad c) \quad \begin{array}{c}
+ \quad X \\
P \\
+ 
\end{array} \quad - 
\)

b) \( \begin{array}{c}
- \\
O \\
+ 
\end{array} \quad \begin{array}{c}
- \\
O \\
+ 
\end{array} 
\)

d) \( \begin{array}{c}
- \\
O \\
- 
\end{array} \quad \begin{array}{c}
- \\
O \\
- 
\end{array} \quad \begin{array}{c}
- \\
O \\
- 
\end{array} 
\)

Imbalanced

e) \( \begin{array}{c}
+ \quad X \\
P \\
- 
\end{array} \quad + \quad \begin{array}{c}
- \\
O \\
- 
\end{array} \quad g) \quad \begin{array}{c}
+ \quad X \\
P \\
- 
\end{array} \quad + \quad \begin{array}{c}
- \\
O \\
- 
\end{array} \quad h) \quad \begin{array}{c}
- \\
O \\
- 
\end{array} \quad - 
\)

f) \( \begin{array}{c}
- \\
O \\
+ 
\end{array} \quad \begin{array}{c}
- \\
O \\
+ 
\end{array} \quad \begin{array}{c}
- \\
O \\
- 
\end{array} 
\)
Figure 2. Gang Network

Figure 3. Gang Network with Violent Incidents
Figure 4. Four Possible Triadic Configurations Where $<i, j>$ Pair Is Negative

![Triadic Configurations](image)

Figure 5. Reference Variables

![Reference Variables](image)

Table 1. Structural Variables

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<tr>
<th>Structural Variables</th>
<th>IMBALANCE</th>
<th>BALANCE</th>
</tr>
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<td>Variable Name</td>
<td>$NN \cdot N + PP \cdot N$</td>
<td>$NP \cdot N + PN \cdot N$</td>
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<td>Corresponding</td>
<td>a) + d)</td>
<td>b) + c)</td>
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Table 2. Frequency of triads where the $<i, j>$ pair is negative

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<tr>
<td>NP</td>
<td>66</td>
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<td>66</td>
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<tr>
<td>ON</td>
<td>170</td>
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<tr>
<td>NO</td>
<td>170</td>
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<td>OP</td>
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<td>PO</td>
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<td>OO</td>
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Table 3. Means, Standard Deviations, and Correlations

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<th>4b</th>
<th>5a</th>
<th>5b</th>
<th>6a</th>
<th>6b</th>
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<th>8</th>
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<td>-.41</td>
<td>-.02</td>
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<td>.00</td>
<td>.27</td>
<td>.05</td>
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<td>.74</td>
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<td>14. PN</td>
<td>.04</td>
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<td>.03</td>
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<td>.23</td>
<td>-.07</td>
<td>.74</td>
<td>.30</td>
<td>.09</td>
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*aCorrelations in bold are significant at p < .05.

AS: Attacker Size
VS: Victim Size
AED: Attacker Enemy Degree
VED: Victim Enemy Degree
AAD: Attacker Ally Degree
VAD: Victim Ally Degree
Attacks: # Attacks
Victims: # Victimized
Adj: Geographic Adjacency
Eth: Ethnicity Match
### Table 4. MRQAP - Tested Models

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
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<th>Model 3</th>
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<tr>
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<td>Coeff.</td>
<td>Sig.</td>
<td>Coeff.</td>
<td>Sig.</td>
<td>Coeff.</td>
<td>Sig.</td>
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<td>.063</td>
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<td><strong>BALANCE</strong>: (NP, PN)</td>
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<td>.084</td>
<td></td>
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<td>-.038</td>
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<td><strong>IMBALANCE</strong>: (NN, PP)</td>
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<tr>
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<td>.366</td>
<td>-.006</td>
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<td>.208</td>
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<td>.053</td>
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<td>.111</td>
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<td>-.011</td>
<td>.057</td>
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<td>.006</td>
<td>.000</td>
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<td>.000</td>
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<tr>
<td># Victimized</td>
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<td>.001</td>
<td>.004</td>
<td>.000</td>
<td>.004</td>
<td>.001</td>
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<td>Geographical Adjacency</td>
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<td>.523</td>
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<td>.015</td>
<td>.274</td>
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</table>

MRQAP tests are based on 2000 permutations. Dependent Variable is the number of violent attacks.

### Table 5. Structural Variables

<table>
<thead>
<tr>
<th>Structural Variables</th>
<th>NN</th>
<th>NP</th>
<th>PN</th>
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<tr>
<td>Variable Name</td>
<td>NN·N</td>
<td>NP·N</td>
<td>PN·N</td>
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<tr>
<td>Corresponding Subfigures in Figure 4</td>
<td>a)</td>
<td>b)</td>
<td>c)</td>
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Table 6. MRQAP – Tested Models

<table>
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<td>Coeff.</td>
<td>Sig.</td>
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<tr>
<td>Intercept</td>
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<td>.112</td>
</tr>
<tr>
<td>NP (balanced)</td>
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<td>.000</td>
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<tr>
<td>PN (balanced)</td>
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<td>.023</td>
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<td>IMBALANCE (NN,PP)</td>
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<tr>
<td>Controls</td>
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<td>Null Relation</td>
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<td>Ally Relation</td>
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<td>Attacker Size/100</td>
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<td>Victim Size/100</td>
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<td>Attacker Enemy-Degree</td>
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<td>Victim Enemy-Degree</td>
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<td># Attacks</td>
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<td># Victimized</td>
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<td>.000</td>
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<td>Geographical Adjacency</td>
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<tr>
<td>Ethnicity Match</td>
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<td>.338</td>
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</tbody>
</table>

MRQAP tests are based on 2000 permutations. Dependent Variable is the number of violent attacks.