H i C N   Households in Conflict Network

It's Who You Know: Social Networks, Interpersonal Connections, and Participation in Collective Violence

Omar Shahabudin McDoom[1]

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Abstract: What explains why certain individuals participate in episodes of collective violence and others not? Differential selection into riots, communal violence, and ethnic massacres has often been explained in terms of individual attributes: age, gender, occupation, education, income. Using social network analysis, I present a relational theory of participation to complement the attribute-based approach.   I find participation is a function of the characteristics of (i) an individual's network; (ii) the connections within this network; and (iii) the individual actor. Drawing on Rwanda's genocide, I compare participants and non-participants in the violence from one community. I find first the size of an individual's network mattered. Participants were better connected generally and to other participants specifically. Second, the type and strength of connections also mattered. Kinship connections and stronger connections to other participants better predicted participation. Third, there existed a small core of "organizers" whose influence was due to their individual characteristics rather than their network characteristics.

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[1] London School of Economics

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Deadly riots, communal violence, pogroms and other species of collective violence have occurred frequently and persistently in diverse societies throughout the world. In Africa alone, there have been nearly 1400 episodes since 1990 of just one form of collective violence – riots –which have claimed the lives of over 24000 people.[2] Such violent group behavior is not confined to a particular geographic region. Collective violence has threatened social stability in regions as distinctive as China (ethnic clashes between Han and Uighurs (Han 2010), Northern Ireland (sectarian violence between Protestants and Catholics (McKittrick and McVea 2000), the United States (race riots involving African-Americans (Olzak, Shanahan et al. 1996), and Nigeria (religious violence between Christians and Muslims (Scacco 2009). It is also not a phenomenon of one historical period. Collective violence has spanned the pre-colonial and post-modern eras. In India communal violence between Hindus and Muslims for example has been recorded as early as the 1700s (Bayly 1985) and has recurred as recently as the end of the 20th century (Varshney 2001).

As an enduring and destructive human phenomenon then, collective violence has deservedly generated scholarly research on its causes, mechanisms, contexts, effects, organization, and functions among other questions (Horowitz 2002; Tilly 2003). One question, however, merits further study. Despite its extent and persistence, collective violence usually involves only a subset of individuals from the pool of potential participants. It is easy to overlook the many who do not in fact participate. Why then do only certain individuals engage in such violently destructive behavior and others not? Extant micro-level research has suggested that the participants have distinctive profiles or distinguishing attributes which make them more prone to participation. It points to objective characteristics - age, gender, education, occupation, income - as well as subjective attributes – prejudices, grievances, ideological commitments, and personality types as possible determinants. However, this article argues that individual attributes are only part of the answer. To complement the atomistic explanation based on individual attributes, it

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[2] Derived from Hendrix, Cullen S., Idean Salehyan, Christina Case, Christopher Linebarger, Emily Stull, and Jennifer Williams. 2010. "The Social Conflict in Africa Database." Climate Change and African Political Stability Program. University of Texas, Austin.

presents a relational approach based on social connections. The article shows that participants in collective violence are embedded in interpersonal networks – social structures - which both facilitate and constrain individual participation. Participation it is argued is not merely the product of individual preferences, but also a function of social interaction. It is not only who one is, but also who one knows that explains why some come to engage in such harmful collective behavior and others not.

To explain differential selection into such violence, the relational approach advocated points to the distinguishing characteristics of both the social network and social connections of an individual as important determinants of participation. The article provides evidence that participants in collective violence have networks and connections that differ to those of non-participants. It is the particular features of these participants' networks and connections which facilitate their selection into the violence, while it is the characteristics of non-participants' networks and connections that constrain their recruitment. The article makes three central claims. First, the size of an individual's network matters. Participants in collective violence - compared with non-participants – have more social connections in their communities in general and to other participants specifically. Second, in addition to network characteristics, the characteristics of the connections also matter. Not all connections are equal and some connections matter more than others. In particular, kinship ties to other participants – when compared with economic, social (friendship), political, religious, and proximity (neighborly) ties - are the strongest predictor of participation. Related to this, the strength of a connection also matters. The stronger the connection an individual has to a participant, the more likely he is to be drawn into the violence. Third, while network and connection characteristics are important, individual characteristics remain factors in participation. The evidence suggests that certain individuals are more influential than others in mobilizing participants. Their influence is not determined by their networks or connections alone, but by attributes specific to them. In episodes of collective violence, these "organizers" form an inner core or "critical mass" of highly interested participants.

To illustrate the relational approach, the article draws on the violence experienced by one community during Rwanda's genocide of 1994 and analyzes 3480 dyadic connections among participants and non-participants from the community. The article begins with the theoretical framework for the relational approach and sets out several hypotheses based on this. It then describes the research design, data, and methods before presenting the results and concluding with a discussion of the theoretical implications of these findings.

Section I   Theoretical Framework

This article's theoretical point of departure is the position in modern sociology wherein structure and agency are complementary rather than competing forces in explanations of social action (Bourdieu and Nice 1977; Giddens 1984). Atomistic or individualist accounts that assume independent decision-making cannot alone explain participation in group behaviors such as collective violence. Such decisions are also the product of social interdependence. The article builds then from the simple socio-biological observation that humans are a social species and naturally seek connections to each other (Morris 1967). Consequently, almost universally, we all belong to some community and are embedded in some social structure. The interpersonal networks and connections which make up this social structure provide both opportunities for and constraints on our individual choices (Brass, Galaskiewicz et al. 2004). Conversely, our individual choices simultaneously shape the networks to which we belong and the connections that we hold. As independent variables these social networks and social connections – often described as the constituents of social capital (Borgatti and Foster 2003) - have typically been seen in a positive light by social scientists. They have been used to explain aspects of several forms of collective behavior: participation in social movements (Snow, Zurcher et al. 1980; Klandermans and Oegema 1987; McAdam and Paulsen 1993; Passy and Giugni 2001), joining voluntary organizations (Putnam 2000), participation in party politics (Zuckerman 2005), voter turnout (Cox, Rosenbluth et al. 1998), and team performance in organizations (Oh, Chung et al. 2004). More

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neutrally, social networks and connections have been recognized to facilitate collective action generally (Marwell, Oliver et al. 1988; Gould 1993; Siegel 2009).

However, a separate and growing area of research has also recognized the sociological foundations to participation in various violent phenomena. The study of terrorism has made important advances in this direction using social network analysis techniques (Perliger and Pedahzur 2011). The social ties that bring future terrorists together exist long before the individuals turn to violence (Sageman 2004), that the number, strength, and type of ties shape the particular roles and influence individuals have in the group (Krebs 2002; Brams, Mutlu et al. 2006; Pedahzur and Perliger 2006), and that network structures may adapt to counterterrorism strategies (Enders and Su 2007). In civil wars, voluntary recruitment in rebel movements is partly determined by an individual's pre-existing friendship and family ties to other rebel group members (Humphreys and Weinstein 2008). The concentration of social ties in a community also mediates who is denounced and targeted at the local level in civil war violence (Kalyvas 2006). In genocide, preexisting social ties facilitate recruitment into the violence, as do group ties forged through participation (Fujii 2009). Preexisting social networks have been found to matter in other forms of violence including riots (Scacco 2009), ethnic violence (Petersen 2001), communal violence (Varshney 2001) and also revolutions (Taylor 1988).

In this article, these two separate lines of research on forms of collective behavior and species of violent phenomena are drawn together to develop a theory of participation in *collective violence*. By collective violence I mean episodic behavior which (i) inflicts physical harm on people or property; (ii) is the product of individuals acting in groups, not individuals acting alone; and (iii) involves ordinary civilians as participants, not security professionals such as soldiers, policemen or others authorized and organized to use force. Collective violence then encompasses a diverse set of behaviors that includes riots, communal violence, ethnic massacres, pogroms, and lynchings among others (Tilly 2003).

How and why do social networks and social connections matter for participation in collective violence? Broadly, the set of relevant theoretical mechanisms fall under the label of "social influence": peer group pressures; obedience to or compliance with authority figures; shared behavioral norms from habitual social interaction; trust that arises from repeated social contact; recruitment appeals or the communication of information more generally; and the possibility for incentives or sanctions for participation, among other mechanisms (Tindall 2007). Social networks and connections provide the opportunity for all of these mechanisms to operate. In the following sub-sections, the theoretical foundation for the article's three central claims regarding network, connection, and individual characteristics are set out.

I. Network-level characteristics

Social network researchers have considered the explanatory effects of various structural characteristics of networks: size, density, centralization, reachability, inclusiveness, transitivity, and connectedness among others. In this theory of collective violence, the focus is on network size. The theoretical logic is that the larger the individual's network, the more connections the individual has. The more connections the individual has, the more likely s/he is to be drawn into the violence. More specifically, the more direct connections to other participants an individual possesses, the greater the chances this individual will participate too. Recent research on sectarian riots in Nigeria in 2001 has suggested rioters on average knew 14 other rioters compared with only 5 for those who did not participate, and that better social connectedness – as measured by attendance at community meetings and association memberships – increases the likelihood of participation (Scacco 2009). Similarly, research on Palestinian suicide attacks has found that groups with many highly-connected individuals commit more attacks than those with fewer such individuals (Pedahzur and Perliger 2006). Both the perceptual presence of participants in an individual's network and actual direct connections may matter. An

individual then may either merely 'know' someone who participated or else be directly connected to such an individual.

H1a.   The greater the number of social connections an individual has, the more likely they are to participate in collective violence.

H1b.   The greater the number of other participants an individual knows, the more likely they are to participate in the collective violence.

H1c.   The greater the number of direct connections to other participants an individual has, the more likely they are to participate in the collective violence.

II.   Connection-level characteristics

In addition to the quantity of interpersonal connections measured in network size, the quality of these dyadic connections also matters. Existing research has distinguished connections in several ways: type, strength, thickness (multiplexity), symmetry, stability, and direction among others. Not all connections then are equal. To begin with connection type, Varshney distinguishes between informal "quotidian" and formal "associational" ties within an ethnic group and finds the latter better at reducing interethnic conflict in India (Varshney 2001). Yet the panoply of potential connection types is richer than this dichotomous categorization. Kinship, economic, social (friendship), political, religious, and proximity (neighborly) ties may each have different effects on participation. It is important to recognize that such ties may be 'multiplex' such as where two brothers (kinship tie) also belong to the same political party (political tie) (Kapferer 1969).

 H2a.   An individual's likelihood of participation in collective violence will differ with the type of connection between himself and the participant to whom he is connected.

Second, the strength of a tie has also been recognized as an important moderator variable. Granovetter's landmark study of 100 individuals in the Boston area showed the counter-intuitive

importance of weak ties – defined as acquaintances - in finding a job (Granovetter 1973).[3] Weak ties require less effort to maintain and an individual can consequently have many of them that extend further in social space than stronger ties given the lower likelihood that weakly-connected alters will also have ties among themselves. Granovetter defined tie strength as a function of "the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie." In my theory of collective violence, I hypothesize that stronger ties are better at drawing individuals into collective violence given the high risk involved in such an activity compared with the low-risk activity of job-hunting. The importance of strong ties in high risk, costly behavior has already been recognized in recruitment into activism (McAdam 1986).

H2b. An individual's likelihood of participation in collective violence will be higher the stronger the connection between himself and the participant to whom he is connected.

Third, a distinction between "vertical" and "horizontal" ties is drawn to measure the relative importance of two distinct "influence" mechanisms. Vertical ties are defined as an asymmetric connection between a superordinate of higher status or influence and a subordinate of inferior status or influence such as in the relationships between patron and client, parent and child, employer and employee, party leader and party member, or government official and ordinary citizen for example. A horizontal tie in contrast exists between individuals of equal influence or status such as the relationships between friends, siblings, spouses, or work colleagues of the same rank. Horizontal ties then are symmetric. The theoretical intuition for drawing this distinction lies in the differing psychological mechanisms suggested in accounts of participation in group violence. Christopher Browning's work on violence committed by members of a German police battalion in the Holocaust points to the importance of "peer pressures" (Browning 1992). Ervin Staub's theoretical work and Lee Ann Fujii's

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[3] Granovetter initially surveyed 282 respondents by mail and then randomly interviewed 100 of them. Of these 100, 54 reported finding a job through contacts. Of these, 9 were through contacts they saw at least twice per week, 30 through contacts they saw at least once a year, and 15 through contacts they saw less than once a year.

empirical work on participation by ordinary people in genocidal violence have pointed to the effects of killing in groups, including "conformity" and "homogenizing" effects (Staub 1989; Fujii 2009). Both the "peer pressure" and "conformity" mechanisms are examples of what is termed horizontal influence. In contrast, research by Milgram and Zimbardo et al. have pointed to the importance of authority in experiments where subjects were shown to be willing to harm others if they had been "authorized" to do so (Zimbardo, Haney et al. 1973; Milgram 1974). Straus corroborates this finding in his research on participation by ordinary Rwandans in the country's 1994 genocide where he finds the second most common explanation given by perpetrators was that were obeying orders by the government authorities (the most common explanation was intra-group coercion or peer pressures). Obedience to and compliance with authority figures are examples of what is termed vertical influence.

H2c. An individual's likelihood of participation in collective violence will differ according to whether his connection to a participant is based on a vertical or horizontal relationship.

Finally, the relative power of "voluntary" and "involuntary" ties is considered to try to gain leverage on the difficult endogeneity question of whether two individuals participate because they share similar preferences which led to the connection or because the connection led to similar preferences. A voluntary tie is a relationship entered into and ended freely between two individuals. Friendship, marriage, membership of a political party, membership of a voluntary organization are each examples of voluntary ties. Involuntary ties in contrast are relationships where one or both individuals do not enjoy the freedom to enter or end the relationship. Kinship blood ties would be the most obvious example of such a relationship. Clientelist ties based on land, jobs, or other important economic benefits may also be "involuntary" in the sense that the cost of ending the relationship is much higher for one party (the client) than for the other (the patron). The theoretical rationale for drawing this distinction lies in the well-established principle of homophily: birds-of-a-feather flock together or "similarity breeds connection" (McPherson, Smith-Lovin et al. 2001). Homophily would suggest that it

is the congruence in preferences that ultimately underlies participation in violence rather than social connections. A and B become friends because they have shared interests, and it this similarity in preferences that explains why they both joined the riot. However, it remains possible that the "connection breeds the similarity." Through being tied to each other, A and B's preferences converge. For this reason, I look then at "involuntary" ties. If two individuals did not choose to enter into their relationship, the likelihood that their preferences are similar at the outset is lower than in a voluntary relationship which they chose.

H2d.   An individual's likelihood of participation in collective violence will differ according to whether the connection to a participant is based on a voluntary or involuntary relationship.

III.   Actor-level characteristics

Some actors may have individual attributes, independent of their networks' characteristics, which may make them either more influential in mobilizing others for violence or conversely more susceptible to being mobilized. Attribute approaches based on individual-level characteristics have typically focused on mobilizational susceptibility, that is the likelihood that an individual would be drawn into various violent phenomena. Suggested characteristics include youth, masculinity, poverty, poor education, unemployed status, ideological commitment, prejudices, and deviancy among others. The focus here instead is on mobilizational capability: actors who are particularly influential in drawing others into collective behaviors such as violence. In social network research, mobilizational capability or influence is often considered simply a function of network characteristics. For example Siegel argues that "elite influence" may be due to the presence of "opinion-makers" in the network defined as individuals with many connections, or alternatively to the presence of social elites who occupy privileged positions at the top of a hierarchical network (Siegel 2009). Similarly, Marwell et al. have developed a micro-social model of collective action in which "organizers" form a core group of highly-interested actors or "critical mass." They predict that highly centralized networks - which they define as a network where

many ties are concentrated in a few "organizers" – increase the prospects for collective action in heterogenous groups (Marwell, Oliver et al. 1988). However, in this section an argument is presented for actor influence due to individual attributes, not due to network characteristics. This actor-specific influence may be attributable to an individual's age, occupation, wealth, education level or to some other more subjective attribute related to the individual's attitudes, beliefs, behavior, or personality more generally. These actors have high mobilizational capabilities that are independent of their network's characteristics. The incorporation of individual attributes into the theory avoids the risk of network determinism in explanations of participation in collective behavior.

H3.   Certain actors are more influential than others in mobilizing individuals to participate in collective violence independently of the characteristics of their network.

Section II   Research Design, Data, and Methods

Evidence of participation in Rwanda's genocide of 1994 is presented to illustrate the relational theory of collective violence. This section begins with a synopsis of the violence at both the national-level and in the chosen research site before describing the research techniques, the operationalization of hypotheses, and robustness checks undertaken.

Brief History of Rwanda's Genocide

In April 1994, a small group of Hutu extremists seized power in Rwanda and initiated a genocidal campaign that targeted the country's Tutsi minority for extermination. All told, an estimated 507,000 to 850,000 Tutsi would be killed, along with several tens of thousands of the Hutu majority, by the time the violence ended some 100 days later (Prunier 1998; Des Forges 1999). The killers were soldiers, police, militia, and ordinary Rwandans. The genocide was the culmination of a civil war, begun in October 1990 and fought between a mainly-Tutsi rebel army, the Rwandan Patriotic Front (RPF), and Rwanda's Hutu-dominated government. The war's roots lay in a revolution, shortly before Rwanda's

independence from Belgium in 1962, which toppled the longstanding Tutsi monarchy and installed Rwanda's first Hutu Republic that would exclude Tutsi from political power for the next three decades. The revolution had sent hundreds of thousands of Tutsi into exile and these exiles would make several unsuccessful armed attempts in the 1960s to return to Rwanda. However, it was not until the exiles' descendants initiated the civil war in 1990 and the re-introduction of multiparty politics in 1991 that the Hutu monopoly on power would weaken. In August 1993, the international community brokered a peace deal that envisaged power-sharing between the incumbent regime, the newly-formed opposition parties, and the rebel RPF. Hutu hardliners opposed the deal, however, and when Rwanda's Hutu President was assassinated on April 6th 1994 (by assassins still unknown), these hardliners seized the opportunity to take control, re-ignite the civil war, and initiate the genocide. The international community failed to intervene and it was not until the RPF finally defeated the extremist government in July 1994 that the killing would end.

Rwanda experienced collective violence on a massive scale. In just over 100 days an estimated three-quarters of its Tutsi minority were eliminated (deleted to preserve author anonymity). Rwandans mobilized as soon as one day following the President's assassination, and an estimated one in five Hutu men committed an act of violence (deleted to preserve author anonymity). Overwhelmingly the violence was conducted in groups. "The violence was public, face-to-face, crowd-enforced, and neighbor sometimes killed neighbor" (Straus 2006). Despite the extraordinary speed and scale of civilian mobilization, it is important to remember four in five Hutu men did not commit violence. It is this statistic that motivates the central research question of this project.

Profile of Research Site

To explain differential participation, I surveyed sector Tare in Butare prefecture in south-western Rwanda. Tare was a demographically representative community for Rwanda. In 1994, it comprised

714 households and 8.4% of its population was ethnic Tutsi, in line with national averages.[4] Most ties between individuals in rural Rwanda in 1994 were localized, usually based on face-to-face interactions, given the limited availability of distance-reducing technologies such as telephones and transportation and the non-existence of mass communication technologies like the internet. Tare was also one of the pilot sectors for *gacaca*, Rwanda's experimental system of local courts created to foster truth, justice, and reconciliation following the genocide. As it was a pilot, Tare was one of the first sectors to complete the gacaca process. Comprehensive micro-data on participants and victims then were available at the time I was in the field in 2009 and it is for this reason that Tare was selected as a research site.

Several in-depth and focused group interviews were conducted to reconstruct the sequence of events in Tare during the genocide. The sector experienced three principal episodes of violence on April 19th, 21st, and 22nd 1994. The sector did not erupt into violence immediately after the assassination of the president on April 6th 1994. The delay was due to the efforts of the local prefect of Butare prefecture, Jean-Baptiste Habyalimana, himself a Tutsi. Habyalimana had resisted the directives from the new Hutu extremist government in the capital, Kigali and had managed to keep the peace in the prefecture for nearly two weeks.[5] In response, Rwanda's new Hutu hardliner president, Sindikubwabo, visited Butare on April 18th to replace and assassinate the rebellious prefect. Having done so, later that same day president Sindikubwabo travelled to commune Maraba, where sector Tare was located, and incited the Hutu population to attack the Simbi Parish church where a large number of Tutsi had gathered. His speech signaled the start of the genocide in the prefecture. The Tutsi from sector Tare left their homes that same evening and many sought refuge in a local church, Rugango. The following morning, April 19th, a group of Hutu men from Tare launched the first attack against a group of Tutsi who had

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[4] In April 1994 Rwanda comprised 11 prefectures, 145 communes, 1545 sectors, and 9000+ cells. A sector was home on average to about 800 households. In addition, in some places there was a fifth layer. The *nyumbakumi* were unpaid individuals representing a collective of ten households. Rwanda's 1991 Population Census reported a Tutsi population of 8.4%.

[5] Butare was one of two prefectures that experienced a delayed onset to the violence but this did not, in my view, affect differential participation in the violence.

gathered in the nearby Sovu health center building. However, this first attack was repelled. The next day, April 20th, a security meeting was held in Tare and a new plan of action was made to attack the Tutsi in the Rugango church. On the morning of April 21st, a large group of Hutu men confronted and killed the Tutsi at Rugango and in the afternoon went on to kill those gathered at the Gihindamuyaga monastery close-by. The following day, a renewed attack was made against the Sovu health center that was successful. The majority of Tare's Tutsi were killed in these three attacks, but the hunt for the remainder continued until the rebel army reached the area on July 2nd 1994.

Research Techniques

The article draws on social network analysis and uses techniques common in sociological research but that are also gaining popularity in political science (McClurg and Young 2011). Collection of field-data on individual-level social networks is costly and complex. It is particularly difficult in a post-violence context such as Rwanda where the genocide is an understandably sensitive issue. Levels of trust within Rwandan communities are low and research on the genocide is often politicized and fraught with emotion. The government is particularly sensitive to research, especially by outsiders, that it fears may aggravate ethnic tensions. Given cost constraints, I traded depth for breadth and chose to survey a sample rather than the entire community to obtain finer-grained data on social connections. Given sensitivity constraints, I surveyed one particular community, Tare, which I knew well and where I had built a relatively high level of trust with residents over several years.

116 individuals from among the sector's 714 households were surveyed to gather data on their individual egocentric networks.[6] The sample was stratified by participant status and comprised 79 non-participants and 37 participants in the genocide. Participants were selected randomly from the final list of identified and convicted perpetrators. Non-participant respondents were selected randomly from a

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[6] The connections of these 116 respondents to 30 other members of the community were tested, making a total of 3480 possible dyadic connections.

census list of all Tare inhabitants resident in the sector in April 1994 that had been established through Tare's gacaca as one of its first actions. The census list was compiled from a series of smaller lists drawn up by Tare's *nyumbakumi*, representatives of blocs of about ten households which also included information on the age and gender of each inhabitant in their particular bloc. The survey sample excluded individuals aged less than 14 years old in April 1994 as this was the youngest person to have been convicted of a genocide crime in the sector. It also purposively surveyed only male residents, again to reflect and compare against the profile of convicted perpetrators. I personally conducted the interviews with prison inmates from Tare with the aid of a Rwandan interpreter and I trained a team of 10 Rwandan enumerators to administer the questionnaire to those at liberty in Tare itself.

Two survey techniques were used to collect and compare data on participants' and non-participants' egocentric networks: a roster and a name generator. The roster technique involved reading a list of 30 named individuals from Tare to each respondent and asking them which of the 30 individuals they personally knew. The 30 individuals comprised 15 participants and 15 non-participants from Tare selected at random and whose names were also listed randomly on the survey questionnaire. If a respondent indicated they knew one of the 30 individuals, they were then asked if they had any connection to them and to specify what that connection was. Respondents were allowed to indicate more than one connection to a particular individual to allow for multiplexity. Importantly, the questionnaire specifically asked for connections *before* the genocide. While this was clear for kinship relations, enumerators were trained to ask follow-up questions to ensure all other relationships also antedated the genocide.

The second, name generator technique involved asking respondents a series of questions to elicit the names of individuals in their particular egocentric networks. The questions were designed following a focused group interview with 8 Tare residents to establish the range of most common connections between individuals in the community. Altogether 34 different types of connections were identified

and are listed in Table 1. The questions were chosen in order to identify individuals in each category of connection in the respondent's network. Finally, a focused group interview with 10 Tare residents was held to identify individuals who were particularly influential in mobilizing participants during the genocide.

Dependent variable

The dependent variable is individual participation in the violence and takes a binary form of participant/non-participant. Participation is defined as the commission of at least one act of physical violence against the person during the genocide which may or may not have resulted in death. A superior dependent variable would have been continuous in nature and be based on a quantification of the violence an individual committed. However, reliable data on the quantum of violence committed by an individual were not available. Participation in the genocide naturally involved many acts other than violence: looting, manning roadblocks, mounting night patrols, denouncing individuals, supporting and encouraging participants among others. Nonetheless, the commission of violence against the person is an important threshold in anti-social behavior to cross and this category of participant was distinguished consistent with other studies measuring participation in Rwanda's genocide (Verwimp 2005; Straus 2006). To identify participants, a list of perpetrators convicted through the local gacaca process was compared with a list of perpetrators identified by prison inmates already convicted of genocide crimes in Tare. Only if a name appeared on both lists was the individual classified as a participant. Rwanda's gacaca law in effect at the time established three categories of genocide crime. Broadly, category I covered the most serious perpetrators such as the organizers and sexual offenders. Category II covered crimes committed violence against the person, and category III covered crimes committed against property, notably looting. All of the participants surveyed fell into category II and only one individual from Tare had been classified as a category I offender.

To be clear, the dependent variable is differential participation in collective violence or why some engage in collective violence and others not. This micro-level question is analytically distinct to the macro-level of question of why collective violence arises in the first place. The onset of collective violence is to be distinguished from individual participation in the violence. The network, connection, and individual characteristics that matter for differential participation exist under conditions of peace and stability as well as conditions of violence and instability. These characteristics do not explain why genocidal or other forms of collective violence arise in the first place.

Operationalization of hypotheses

(a) Network characteristics: To test the three sub-propositions in the first hypothesis related to network size (how many individuals a respondent knows or is connected to), the number of connections each respondent reported using the roster technique were totaled and compared between participants and non-participants (H1a). The numbers of participants and non-participants each respondent indicated they "knew" were also totaled and compared (H1b). Lastly, the numbers of participants and non-participants to whom each respondent reported having a connection were totaled and compared (H1c).

(b) Connection characteristics: To test the four sub-propositions in the second hypothesis, the connections reported using both the roster and name generator techniques were recoded in four ways. Table 1 shows how each of the 34 reported types of connection were recoded. First, connections were recoded by type into kinship, economic, political, religious, social (friendship), and proximity (neighborly) ties (H2a). Second, to test the importance of connection strength (H2b), kinship ties reported were recoded by degree of consanguinity. First degree ties, using a canonical definition of consanguinity, referred to parents, children, and siblings and were considered strong ties. All other extended kinship ties based on more distant degrees of consanguinity were considered weaker ties. Third, connections were recoded as either "vertical" or "horizontal" ties to distinguish "peer pressure"

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from "compliance" mechanisms (H2c). Finally connections were recoded as either 'voluntary' or 'involuntary' (H2d) to separate the effects of "preference similarity" from connection-based "influence." In doing so, the assumption is that preferences are socially learned rather than biologically determined. I assume then that family members are not born with identical preferences but instead develop them over time through repeated interaction with each other.

(c) **Individual characteristics:** Two techniques were used to test the third hypothesis on the presence of individual elite actors or "organizers" who were particularly influential in mobilizing participants. First, names were generated through a focused-group interview with 10 Tare residents who were asked to identify those who had been particularly influential during the genocide. Second, a series of three questions were included in the survey which asked all 116 to name the Tare residents during the genocide (i) whom they believed had the most power; (ii) whom they feared the most; and (iii) to whom they listened the most. The individual identified as most influential in the focused group interview was included in the survey sample to generate data on his social network and to see whether his network explained his high influence.

Finally, to compare the networks and connections of participants and non-participants both descriptive and inferential statistical techniques were employed. First the mean number of ties for participants and non-participants were calculated for each hypothesis and the means compared using a t-test to determine whether the differences were significant. Second, several multivariate logistic regressions, using participation as the dependent variable, were conducted to measure the relative importance of the quantity and quality of connections.

Robustness checks and control variables

Two principal robustness checks were undertaken. First, as described, network data were generated using both roster and name generator techniques. Reliance on two techniques was intended to

minimize the risk that respondents, either intentionally or unintentionally, wrongly reported and described their connections to others in the community. Second, two dependent variables of participation were tested: convicts and suspects. Subversion of the gacaca process through the cooptation of judges or intimidation of witnesses could not be discounted (Waldorf 2006). In case perpetrators were able to distort the outcome of their trials, I looked then also at those who were initially accused as well as those who were finally convicted. Finally, controls for age and education levels were included. As age and marital status were highly correlated, only marital status was specified to better capture the model's rationale of measuring social connections as it indicated the expansion of a respondent's network to include in-laws. Education was measured in terms of the number of years of primary, secondary, and tertiary education received. No control for gender was included as the sample comprised males only.

Section III   Results

(a)   Network characteristics: Individuals who participated in the violence were better connected in their community than non-participants before the violence began. The survey indicates that a convicted participant reported on average nearly 20 connections to others residents listed on the roster of names compared with only 13 connections reported by the average non-participant (Table 2). The multivariate logistic model, controlling for marital status and education level, corroborates the descriptive statistic and shows that for each additional resident to whom a resident was connected, the odds of their participating in the violence increased by 7%. (Table 3, Model 1) These findings were also true using the alternate survey question of "knowing" (as opposed to being "connected to") another resident. Convicted participants on average "knew" 25 other residents whereas non-participants "knew" 20 other residents, and the odds of participation increased by 9% for each additional resident a person "knew" (Table 3, Model 3). These findings on "knowing" and being "connected to" other residents were also true for "suspected" (as opposed to convicted) participants, though the effects were

relatively weaker, suggesting that convictions were a better indicator of participation in the violence than suspicions. Hypotheses 1a and 1b, that the size of an individual's social network mattered for participation, were confirmed. Participants reported having larger social networks than non-participants before the violence began.

However, it was not merely having a larger social network that mattered. It was the particular individuals in this network who mattered more. The more *participants* (as opposed to non-participants) in a resident's network, the more likely the resident was to participate in the violence. Participants on average were connected to 11 other participants compared to only 6 for non-participants (Table 2). The multivariate model indicates that each additional participant to whom a resident was connected increased the odds of the resident also participating by a remarkable 25% (Table 3, Model 2). The effect of additional connections to *non-participants* in contrast, while decreasing the likelihood of participation as theory would predict, was not, however, statistically significant. When the number of participants "known" (as opposed to "connected") to a resident is considered, the odds of participation increase by an even more remarkable 53% for each additional participant known (Table 3, Model 4). Knowing *non-participants* in contrast did lower the odds of participation, but this finding is significant only at the lower 10% threshold. When the alternate dependent variable of suspected instead of convicted participants is considered, the findings continue to hold, albeit with slightly weaker substantive and statistical significance. Hypothesis 1c on the importance of the number of other participants in an individual's network, then was also confirmed. The more participants an individual knows, the more likely they are to also participate in the violence.

(b)   Connection characteristics: In addition to the size of the network, the quality of connections within the network also mattered.

(i) Connection type: The descriptive statistics *prima facie* suggest that kinship, proximity (neighborly), and economic connections were more important for participation than social (friendship), political, or

religious ties. However, when all six types of connections are specified in the multivariate model, the only unambiguously significant connections were those based on kinship. For each additional family member who participated in the violence, the odds of an individual also participating increased by a noteworthy 59% (Table 4, Model 5). The importance of family ties was corroborated by the multivariate model which used the "name generator" instead of the "roster of names" technique (Table 5, Model 8). In contrast, the significance of proximity ties dropped out altogether from both the "name generator" and "roster" based models. This is perhaps unsurprising given Rwanda's rural socio-cultural context where family members often live and own land in close proximity to each other. Economic ties to other participants, while statistically significant in the "name generator" model (at the 5% level), were not significant at all in the "roster" based model. Therefore, the type of connections in which the greatest confidence can be placed for predicting participation are connections based on kinship. Hypothesis 2a is also confirmed. The greater the number of family members who participate in the violence, the more likely the individual is to also join in the violence.

(ii) Connection strength: In addition to the type of tie, the strength of the tie also mattered. Ties based on the first degree of consanguinity – parents, siblings, and children – have a relatively stronger effect in pulling individuals into the violence than ties based on weaker, more distant degrees of consanguinity – uncles, grandparents, cousins etc. In probabilistic terms, the odds of an individual joining the violence more than doubled when a close family member also participated in the violence (Table 4, Model 6). If a more distant family member participated, the odds of participation also increased but only half as much as if it were a close family member. Similarly, kinship ties based on blood were stronger than family ties through marriage in drawing individuals into the violence. The odds of participation increased by 73% if a blood-related family member also participated, compared with no statistically significant impact if merely an in-law participated (Table 4, Model 7). It is noteworthy that blood ties to *non-participants* decreased the odds of participation by 43%, suggesting that these family members may have had some influence in dissuading an individual from joining in the

violence (Table 4, Model 7). The strength of the tie does seem to matter for differential selection into the violence, confirming hypothesis 2b. The stronger the tie to another participant, the more likely an individual is also to participate in the violence.

(iii) Horizontal versus vertical connections: The symmetry of the tie was also considered to measure the relative importance of different "influence" mechanisms, but in this case the effect of this characteristic was less certain than the effect of tie strength. "Horizontal" or symmetric ties - where the underlying mechanism is "peer pressure" - appear to matter more than "vertical" or asymmetric ties – where the underlying mechanism is compliance with or obedience to authority - when the multivariate model based on the *name generator* is considered. In this model, the odds of participation more than tripled if the individual was connected through a horizontal tie to another participant, but vertical ties appear to have no statistically significant effect at all (Table 5, Model 10). However, when the multivariate model based on the *roster of names* is considered, both vertical and horizontal ties to other participants appear to matter, but the effect is relatively stronger for vertical ties (Table 6, Model 12). Given the conflict then between the predictions of the roster and name generator models, it cannot be confidently said whether vertical or horizontal mattered more for participation. Both peer pressure and compliance mechanisms appear to matter for participation.

(iv) Involuntary versus voluntary connections: Ties that are "involuntary" in nature – where the individual cannot enter or end the relationship easily - appear to matter more than voluntary ties that an individual has freely chosen. The theoretical rationale for drawing this distinction lay in the need to separate the causal effects of preference similarity and social connections in drawing individuals into the violence. An "involuntary" tie to another participant more than doubled the odds of an individual joining the violence, whereas voluntary ties had no statistically significant impact at all. As most involuntary ties are also kinship ties, and the power of kinship ties has already been noted, this result is unsurprising. Family ties (involuntary) are more influential than friendships (voluntary). This finding

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lends support to the idea that it is the social connection rather than a pre-existing, similar proclivity for participation that better explains differential selection into the violence. The finding is also strengthened given that both the name generator (Table 5, Model 11) and roster (Table 6, Model 13) techniques make the same prediction, albeit that the name generator predicted a relatively stronger substantive effect than the roster technique. Hypothesis 2d was confirmed.

(c) **Individual characteristics:** Finally, there appears to have been a clear and small inner core of actors who acted as mobilizing agents in the violence and whose influence was due to individual attributes rather than network characteristics. The focused group interview yielded the names of 7 individuals who were particularly influential in drawing residents into the violence. In general, as the profiles in Table 7 indicate, the mobilizing agents were (i) older; (ii) better-educated; (iii) wealthier; and (iv) had higher status occupations than the average participant. In short these attributes suggest they were rural elites. The one exception was mobilizing agent 7 (MA7), who was poorer and less well-educated than the other 6 actors. The focused group interviewees indicated he was a former soldier and acted as a loyal bodyguard to mobilizing agent 1 (MA1).

These 7 actors formed a "critical mass" (Marwell, Oliver et al. 1988) of highly interested actors. Table 8 is a sociomatrix showing the connections between these actors. As can be seen, this inner core had several connections among themselves and these connections were "thick" or multiplex in the sense that often there were several distinct ties linking two individuals. The two most common ties were based on friendship and membership of a political party – as distinct to the ties that mattered for non-elite actors which, as previously observed, were based primarily on kinship. Figure 1 is a sociogram showing visually these connections between the 7 individuals. As can be more readily seen, there was one particularly central individual in this particular sub-network. MA1 was directly connected to 5 of the 6 other mobilizing agents. There was also a clear consensus that emerged from the discussion group that MA1 was the principal organizer of the violence in the community. This finding was

corroborated by the survey where 47 of the 116 respondents when asked whom people "listened to" most during the genocide also gave this MA1's name. 31 respondents indicated he was the most "powerful" individual during the genocide, and 14 indicated he was the most "feared" individual as well. Each of these scores was the highest, by far, recorded for any individual mentioned in the survey. MA1 then was the most influential individual in the community during the genocide. His mobilizational capabilities were helped by high status attributes he enjoyed even before the genocide began. MA1 was the President of the MDR political party at the commune level, had formerly been a commissioner of police and a military officer, and held a salaried position in an international organization at the time of the genocide. MA1 then was included in the survey sample to collect data on his social network in Tare.

Importantly, as can be seen in Table 9, MA1's network did not share the distinguishing characteristics of other participants' networks in Tare. He did not enjoy a wide number of connections either to residents generally or to other participants in particular. His connections were limited to the selected few who were also powerful in the community. His influence then does not appear attributable to the size of his network in Tare. MA1 appears to enjoy influence and authority specific to himself that is due largely to the status attributes that make up his reputation. The survey shows many residents knew him, even though he did not know them. Hypothesis 3 then appears to be confirmed. There exist actor-specific attributes independent of the size of their network that make actors particularly influential or authoritative in mobilizing others into collective action.

Section IV   Discussion and Conclusion

This article contributes to the growing store of micro-level knowledge on group violence. It draws sociological theory and political science research a little closer together to reinforce the widening consensus that social structure is a key variable in explanations of such violence. Specifically, the article presented an argument that participation in collective violence is a product of both social relations – the

quantity and quality of connections in an individual's network - and of individual attributes - distinguishing characteristics of a particular person. Both pull (relational) and push (attributes) factors matter and we should guard against excessive determinism of either approach. While individuals are distinct atoms, they are bound together in interdependent molecular structures. There are obviously interactions possible between relational and attributive factors. Individual preferences may explain why certain relations emerge (as the homophily or "birds-of-a-feather" principle would predict) but certain connections may also shape individual preferences. The article presented evidence to support the latter perspective, notably by showing that family members exhibited similarities in their inclinations and disinclinations to participate in the violence. The article has three other important theoretical and empirical implications.

First, social networks may provide an important link between micro and macro-levels of analyses of group phenomena (Granovetter 1973). The growing focus on the micro-foundations of violence has raised the question of the "macro-micro disjunction" in explanations of violent phenomena (Kalyvas 2006). How do we explain oft-observed variations in violence within complex and aggregated violent events such as civil wars, ethnic conflicts, and genocides? The importance of "local" factors has been stressed (Kalyvas 2006; Straus 2006). Aggregated analyses at the level of the event (e.g. a riot) or at the level of the collectivity (e.g. an ethnic group) obscure the micro-political, micro-social, and micro-economic (i.e. "local") forces that shape participation and victimization. These "local" or "micro" forces flow through network structures. These networks likely play a mediating role then in explaining both who kills and also who is killed, as Fujii's pioneering study of ties among 82 Rwandans during the genocide has highlighted (Fujii 2009). In identity-based explanations of violence it is often unclear how a macro-variable such as ethnicity affects micro-level outcomes such as why certain individuals commit violence and others not, and why particular individuals are targeted but others unharmed. The characteristics of intra-ethnic and inter-ethnic networks and ties may be part of the explanation.

Second, the evidence presented here also reinforces the growing consensus that social networks and social ties, the building-blocks of social capital, do have a dark side (Portes 1998; Gargiulo and Benassi 1999; Swain 2003). Strong bonds may not only build trust, they may also imprison people. Social ties create expectations and obligations, thereby limiting individual choice. The freedom to act independently or more specifically one's ability to exit is structurally constrained. As Rwanda's genocide illustrates, social networks then can be mobilized for vicious as well as virtuous ends. It is time to reexamine the strongly positive bias in perspectives on social capital.

Third, the evidence also provides some insight into the micro-dynamics of Rwanda's genocide. As often observed, Rwanda had the highest population density of all African states: a remarkable 305 persons/sq. km. in 1993. Rwanda's genocide, as previously noted, was also remarkable for the speed of the violence and the scale of popular participation. These facts have led to speculation that the violence was the product of some sort of neo-Malthusian resource crunch: too many people, too little land (Andre and Platteau 1998) . This paper suggests, however, that the extraordinary speed and scale of the violence may have sociological rather than ecological origins. In highly densely-populated societies likely exist highly dense social networks. Highly dense networks often signify numerous connections exist between individuals and that frequent face-to-face interaction occurs, particularly in technologically simple societies where the means of communication and transportation are basic. It is these many ties and frequent contact which enmesh individuals, providing both opportunities for and constraints on actions. As already noted, high network density improves the efficiency of collective action more broadly (Marwell, Oliver et al. 1988; Gould 1993). Mass mobilization and rapid violent contagion, the remarkable features of Rwanda's genocide, may then have their roots in Rwanda's remarkable population density.

Lastly, the limitations of the evidence should be acknowledged. While the article supports the growing consensus that social ties matter for participation in violence, the type of tie that matters may differ

with the type of violence. The finding that kinship ties matter most for genocidal violence may not be

true for participation in riots, communal violence, terrorism, or ethnic violence. More detailed research

would be needed to extend this finding to other species of collective violence.

Tables and Figures

Table 1: Coding of Connections Reported

Type of Connection	Code I	Code II	Code III
Respondent is parent	Kinship	Vertical	Involuntary
Respondent is child	Kinship	Vertical	Involuntary
Respondent is sibling	Kinship	Horizontal	Involuntary
Respondent is grandparent	Kinship	Vertical	Involuntary
Respondent is grandchild	Kinship	Vertical	Involuntary
Respondent is aunt/uncle	Kinship	Vertical	Involuntary
Respondent is cousin	Kinship	Horizontal	Involuntary
Respondent is nephew/niece	Kinship	Vertical	Involuntary
Respondent is spouse	Kinship	Horizontal	Voluntary
Respondent is son/daughter-in-law	Kinship	Vertical	Not coded
Respondent is parent-in-law	Kinship	Vertical	Not coded
Respondent is brother-in-law/sister-in-law	Kinship	Horizontal	Not coded
Other relation through blood	Kinship	Vertical or horizontal	Involuntary
Other relation through marriage	Kinship	Vertical or horizontal	Not coded
Respondent worked for this individual	Economic	Vertical	Voluntary or involuntary
This individual worked for the respondent	Economic	Vertical	Voluntary or involuntary
They worked together (equal rank)	Economic	Horizontal	Voluntary or involuntary
Respondent rented his land to this individual	Economic	Vertical	Voluntary or involuntary
This individual rented his land from the respondent	Economic	Vertical	Voluntary or involuntary
Respondent kept his cow	Economic	Vertical	Voluntary or involuntary
He kept the respondent's cow	Economic	Vertical	Voluntary or involuntary
They belong to the same cooperative	Economic	Horizontal	Voluntary
Other economic tie	Economic	Vertical or horizontal	Voluntary or involuntary
They attended the same church	Religious	Horizontal	Voluntary
Respondent is godparent	Religious	Vertical	Involuntary
Respondent is godchild	Religious	Vertical	Involuntary
Other religious tie	Religious	Vertical or horizontal	Voluntary or involuntary
They joined the same political party	Political	Horizontal	Voluntary
Other political tie	Political	Vertical or horizontal	Voluntary
They are friends (drink together/mutual aid)	Social	Horizontal	Voluntary
They travel together	Social	Horizontal	Voluntary
Other social tie	Social	Vertical or horizontal	Voluntary
They are neighbors	Proximity	Horizontal	Involuntary
Other unspecified tie	Other	Vertical or horizontal	Voluntary or involuntary

Table 2: Descriptive Statistics Comparing Mean Number of Ties by Type across Participants and Non-participants (n=116)

		Non-convicts	Convicts only	All non-suspects	All Suspects
		mean	mean	mean	mean
Residents known		20.00	24.78***	19.74	24.06***
	Non-particpts. known	9.68	11.59**	9.62	11.25**
	Participants known	10.31	13.19***	10.12	12.81***
All ties		12.73	20.16***	12.24	19.17***
	To non-participants	6.30	9.03***	6.01	8.81***
	To participants	6.43	11.14***	6.22	10.35***
Horizontal ties:	*To non-participants*	5.53	8.35***	5.35	7.96***
	To participants	5.52	9.57***	5.40	8.81***
Vertical ties:	*To non-participants*	0.77	0.68	0.66	0.85
	To participants	0.91	1.57**	0.82	1.54***
Voluntary ties:	*To non-participants*	0.78	0.84	0.72	0.92
	To participants	0.95	1.30	0.87	1.33
Involuntary ties:	*To non-participants*	0.73	0.86	0.68	0.92
	To participants	0.80	2.14***	0.78	1.85***
Kinship ties:	*To non-participants*	0.94	1.22	0.87	1.25
	To participants	0.94	2.41***	0.85	2.19***
Economic ties:	*To non-participants*	0.41	0.41	0.32	0.52
	To participants	0.29	0.84**	0.25	0.77**
Social ties:	*To non-participants*	0.47	0.59	0.38	0.69
	To participants	0.49	0.78	0.40	0.85*
Political ties:	*To non-participants*	0.09	0.05	0.09	0.06
	To participants	0.18	0.38	0.19	0.31
Religious ties:	*To non-participants*	0.20	0.16	0.22	0.15
	To participants	0.28	0.14	0.28	0.17
Proximity ties:	*To non-participants*	4.29	6.65***	4.22	6.21**
	To participants	4.28	6.81***	4.28	6.23**
Kinship 1st degree ties:	*To non-participants*	0.24	0.16	0.21	0.23
	To participants	0.24	0.51**	0.24	0.46*
Kinship 2nd degree +ties:	*To non-participants*	0.70	1.05	0.66	1.02
	To participants	0.70	1.89***	0.62	1.73***
Kinship blood ties:	*To non-participants*	0.73	0.86	0.68	0.92
	To participants	0.80	2.14***	0.78	1.85***
Kinship marital ties:	*To non-participants*	0.20	0.35	0.19	0.33
	To participants	0.14	0.27	0.07	0.33
No. of individuals with multiplex ties:	*To non-participants*	0.35	0.92**	0.28	0.90**
	To participants	0.73	2.19**	0.46	2.25***
Total number of multiplex ties:	*To non-participants*	0.15	1.38***	0.10	1.17***
	To participants	0.33	3.68***	0.22	3.06***

*/**/*** difference statistically significance at 10%, 5%, and 1% levels using t-test*

Table 3: Multivariate Models of Participation in Genocide by Residents Known & Residents Connected: Roster Method (n=116)

	Model 1		Model 2		Model 3		Model 4	
	All Suspects	**Convicts Only**	**All Suspects**	**Convicts Only**	**All Suspects**	**Convicts Only**	**All Suspects**	**Convicts Only**
Marital status *(married)*	1.62 (0.72)	1.57 (0.77)	1.70 (0.77)	1.69 (0.85)	1.69 (0.75)	1.68 (0.82)	1.71 (0.79)	1.69 (0.85)
Education *(years)*	0.98 (0.07)	1.02 (0.07)	0.99 (0.07)	1.03 (0.08)	0.96 (0.06)	1.00 (0.07)	0.98 (0.07)	1.02 (0.07)
All ties to residents	1.07 (0.02)***	1.07 (0.03)***						
Non-participants			0.97 (0.06)	0.92 (0.06)				
Participants			1.17 (0.07)**	1.25 (0.09)***				
Residents known					1.07 (0.03)**	1.09 (0.04)***		
To non-participants							0.84 (0.08)*	0.84 (0.08)*
To participants							1.44 (0.17)***	1.53 (0.21)***

*Logistic regressions. Odds ratio reported with robust standard errors in parentheses. */**/*** statistical significance at 10%, 5%, and 1%*

Table 4: Multivariate Models of Participation in Genocide by Type of Tie I: Roster Method (n=116)

	Model 5		Model 6		Model 7	
	All Suspects	**Convicts Only**	**All suspects**	**Convicts only**	**All suspects**	**Convicts only**
Marital status *(married)*	2.41	2.25	2.24	2.30	2.02	2.09
	(1.24)*	(1.27)	(1.02)*	(1.15)*	(0.94)	(1.05)
Education *(years)*	0.99	1.05	0.95	0.97	0.92	0.96
	(0.08)	(0.09)	(0.06)	(0.07)	(0.06)	(0.07)
All kinship ties	1.05	1.01				
To non-participants	(0.24)	(0.25)				
To participants	1.51	1.59				
	(0.25)**	(0.27)***				
Economic ties	1.09	0.71				
To non-participants	(0.43)	(0.33)				
To participants	1.76	1.85				
	(0.49)**	(0.47)**				
Social ties:	0.84	0.91				
To non-participants	(0.30)	(0.37)				
To participants	1.38	1.22				
	(0.35)	(0.31)				
Neighbour/proximity ties:	0.66	0.45				
To non-participants	(0.50)	(0.38)				
To participants	1.07	1.60				
	(0.51)	(0.82)				
Political ties:	1.09	1.05				
To non-participants	(0.12)	(0.12)				
To participants	1.08	1.14				
	(0.11)	(0.13)				
Religious ties	0.51	0.73				
To non-participants	(0.29)	(0.44)				
To participants	0.43	0.40				
	(0.23)	(0.24)				
Kinship first degree ties:			0.72	0.34		
To non-participants			(0.32)	(0.20)		
To participants			1.54	2.01		
			(0.48)	(0.65)**		
Kinship second degree + ties:			0.92	0.93		
To non-participants			(0.19)	(0.20)		
To participants			1.56	1.53		
			(0.30)**	(0.28)**		
Kinship blood ties:					0.65	0.57
To non-participants					(0.15)*	(0.16)**
To participants					1.61	1.73
					(0.26)***	(0.29)***
Kinship marital ties:					1.22	1.35
To non-participants					(0.42)	(0.47)
To participants					4.84	2.05
					(2.98)***	(0.92)

Logistic regressions. Odds ratio reported with robust standard errors in parentheses. */**/*** statistical significance at 10%, 5%, and 1%

Table 5: Multivariate Models of Ties to Participants – Name Generator Method (n=116)

	Model 8		Model 9		Model 10		Model 11	
	All suspects	Convicts only	All suspects	Convicts only	All suspects	Convicts only	All suspects	Convicts only
Marital status *(married)*	1.45 (0.69)	1.40 (0.76)	1.99 (0.87)	1.94 (0.92)	1.85 (0.82)	1.79 (0.88)	2.09 (0.90)	2.05 (0.97)
Education *(years)*	0.91 (0.06)	0.90 (0.07)	0.92 (0.06)	0.95 (0.06)	0.92 (0.06)	0.95 (0.07)	0.92 (0.06)	0.96 (0.07)
Kinship ties	1.62 (0.47)	2.35 (0.99)**						
Social ties	2.00 (0.71)	3.99 (2.85)*						
Economic ties	1.96 (0.96)	3.06 (2.27)						
Political ties	1.73 (0.82)	2.20 (1.21)						
Religious ties	0.55 (0.27)	0.22 (0.24)						
All ties			1.39 (0.21)	1.63 (0.34)**				
Horizontal ties					1.92 (0.48)	3.38 (1.32)***		
Vertical ties					1.04 (0.24)	1.04 (0.32)		
Voluntary ties							1.13 (0.30)	1.23 (0.48)
Involuntary ties							1.48 (0.40)	2.14 (0.78)**

*Logistic regressions. Odds ratio reported with robust standard errors in parentheses. */**/*** statistical significance at 10%, 5%, and 1%*

Table 6: Multivariate Model of Participation in Genocide by Type of Tie II: Roster Method (n=116)

	Model 12		Model 13	
	All Suspects	**Convicts Only**	**All Suspects**	**Convicts Only**
Marital status (*married*)	1.71 (0.79)	1.64 (0.83)	2.05 (0.93)	2.17 (1.09)
Education (*years*)	0.97 (0.07)	1.01 (0.08)	0.95 (0.06)	0.97 (0.07)
Horizontal ties				
To non-participants	1.00 (0.07)	0.97 (0.08)		
To participants	1.13 (0.08)*	1.20 (0.09)**		
Vertical ties				
To non-participants	0.86 (0.15)	0.67 (0.17)		
To participants	1.49 (0.27)**	1.53 (0.28)**		
Voluntary ties				
To non-participants			0.86 (0.18)	0.80 (0.19)
To participants			1.20 (0.20)	1.18 (0.20)
Involuntary ties				
To non-participants			0.88 (0.18)	0.71 (0.18)
To participants			1.44 (0.21)**	1.63 (0.26)***

Logistic regressions. Odds ratio reported with robust standard errors in parentheses. */**/*** statistical significance at 10%, 5%, and 1%

Table 7: Basic Profiles of Inner Core of 7 Genocide Mobilizing Agents in Sector Tare

	1	2	3	4	5	6	7
Age in 1994	56	35	58	58	41	42	42
Married?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of children	9	5	Unknown	Unknown	Unknown	6	Unknown
Financial status	Wealthy	Average	Wealthy	Wealthy	Average	Wealthy	Poor
Education (yrs)	12	6	6	6	6	6	Unknown
Political party	MDR	MRND	MDR	MRND	MDR	MDR	None
Main occupation in 1994	Salaried UN driver	Head of cell (village)	Local govt. worker	Local govt. worker	Farmer & businessman	Businessman	Manual laborer

Table 8: Sociomatrix of Ties within Inner Core of 7 Genocide Mobilizing Agents in Tare

	1	2	3	4	5	6	7
1	-	-	Friends Pol. Party	Brothers	Friends Pol. Party Neighbors Work	Friends Pol. Party Neighbors	Friends Work
2	-	-	Neighbors	Work	-	-	-
3	Friends Pol. Party	Neighbors	-	Friends	-	-	-
4	Brothers	Work	Friends	-	-	-	-
5	Friends Pol. Party Neighbors Work	-	-	-	-	Friends	-
6	Friends Pol. Party Neighbors	-	-	-	Friends	-	-
7	Friends Work	-	-	-	-	-	-

Sociogram of Connections within Inner Core of Genocide Mobilizing Agents in Sector Tare
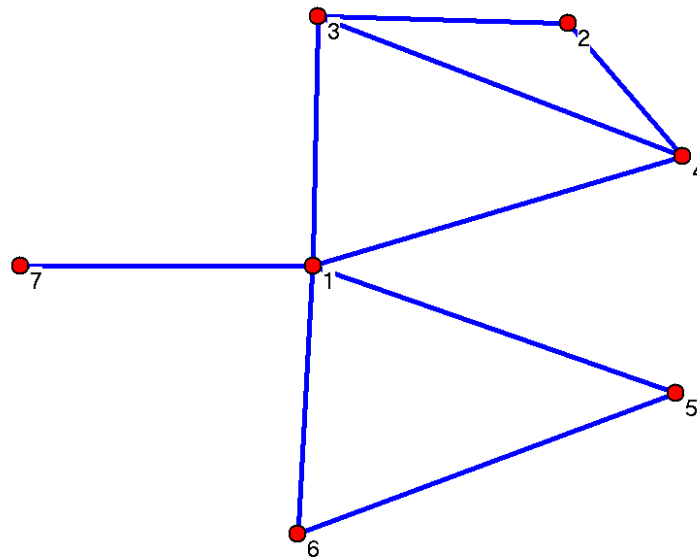

Table 9: Profiles of Participants, Non-participants and Top Mobilizing Agent in Genocide

	Top mobilizer	Average Participant	Average non-participant
Age in 1994 (mean)	56	35.9	35.5
Marital status (% married)	Married	78.4	62.0
No. of children (mean)	9.0	3.3	3.2
Education (years, mean)	12.0	3.4	3.8
Land owned (hectares [estimated], mean)	2.0	1.0	0.4
No. of residents known (max=30, mean)	14.0	24.8	20.0
Non-participants known (max=15, mean)	6.0	11.6	9.7
Participants known (max=15, mean)	8.0	13.2	10.3
No. of ties to residents (multiplex permitted, mean)	15.0	20.2	12.7
To non-participants only (mean)	5.0	9.0	6.3
To participants only (mean)	10.0	11.1	6.4

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