Network closure and integration in the mid-20th century American mafia

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ABSTRACT

Criminal networks are thought to be biased toward decentralization and security rather than integration and efficiency. This article examines this tradeoff in a large-scale national criminal network spanning more than 700 members of 24 distinct American mafia families operating in the mid-20th century. Producing a novel network image of the American mafia as a set of highly differentiated yet intertwined islands of criminal activity, the analysis uncovers a small-world structure that allowed both for strong intragroup closure and high intergroup connectivity. This balance reflected a division of network labor in which integrative bridging connections were disproportionately concentrated among a small number of criminals. Furthermore, the criminals who held such bridging ties tended to be either low- or high-status—but not of middling status—within their respective organizations.

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1. Introduction

A long line of research on criminal and covert networks has emphasized the critical tradeoff between efficiency and security (Baker and Faulkner, 1993; Erickson, 1981; Morselli et al., 2007). On one hand, efficient communication across network structure—facilitating timely collective action—depends on low average path lengths, meaning that most nodes can be reached from others either directly or through just a few intermediaries. On the other hand, the integrative ties enabling such efficiency can also make the network less secure when one "discovered" node can easily lead to the discovery of many others.

While previous work has generally analyzed this tradeoff in the context of networks surrounding individual criminals, covert organizations, or conspiratorial incidents (e.g. Baker and Faulkner, 1993; Campana and Varese, 2013; Morselli, 2005; Morselli et al., 2007; Papachristos and Smith, 2014), the same logic of efficiency and security can be applied to the organization of relations *across* criminal organizations. To this end, this article draws on a unique database compiled in 1960 by the Federal Bureau of Narcotics containing biographical information on 726 prominent members and associates of Italian-American mafia—or "Cosa Nostra"—families operating in the mid-20th century United States. Using organizational charts produced by contemporaneous U.S.

Senate investigations—together with label propagation techniques from computer science to fill the gaps in the historical record—I map the individual criminal profiles onto membership in 24 mafia families. Based on ties of criminal association identified in these profiles, I produce a novel network image of the mid-century American mafia as a set of highly differentiated yet intertwined islands of criminal activity.

In making this empirical advance, I theoretically extend the efficiency-security tradeoff to the analysis of inter-organizational relations through the concept of network *modularity* (Newman, 2006; Newman and Girvan, 2004). While some criminal industries—such as the distribution of narcotics—require coordination across geographic space, the extensive network ties required for such coordination may make the network less secure by allowing the discovery of any one conspirator to implicate multiple organizations. Yet the absence of bridging ties between organizations makes intergroup coordination impossible or, at the least, inefficient. Capturing this balance, modularity measures the fraction of network ties occurring *within groups* compared to the fraction one would expect in a randomly constructed network of the same size and degree distribution. Thus, high modularity in an inter-organizational criminal network suggests a stronger emphasis on organizational security rather than transactional efficiency.

The analysis finds that the mafia network featured extremely high levels of clustering by group or family. Following the logic of Watts and Strogatz's (1998) "small-world" theory, however, it also turns out that a relatively small number of "bridging" connections was sufficient to ensure relatively low average path length

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between members of different families. While this structure is broadly consistent with previous observations of criminal networks (e.g. Morselli, 2009), the key is to identify the criminal "brokers" who link together the disparate clusters by forming bridging ties beyond their own group (e.g. Baker and Faulkner, 1993; Klerks, 2001; Krebs, 2002; Natarajan, 2006; Morselli, 2009, 2009; Bouchard and Nguyen, 2010; Bright et al., 2012, 2015; Calderoni, 2012; Mancuso, 2014; Papachristos and Smith, 2014; Mastrobuoni, 2015). To this end, I show that—rather than widely dispersed—the key network bridges were disproportionately concentrated among relatively few actors. Furthermore, I find that the occupancy of such inter-organizational brokerage positions features a U-shaped correlation with status and centrality *within* organizations, suggesting that brokerage roles were generally taken either by especially low- or high-status—but not middle-status—actors. This apparent pattern of "middle-status conformity" (Phillips and Zuckerman, 2001) in the occupancy of brokerage positions sheds important light on the potential mechanisms allowing for interconnection between criminal organizations. In particular, to the extent that brokerage is avoided by middle-status members of a criminal group, we might suspect that inter-organizational integration reflects individualistic enterprise—and even a form of deviance from group expectations—rather than group-level coordination.

The remainder of the article proceeds as follows. The second section provides theoretical motivation of the mechanisms underlying the tradeoffs between efficiency and security and between intra-group cohesion and intergroup connectivity in criminal networks. The third section provides historical and empirical background for the present study of mid-20th century American mafia families. The fourth section introduces an archival dataset that allows us to re-create the network of relations within and between these families. The fifth, sixth, and seventh sections present results from three sets of network analyses. The first analysis uses the concept of network modularity to demonstrate the extent to which intrafamily closure dominated the American mafia's network structure. The second analysis shows that, despite such closure, the national network was nonetheless marked by high intergroup connectivity and integration. Taking up this puzzle, the third analysis shows that this integration was enabled by a *division of network labor* in which intergroup bridges were disproportionately maintained by a relatively small number of actors, and that the occupancy of such bridges was nonlinearly correlated with one's status within the family hierarchy. The eighth section concludes.

2. Secrecy, trust, and closure

Erickson (1981) defines a *secret society* "in social network terms as a persisting pattern of relationships which directly or indirectly links the participants in related secret activities" (p. 189). Baker and Faulkner (1993) describe the *security* imperative in such covert networks thusly: "When a secret society works properly, the larger society remains unaware of its existence. If a secret society is discovered and investigated, its organizational structure should offer protection by making it difficult to unravel the conspiracy" (p. 843). The imperative for *efficiency* in the structure of such networks is that the pattern of relationships linking members together must enable them to communicate and coordinate for whatever purpose (e.g. carrying out a planned attack or consummating an illegal transaction) the network exists. As Morselli et al. (2007) put it: "At some point, the hidden group must step forward and execute a crime" (p. 144).

Security in the covert network can be enhanced through both top-down and bottom-up mechanisms. In his classic essay on the subject, Simmel (1950) highlights top-down organizational features that help to keep the "secret society" secret. Chief among

these is a rigid hierarchy that de-individualizes particular members and insulates leaders from the rank-and-file. In addition to socializing members into the group and its purposes (a process that is also often aided by elaborate initiation rituals), limitations on direct communication among members also ensure that the discovery of any one member is unlikely to lead to the discovery of many others (Baker and Faulkner, 1993). Thus, covert networks are often thought to be sparse and decentralized in structure.

Erickson (1981) emphasizes on-the-ground conditions that lead individual members of the secret society to build networks aimed toward trust and closure rather than openness and integration. Based on a comparative analysis of six cases—including the Lupollo mafia outfit chronicled by Ianni and Reuss-Ianni (1972)—Erickson highlights variation in social structure stemming from the riskiness of the conditions faced by the group. Risky conditions, she argues, make it especially important to rely on pre-existing networks of relationships. With each new member who is recruited to the secret group, both the *recruiter* and *recruited* are at risk of being exposed and betrayed by the other. Accordingly, recruitment of new members and the formation of new covert ties proceeds along paths of existing relations, where the prior contact between recruiter and recruited provides a measure of trust. Furthermore, the ties most likely to provide this requisite trust are parochial "strong" ties, such as those within kinship groups. Consequently, network ties formed in the context of criminal or covert activity are unlikely to be the "weak" ties that bridge large gaps between distant social groups lacking a previous basis for connection (Granovetter, 1973).

In the context of criminal networks spanning multiple organizations, Erickson's (1981) argument for heavy reliance on strong ties and pre-existing relations suggests that members will be especially likely to focus on building ties within—rather than across—organizations. There is a *transaction cost* to identifying trustworthy partners for exchange outside of one's own group. Within the organization, dense social networks and hierarchical authority can combine to discourage malfeasance and ensure conformity to group expectations. Beyond these organizational boundaries, however, one must increasingly rely instead on interpersonal trust lacking such built-in assurances. In clan-like groups that emphasize commitment and loyalty, furthermore, there is a potential *reputation cost* to building one's network around ties with "outsiders" (Xiao and Tsui, 2007). There is also an *opportunity cost*—time and effort spent cultivating one relationship implies foregone opportunities to cultivate others. To the extent that ranks (and the resources associated with them) are distributed through internal labor markets within organizations (Gambetta, 1993), we should expect greater return on one's social investment from interactions within group boundaries.

For these reasons, we should expect an inter-organizational criminal network to feature a strong bias toward *social closure* in which intra-group connections dominate the network's structure. This closure can decrease the efficiency of the network when members of one group are foreclosed to communication and potential coordination with individuals in other regions of the network. In extreme cases, individual groups might appear in the network as "caves" disconnected from others. Perhaps more likely, they can resemble a chain of islands with high internal cohesion balanced by a modest number of bridges linking the groups together. The task of this article is to describe—and begin to explain—this balance between closure and integration in the context of a geographically widespread inter-organizational criminal network.

3. The mid-20th century American mafia

In May of 1950, the U.S. Senate formed a special committee led by Tennessee Senator Estes Kefauver to investigate the extent