

The criminal activities and operational roles of Australian neo-jihadists: A network perspective

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ABSTRACT

Despite the significant global repercussions of terrorism, including loss of lives and economic resources, research on its relationship with crime has been limited to group-level analyses. This study examines the individual criminal activities of Australian Neo- Jihadists, via social network analysis from an individual perspective. Judicial documents and newspaper articles are analysed to determine the criminal activities and operational roles of network actors. Findings suggest a prominence of criminal activities, and a significant relationship between market criminal activities and facilitation of terrorist operations. The study concludes with suggestions for future research, emphasising the potential for disrupting terrorist networks by focusing on the new crime-terror nexus.

KEYWORDS

Terrorist networks; skill transfer theory; new crime- terror nexus; terrorism financing; differential association theory

Introduction

Crime has been shown to improve the efficacy and facilitation of terrorist operations. Crime offers a means to raise funds and gather resources covertly and can amplify the capacity and efficiency of terrorist organisations. Indeed, research has shown that terrorist organisations often engage with criminal groups, and in criminal activities as a means to improve their financial and operational health. However, research has yet to explore the relationship between criminal activity and operational facilitation from an individual perspective, with most literature being primarily focused on the collective and cooperative relationships between groups.¹ This has left a dearth of research on how individual criminal engagement supports terrorist operations. In the modern climate of terrorism, where terrorist groups are favouring decentralised and horizontal organisational structures it is critical to take a closer, or micro, look at the relationship between crime and terrorist operations. Thus, exploring how individuals and their criminal activities contributes to terrorist operations, both successful and prevented, presents itself as an important relationship to research.²

Research has so far revealed that terrorist groups will establish connections with criminal entities or partake in illicit activities to secure financial resources for their operational needs. This observation has sometimes been discussed under the umbrella term of the ‘crime-terror’

nexus. Terrorist groups adopt criminal strategies and methods to enhance the effectiveness and lethality of their attacks.³ Notable organisations engaged in acts of terrorism, including Al Qaeda, Boko Haram, Hezbollah, the Islamic State, the Shining Path, and the Irish Republican Army, have actively operated within illicit markets to finance their terrorist endeavours.⁴ Each of these instances have been uncovered in Asian, Middle Eastern and European circumstances. Research has, however, yet to analyse the crime-terror nexus from an Australian context. Indeed, instances of terrorists procuring firearms and knives from illicit sources, collaborating with drug trafficking groups, and even engaging in illicit drug trade have been documented primarily within the European context.⁵

While the crime-terror nexus is not a new concept, research has paid most attention to the cooperative behaviour of terrorist groups or organisations, and not individuals.⁶ Basra and Neumann⁷ recognised this gap, and therefore called for a revised focus on the *new* crime-terror nexus, which investigates radical individuals and their ability to finance and support terrorist operations through criminal activities. This moves the focus onto the behaviour, connections and relationships that develop between individuals.⁸ A handful of studies have attempted to explore these interconnections, answering Basra and Neumann's call, for example, by examining the criminal histories of foreign fighters.⁹ While these studies have identified the prominence of criminal histories amongst terrorists, they have not examined the relevance and function of crime to the terrorist operations. Indeed, an individual might have a criminal history, but its relevance to terrorist operations and terrorist networks remains clouded. In other words, how do criminal activities contribute to the roles of terrorist actors, if at all? Understanding the criminal activities of individuals and how they relate to the operations of terrorist organisations can give insight into the key actors and financial channels, thus, allowing for greater disruption and prevention potential.

This paper advances the field by exploring how criminal activities of terrorist actors influence terrorist operations. We use social network analysis, particularly positional analysis, to examine the non-terrorist related criminal activities of individuals convicted and charged with terrorist activities in Australia. Our analysis focuses on the relationship between crime and terrorism, particularly how individuals engage in criminal activities other than terrorism to finance and support their respective terrorist operations. Furthermore, we analyse how criminal activities might influence the positioning of actors within the network.

The paper is structured as follows. The first section presents the extant literature on the criminal activities of members of Neo-Jihadist terrorist groups and presents our research questions. The second section details the methods and describes the data sources. The third section provides the results. Discussion interprets the analysis, illustrating the importance of exploring the *new crime-terror nexus* and the relationship between social connections and operational skills. We conclude with the policy implications of the study and with some starting points for future research.

Criminal activities of terrorist actors

The relationship between crime and terrorism first appeared among academic literature in the 1980s, with the term *narcoterrorism* being coined to describe the strong alliances between the FARC and Colombian drug cartels.¹⁰ However, specific attention to the crime-terror nexus only occurred after 11 September 2001.¹¹ The events of September 11 sparked conversation by law and policy makers of the link between criminal and terrorist organisations. Much of this booming literature focused on whether organised criminal groups and terrorist groups can converge and work together. Makarenko¹² developed the influential crime-terror continuum framework which suggests a spectrum of relationships between criminal and terrorist organisations, ranging from loose and informal associations to highly integrated and coordinated alliances. Similarly, Shelley and Picarelli¹³ argued for a model of five stages in the crime-terror nexus which outlines a progression of the relationship between criminal and terrorist groups from no formal relationship between criminal and terrorist groups to full integration. Building from these studies, scholars have highlighted the common objective of evading government interference among terrorist and criminal actors, leading to an idea of cooperation based on shared logistical and operational requirements. Such cooperation is founded on the existence of mutual, and consequential needs of illicit networks, including the sharing of runways, money laundering systems, and logistical channels.¹⁴

After the boom of research in the early 2000s, some scholars began to argue that criminal and terrorist groups had differing motivations, which makes cooperation unlikely.¹⁵ The defining argument is that terrorist organisations would avoid cooperation with criminal groups to protect their political reputation, and terrorist organisations risk losing their reputation of legitimacy if they engage with criminal groups. Even Makarenko and Mesquita,¹⁶ who initially supported the idea of cooperation, later argued that cooperation with criminals could negatively influence terrorist organisations. On the other hand, if criminal organisations engage in terrorist behaviours, they risk being perceived as anti-government and jeopardising symbiotic relationships with the state and discouraging corruption.¹⁷ This was supported by case studies of the Sicilian Mafia, Russian Mafias, and Hong Kong Triads allegedly rejecting cooperation with terrorists to avoid jeopardising their existing corrupt deals with political parties and law enforcement agencies.¹⁸ These advancements in the understanding of the convergence between criminal groups and terrorism led to important distinctions between the various types of criminal and terrorist organisations. It is now considered that newer criminal and terrorist groups are intertwining, particularly those that are transnational and modern.¹⁹

Although the crime-terror continuum remains the primary theoretical framework used to categorise the relationship between crime and terrorism, controversy surrounding the crime-terror nexus has led scholars to increasingly focus on the concept of transformation. Transformation is a particular point in the continuum and suggests that terrorist actors prefer to develop their own criminal capabilities instead of forming alliances with criminal groups. The Irish Republican Army and al-Qaeda are frequently cited examples of organisations that have successfully transformed in this way. The Irish Republican Army financed their

operations through conventional and transnational crime, such as smuggling cigarettes, livestock, running extortion rackets and engaging in the underground brothel industry.²⁰ Al-Qaeda also used credit card fraud and have a long history of extracting revenues from the illegal opium market in Afghanistan as their main sources of funding.²¹

Most studies in the crime-terror nexus focus on proving or disproving the existence of cooperative relationships between groups. This literature has provided useful insights; however, this meso-level focus limits discussion to theoretical frameworks that offer classifications based on groups or organisations, and not individuals.²² Rather, research should move beyond this and take a micro approach and focus on the criminality of individuals. In recognition of this gap, there are a handful of studies that have attempted to discover the extent of criminality amongst terrorist actors by focusing on criminal histories. Several European studies have shown that convicted and suspected terrorist offenders have a criminal history. Bakker²³ found that one quarter of convicted European jihadists had a criminal history. Rakewek et al.²⁴ focused primarily on foreign fighters from 11 European countries and found that, depending on the country, between 40% and 66% of them had a criminal history. In a different study, Rakewek et al.²⁵ found that among 326 jihadist actors across 11 European countries, 98 (30%) had prior criminal convictions. Weenink²⁶ found that 64% of jihad foreign fighters had previous criminal convictions. Recently, Rostami et al.²⁷ found that two thirds of their sample of dead foreign fighters ($n = 41$) were suspected of a crime.

Subsequently, only a handful of studies consider the type of criminal activities being committed by terrorists. Basra and Neumann²⁸ were first to study the types of criminal activities terrorists were engaged in. They found that roughly 36% of their sample ($n = 79$) previously engaged in criminal activities, especially violent offences, and petty thefts. Then, Basra and Neumann²⁹ found that 40% of European jihad operations were funded through petty crime. Van Leyenhorst and Andreas³⁰ then found that 42% ($n = 26$) of Dutch terrorist suspects had prior criminal convictions, mostly violent gang-related crimes. Rodermond and Thijs³¹ conducted a study on the life-course of convicted European terrorists and found that 54% ($n = 238$) either had or were suspected of previous criminal activities, and 23% for violent crime.

Literature on the criminal activities of suspected and convicted terrorists has certainly demonstrated that there exists a relationship between crime and terrorism. Furthermore, literature is painting a case for violent crime to be associated with terrorist acts. However, the extant literature has not yet explored the relationship between the criminal activities of terrorists and their relevance to terrorist operations. Indeed, even the literature exploring the criminal histories of foreign fighters has not yet analysed the relationship with operational role within a terrorist network. Thus, the extant literature foregoes an exploration on the intricacies of *how* criminal activities influence and transform terrorist operations.³² This leaves a gap in the research surrounding the criminal activities of terrorist actors and how they relate to terrorist operations.

Problem formulation

The foregoing section has demonstrated that there is a gap in the research on the nuance of the relationship between crime and terrorism. It has found there is space for enriching our understanding of the extent and purpose of criminal activities within terrorist organisations and how criminality, other than terrorism itself, is used to fund and provide support to terrorist operations. Of course, from a legal basis, acts of terrorism also represent crimes in and of themselves. We therefore disentangle this issue by employing three categories of crime: prior criminal activities, concurrent criminal activities, and terrorist criminal activities. These categories allow us to identify which crimes occurred before a terrorist cell's existence, which crimes occurred during its existence, and which crimes are purely of a terrorist nature.

As a result of the identification of this research gap surrounding the criminal activities of terrorist actors, our research questions are: 1) What is the extent and type of criminal activities committed by actors before and during the operations of a terrorist network? 2) What is the relationship between the type-of criminal activities and the individuals' position within a terrorist network? 3) What is the relationship between criminal activities and operational roles within a terrorist network?

In other words, how do criminal activities contribute to the skills of individuals taking part in terrorist operations? To address these research questions, and to explore how criminal activities relate to terrorist operations, we apply a network lens to an interconnected group of actors. This group of actors have all been involved, convicted, and charged, of at least one planned or successful terrorist attack within Australia between 2005 and 2019.

Methodology

Data

We applied positional social network analysis to the Australian Neo-Jihadist network, produced by Kelly and McCarthy-Jones³³ (Figure 1). Kelly and McCarthy-Jones³⁴ originally constructed their Australian Neo-Jihadist network through data collected from government records, press releases, judicial documents, and transcripts. Kelly and McCarthy-Jones's³⁵ network, and thus ours, reconstructed connections between actors based on in-personal communication, text messages, online communication and eyewitness testimonies of people being seen together. Within the final network, nodes represent actors involved in terrorist cells, and ties, which are undirected and reciprocal, represent the existence of two actors interacting with each other.

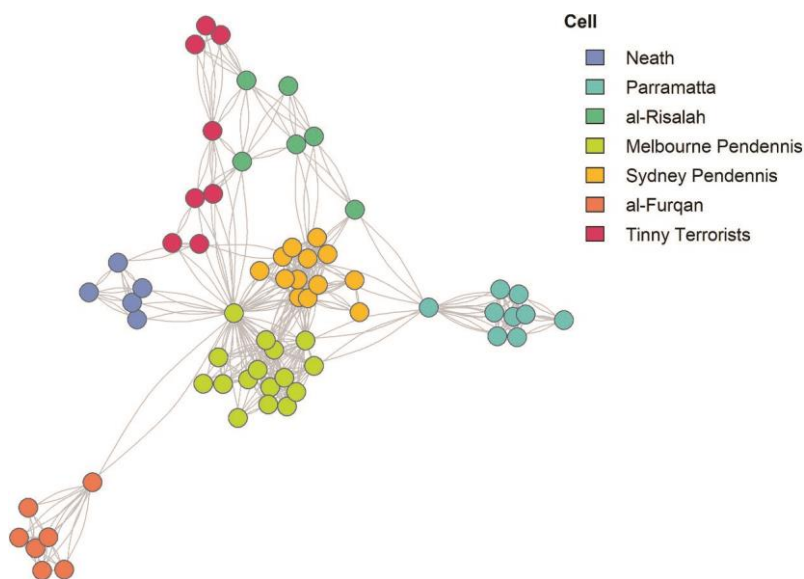


Figure 1. Australian neo-jihadist network (reconstructed from Kelly and McCarthy Jones).

This network-reconstruction method was similarly used by Harris-Hogan,³⁶ and Bright et al.,³⁷ who also constructed other versions of the Australian Neo-Jihadist network with data collected from police wire taps, judicial documents, interview transcripts and press releases. The network produced by Kelly and McCarthy-Jones includes 64 actors organised into seven different cells that operated at different times within Australia between 2005 and 2019.³⁸ The network is, therefore, asynchronous. In other words, the network did not exist in its entirety at a single time point, rather, cells emerged and dissolved during the 14-year period. Although the network is asynchronous, it is still reasonable to use this network for analysis. Indeed, the network can still indicate real and potential connections, and most of all it presents useful data on illicit networks, which are otherwise difficult to uncover.³⁹

The Australian Neo-Jihadist network consists of seven cells, each of which planned separate terrorist operations at different times. First is the Neath Cell, who had planned to bomb the Holsworthy Army Barracks in New South Wales. Second, is the Parramatta Cell, who were responsible for the murder of a New South Wales police accountant via public shooting. Third, is the al-Risalah cell, who came under heavy surveillance as they owned a bookstore that was a common meeting ground for the other cells. Fourth and fifth are the Melbourne and Sydney Pendennis cells, who had collected bomb equipment, and firearms in the hopes to conduct an attack on an Australian football stadium in Melbourne on Grand Final day, where a match was held to determine the premiers for the Australian Football League season. Sixth, is the al-Furqan cell that had supplied operational support for plotted bombing of a dawn service on Australian and New Zealand Army Corps Day 2015. Lastly is the Tinny Terrorists cell which involved individuals hoping to travel from Queensland to Indonesia via a tin boat (otherwise called a tinny) to conduct foreign fighting. See Kelly and McCarthy-

Jones⁴⁰ for a detailed breakdown of the terrorist operations and their timelines. To improve Kelly and McCarthy Jones⁴¹ network, we incorporated judicial documents as primary sources. This was necessary because the initial publications on the Australian Neo-Jihadist network did not provide information about non-terrorist related criminal activities.

We used judicial documents, mainly judges' sentencing comments, and trial hearing to uncover details on whether actors were involved in previous terrorist activities, prior criminal activities, and concurrent criminal activities during the cell's operation. Judges' sentencing comments provided the most detail for prior criminal activities, as they include a summary of the facts in the case and the judges' reasons for sentence. They often include details of the defendant's criminal record, as part of the *subjective circumstances*.⁴² For instance, the following redacted remarks are from the sentencing remarks for one of the nodes in the Neath cell:

You have been before the courts on three prior occasions, when you were aged between [redacted]. The first as a matter from the [redacted location] on [redacted date] – a charge of intentionally causing injury, for which you were placed on an undertaking. . . . The second is an unlawful assault count, [redacted date] and would best be described as a road rage incident. . . . The final matter was a charge of threatening serious injury and that was dealt with at [redacted location] on [redacted date]. A fellow employee had confronted you at work for not wearing a safety vest and you threatened him with serious injury . . .

Judges' sentencing comments are an appropriate source on criminal and terrorist activities, as they contain information that has been tested in court.⁴³ We searched the Australian Legal Information Institute database using full names of the actors in Kelly and McCarthy Jones⁴⁴ Australian Neo-Jihadist network, resulting in 39 judicial documents. Not all network actors had information available in the Australian Legal Information Institute, particularly those who were minors, were not yet convicted, or who were given pseudonyms. A total of 45 actors had qualitative information extracted in judicial documents. This left 19 actors who had no additional information available in judicial comments.

Suspected crimes were also included in the analysis of criminal activities. That is, crimes reported in newspaper articles that were not validated via criminal records or where such allegations were not proven in court. Suspected crimes were included in our analysis to gather the widest possible understanding of the networks' criminal activities. We conducted a broad search of the Dow Jones Factiva database (available at: <https://www.dowjones.com/professional/factiva/>) using the actors' full names (including known aliases) to enhance and triangulate convicted crimes found in sentencing remarks. We collected a total of 53 supplementary news articles. Nevertheless, there were still eight actors for whom there was insufficient information to determine if they had, or had not, committed any criminal acts following this extra data collection from both data sources.

Coding criminal activities

To distinguish criminal activities from terrorist activities, actors were classified into three groups based on information about their engagement in crime. First, if an actor had been

convicted of terrorist related criminal activities before the start of their respective cell's operations, this was classified as *prior terrorist activities*. Second, if an individual had been involved non-terrorist related criminal activities before engaging in the terrorist operation, this was classified as *prior criminal activities*. Lastly, if an actor was charged or convicted of non-terrorist related criminal activities during their terrorist cell's operations commencement, this was classified as *concurrent criminal activities*. Prior and concurrent criminal activities were the focus of our analysis, as this provided the greatest insight to the new crime-terror nexus. These two categories included crimes that were not terrorist related, e.g. drug trafficking or assault, and so this allowed for the disentanglement of terrorism as crime. These two classifications were, at times, combined in our analysis and classified as *criminal activities*. The distinction for *prior* and *concurrent* was made based on the judicial documents which outlined particular dates for each cell when planning activities were being conducted.

Prior and concurrent criminal activities were then further coded into sub-categories based on the type of crime committed. We selected the third (and current) edition of the Australian and New Zealand Standard Offence Classification (ANZSOC)⁴⁵ divisions as the primary code for criminal activities. This classification was chosen because it offers a consistent framework and helps to resolve differences in criminal law definitions among various Australian jurisdictions.⁴⁶ The ANZSOC divisions were further categorised into four categories, following common practice in criminal networks research:⁴⁷ crime against a person, property crime, illicit market crime, and other (Table 1). If an actor who was either convicted of a crime or suspected of committing a crime had that crime listed in the ANZSOC classification, they were categorised accordingly. On the other hand, if the crime they were associated with did not match any of the listed crimes in the ANZSOC classification, they were placed under the subcategory of 'other'.

Table 1. Criminal activities categorization.

ANZSOC Division	Category
01 Homicide and related offences	Crime Against a Person
02 Acts intended to cause injury	Crime Against a Person
03 Sexual assault and related offences	Crime Against a Person
04 Dangerous or negligent acts endangering persons	Crime Against a Person
05 Abduction, harassment, and other offences against the person	Crime Against a Person
06 Robbery, extortion, and related offences	Crime Against Property
07 Unlawful entry with intent/burglary, break and enter	Crime Against Property
08 Theft and related offences	Crime Against Property
09 Fraud, deception, and related offences	Other
10 Illicit drug offences	Market Activities
11 Prohibited and regulated weapons and explosives offences	Market Activities
12 Property damage and environmental pollution	Crime Against Property
13 Public order offences	Other
14 Traffic and vehicle regulatory offences	Other
15 Offences against government procedures, security and operations	Other
16 Other miscellaneous offences	Other

Coding operational roles

The operational roles for each actor were then coded in order to identify the operational context of each cell (see Bright et al. 2020 for a similar approach to coding of roles). Details of the terrorist charges, convictions, and related activities were collected by reading judicial comments and media reports. Operational roles were attributed based on the details of the terrorist related activities that occurred during the cell's operations. The roles were identified inductively from the judicial documents. Indeed, the data on the context of each actor's involvement in terrorist operations was collected, and then terrorist related tasks that every actor undertook were compiled. Information on these tasks pertained only to direct terrorist operations – such as planning, communicating, and facilitating. Neither this list of tasks, nor their classification, included or considered information on non-terrorist criminal activities. Common themes among these tasks were then identified. The analysis focused solely on the listed tasks, aiming to uncover shared characteristics or recurring patterns among them. These characteristics and patterns were then grouped into different roles – with each common task placed as a criterion.

Finally, actors were allocated a role if they fit one or more of the criteria illustrated in Table 2. While actors may have fit into more than one role, for analysis purposes they were treated as mutually exclusive. If an actor was eligible for two or more roles, the role for which they matched the most criteria was applied. Roles were treated as mutually exclusive to stay in

line with previous research on illicit networks, namely Bush and Bichler,⁴⁸ (terrorism) and Bright, Hughes and Chalmers⁴⁹ (methamphetamine network).

A total of 54 actors were assigned a role using the criteria extrapolated from terrorist related tasks. Ten actors could not be assigned an operational role, due to insufficient qualitative information in both judicial documents and newspaper articles.

Table 2. Operational role criteria.

Role	Criteria
Leader	<ol style="list-style-type: none"> (1) Determines the objective of the terrorist cell, i.e. sets target and sets the type of attack (i.e. shooting, bombing etc.). (2) Directs cell members with own initiative on matters relevant to operations, i.e. where to get finance, where to buy equipment and/or who to speak to. (3) Other cell members request guidance on operational objectives.
Tactical	<ol style="list-style-type: none"> (1) Will be/was directly involved in practical commission of attack. (2) Attempts to commit, or expresses favor with, <i>martyrdom</i>. (3) Has a record of international fighting/training with international terrorist groups.
Facilitator	<ol style="list-style-type: none"> (1) Organizes communication, i.e. code names, phone distribution, WhatsApp groups. (2) Seeks a Fatwa (spiritual permission). (3) Recruits other cell members. (4) Directs new members to the spiritual advisor or leader for guidance. (5) Gathers/purchases necessary equipment for cell. <ol style="list-style-type: none"> (i) Weapon(s) (ii) Explosive(s) (iii) Flag(s) (iv) Terrorist material such as instructional videos or books.
Security	<ol style="list-style-type: none"> (1) Is concerned with the security of the cell. <ol style="list-style-type: none"> (i) Either verbally expresses distrust in individuals or (ii) Acts as surveillance, muscle, or back-up on operations.
Treasurer	<ol style="list-style-type: none"> (1) Manages Finances. <ol style="list-style-type: none"> (i) Looks after sandooq (money box). (ii) Manages transactions/income. (iii) Receives money from other members for operations.
Spiritual Advisor	<ol style="list-style-type: none"> (1) Provides spiritual guidance to one or more individuals in the network. (2) Has a spiritual standing amongst the community.

Analytical strategy

To explore the network positioning of the actors (to answer research questions one and two), the networks were analysed with a number of social network analysis centrality metrics.⁵⁰ The centrality metrics that were employed to achieve this are degree centrality, betweenness

centrality, and clustering coefficient. These metrics were chosen, due to their relevance to illicit networks, and especially networks with a high focus on security.

Degree centrality is the most common node centrality measure in social network analysis.⁵¹ Degree centrality measures the number of direct connections an actor has within the network.⁵² In covert and criminal networks, actors who score high on degree centrality are typically more visible to law enforcement, by mere consequence of having more social connections.⁵³ Betweenness centrality measures the extent to which an actor falls on the shortest path between all other pairs of nodes within the network.⁵⁴ Betweenness centrality is used in social network analysis to determine how much an actor acts as a broker, or bridge between two others. If an actor scores high on betweenness centrality, then it is inferable that they facilitate the movement of communication and or resources across the network.⁵⁵ Lastly, clustering coefficient measures the density of a node's ego-network, and only the ego-network. In other words, it measures how connected an actor's connections are to each other.⁵⁶ In typically low-density networks (like terrorism networks), clustering coefficients can illustrate to what extent certain segments are dense. In other words, it can help to identify clusters and cliques, where information and resources might flow freely and efficiently.⁵⁷

Finally, we employed bootstrapped hypothesis testing to assess the statistical significance of the relationships between centrality scores (such as degree and betweenness) and criminal activity categories (such as market, property, and person) among network actors. This method involves randomly resampling the data with replacement, thereby creating numerous simulated datasets that mirror the sampling process.⁵⁸ For our analysis, we performed 15,000 resamples. Bootstrapping provides measures of accuracy, including confidence intervals and prediction errors, for sample estimates.⁵⁹ By analysing these simulated datasets, we can estimate the distribution of observed differences in centrality measures between actors engaged in distinct criminal activities. This approach helps us determine whether these differences are likely due to chance or represent a true underlying pattern.⁶⁰ We applied the same bootstrapping technique to evaluate the differences in the prevalence of operational roles (such as leaders and facilitators) among actors involved in various types of criminal activities.

Results

Prevalence of criminal activities

To answer the first research question, particularly the extent and type of criminal activities committed by actors before and during the operations of a terrorist network, we present an analysis of the prevalence and type of non-terrorist related criminal activities throughout the network. These results include findings regarding the prevalence and distribution of network actors who were engaged in non-terrorist related criminal activities prior to and during their involvement in the terrorist network. The Australian Neo-Jihadist network exhibited a significant proportion of actors with a history of prior and concurrent criminal activities. 39% (n = 25) of individuals within the Australian Neo-Jihadist network were found to have

participated in criminal activities before or during their association with terrorist operations (Table 3).

Table 3. Centrality measures by non-terrorist related criminal activities.

Group	No. of Actors	Avg. Mutual Ties	Avg. Degree	Avg. Betweenness	Avg. Clustering Coefficient
All Actors	64	8.062	0.256	0.027	0.762
No Non-Terrorist Crimes	29	7.718	0.245	0.027	0.762
All Non-Terrorist Crimes	25	8.6	0.273	0.028	0.761
Market Activities	16	9.133	0.290	0.038	0.733
Crime Against Property	8	7.333	0.233	0.006	0.756
Crime Against a Person	7	7.714	0.245	0.009	0.807
Other Crimes	18	6.429	0.204	0.008	0.792

Figure 2 illustrates the members of the Australian Neo-Jihadist Network who were involved in criminal activities other than terrorism before and during terrorist operations (i.e. criminal actors represented by red nodes). The red edges indicate direct connections between criminal actors. The occurrence of criminality within the network was widespread, as nearly all terrorist cells included actors who had been involved in prior or concurrent criminal activities. The Neath cell displayed an extreme case where all actors were known to have engaged in criminal behaviour prior to and concurrently with their participation in the network (Figure 2).

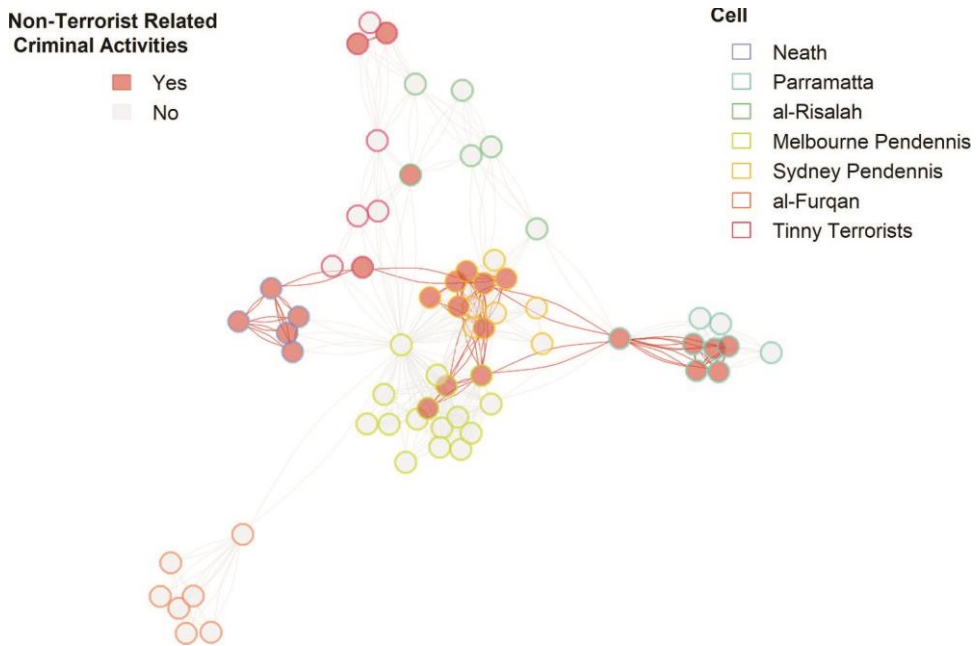


Figure 2. Non-terrorist criminal activities in the Australian Neo-Jihadist Network.

Table 3 illustrates the centrality scores of the different categories of criminal activities. Descriptively speaking there were slightly higher centrality scores for actors with criminal activities, compared to those without. However, although these descriptive statistics signal a potential difference, this does not hold up when placed under a bootstrapped hypothesis test. No centrality metrics held a statistically significant relationship with any crime category. Although not statistically significant, it is notable that 16 actors (25%) within the Australian Neo-Jihadist network participated in market activities alongside their involvement in terrorist operations. Market criminal activity was related to illicit markets, including the illicit drug or firearm markets. Actors involved in market activities scored the highest on the centrality metrics of degree and betweenness.

Perhaps the most notable result from this analysis is the discovery of a subcomponent composed of 25 actors who were engaged in prior or concurrent criminal activities (Figure 2), encompassing 128 ties and six cells. This illustrates that actors with prior and concurrent non-terrorism criminal activities were connected, and such criminality was spread throughout the network. Furthermore, actors involved in market-based criminal activities also formed a subcomponent, including 13 actors and six out of the seven terrorist cells (Figure 3). This also suggests that actors involved in market-based criminal activities were connected throughout the network. The connectedness of market criminal activities was mainly within the Sydney and Melbourne Pendennis cells, with a number of actors engaging in low-level, (street) cannabis dealing and use.

There were only seven actors (10.9%) within the network who had engaged in non-terrorist related crime against a person prior or during the terrorist operations (Figure 3). Five of the actors with non-terrorist related crime against a person held convictions related to petty assault resulting from disagreements or during drug use and were committed prior to terrorist operations. Crime against a person was sporadic and not a significant feature of the network's activities, contrary to popular assumptions and previous research.⁶¹ Indeed, only two individuals engaged in instrumental crime against a person to fund terrorist operations. These individuals were a part of the Neath cell, who ram raided a service station with a car, and assaulted the cashier to steal the cash in the till.

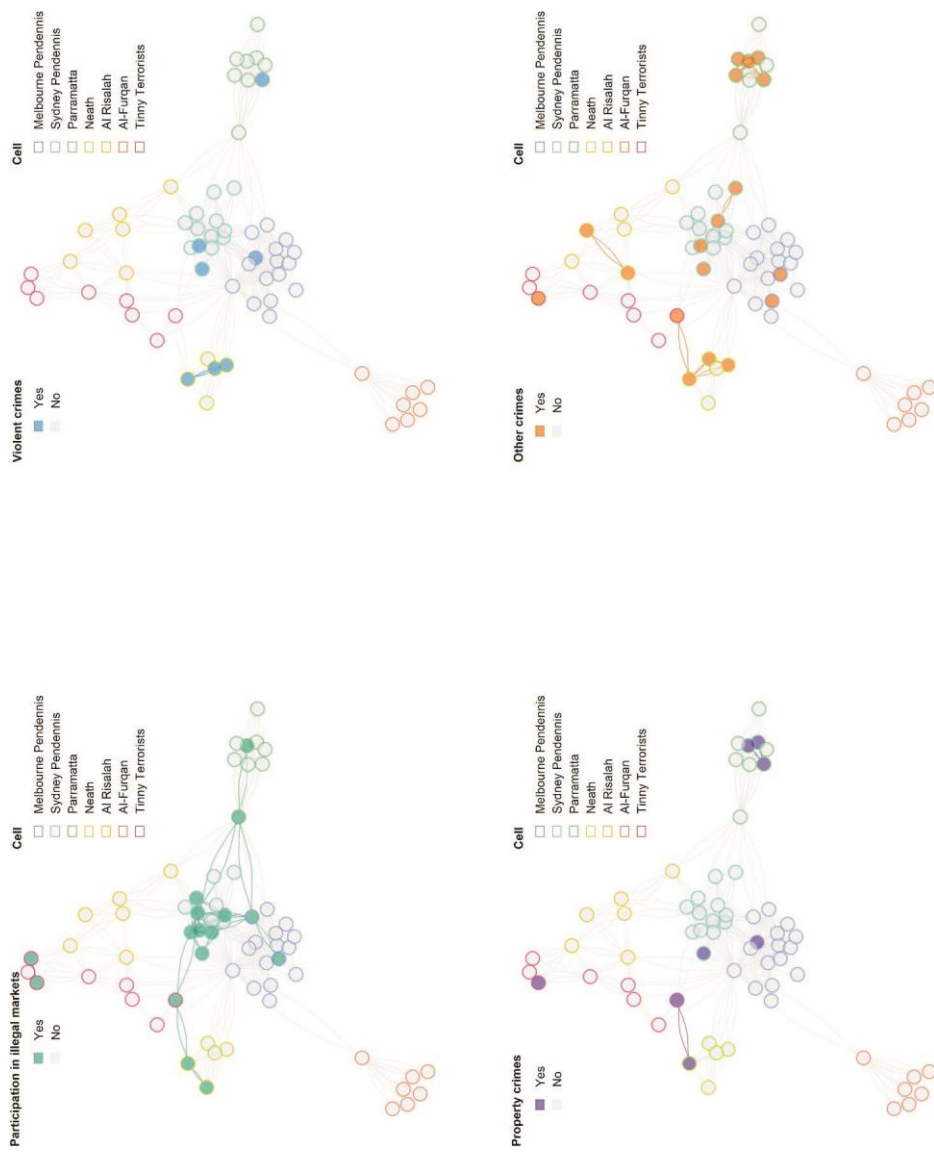


Figure 3: Types of criminal activities in the Australian Neo-Jihadist Network.

Operational roles

Figure 4 illustrates the different roles attributed to the actors, and their spread across the terrorist cells. The operational roles attributed to actors throughout the network were

diverse, with each cell containing actors with different roles. First of all, there were nine leaders identified in the network, and each cell had a leader. Four actors were ascribed as spiritual advisors. There were nine actors identified as the tactical role. Six actors were identified as treasurers. The role of security was ascribed to five actors. Last but not least, the most common operational role within the network was that of facilitator, with 21 identified individuals. At an initial glance of the distribution of roles, it appears congruent with the operational, and security requirements of terrorist cells. Indeed, terrorism operations are focused on long time to task, and high security, making competent and organised facilitation essential to its undertaking. This can illustrate why most tasks in the network are focused on this, as adding extra individuals to the network is a risk which needs to be balanced. As a result, most actors engaged in facilitation-based roles.

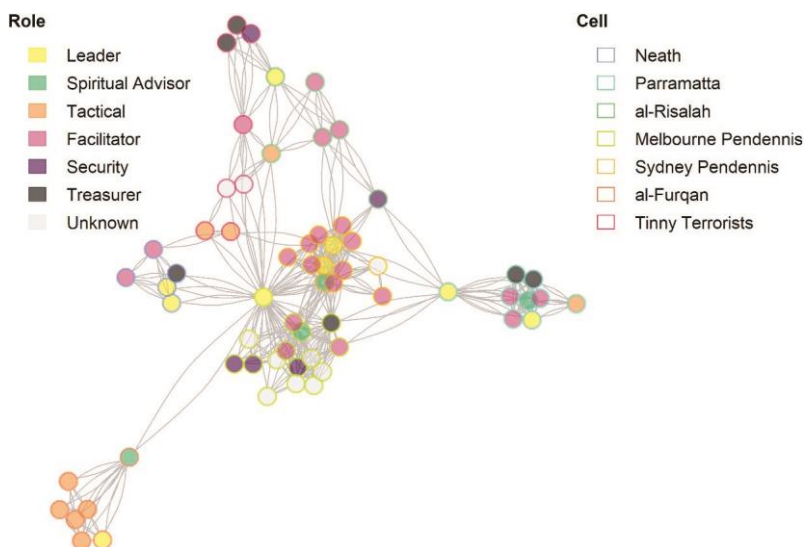


Figure 4. Operational roles in the Australian Neo-Jihadist Network.

Table 4. Centrality measures by operational role.

Group	No. of Actors	Avg. Mutual Ties	Avg. Degree	Avg. Betweenness	Avg. Clustering Coefficient
Leader	9	11.889	0.377	0.116	0.618
Spiritual Advisor	4	12.000	0.381	0.058	0.614
Tactical	9	4.556	0.145	0.006	0.681
Facilitator	21	8.333	0.265	0.012	0.795
Security	5	6.200	0.197	0.004	0.816
Treasurer	6	7.667	0.243	0.019	0.858
Entire Network	64	8.062	0.256	0.027	0.762

Table 4 illustrates the centrality scores of the different roles. Descriptively speaking there were slightly increased centrality scores for leaders and spiritual advisors (most notably in

average degree and betweenness). Although these descriptive measures signal a potential difference, they did not hold up when placed under a bootstrapped hypothesis test. No centrality metrics held a statistically significant relationship with any operational role.

Operational roles and criminal activities

There are several notable results when examining operational roles by the criminal activities undertaken. It is worth observing that, at a descriptive level, actors with the facilitator role engaged in a notable degree of prior and concurrent non-terrorist criminal activities. In fact, 15 out of 21 facilitators were involved in prior or concurrent non-terrorist criminal activities (Table 5). From these 15, nine were involved in market activities, three in crime against property, and four in crime against a person (Figure 5).

Table 5. Non-terrorist criminal activities by operational role.

Operational Role	Criminal Activities	Market Activities	Crime Against a Person	Crime Against Property	Other
Leader	5	3	1	1	3
Spiritual Advisor	2	0	1	2	1
Tactical	2	1	0	1	2
Facilitator	9	6	4	3	7
Security	1	1	0	1	1
Treasurer	3	2	1	0	0

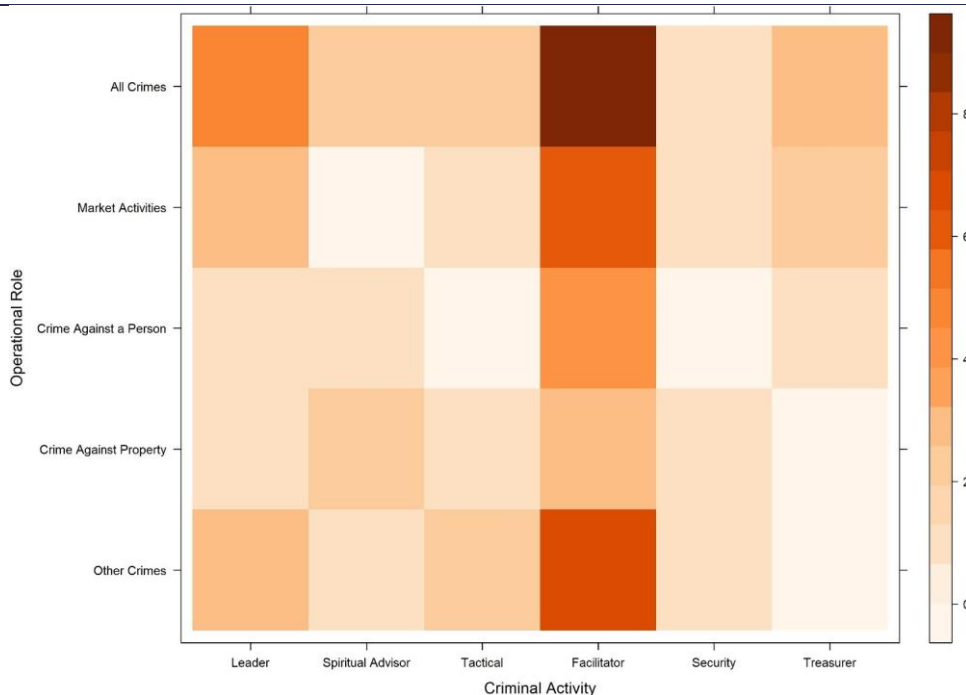
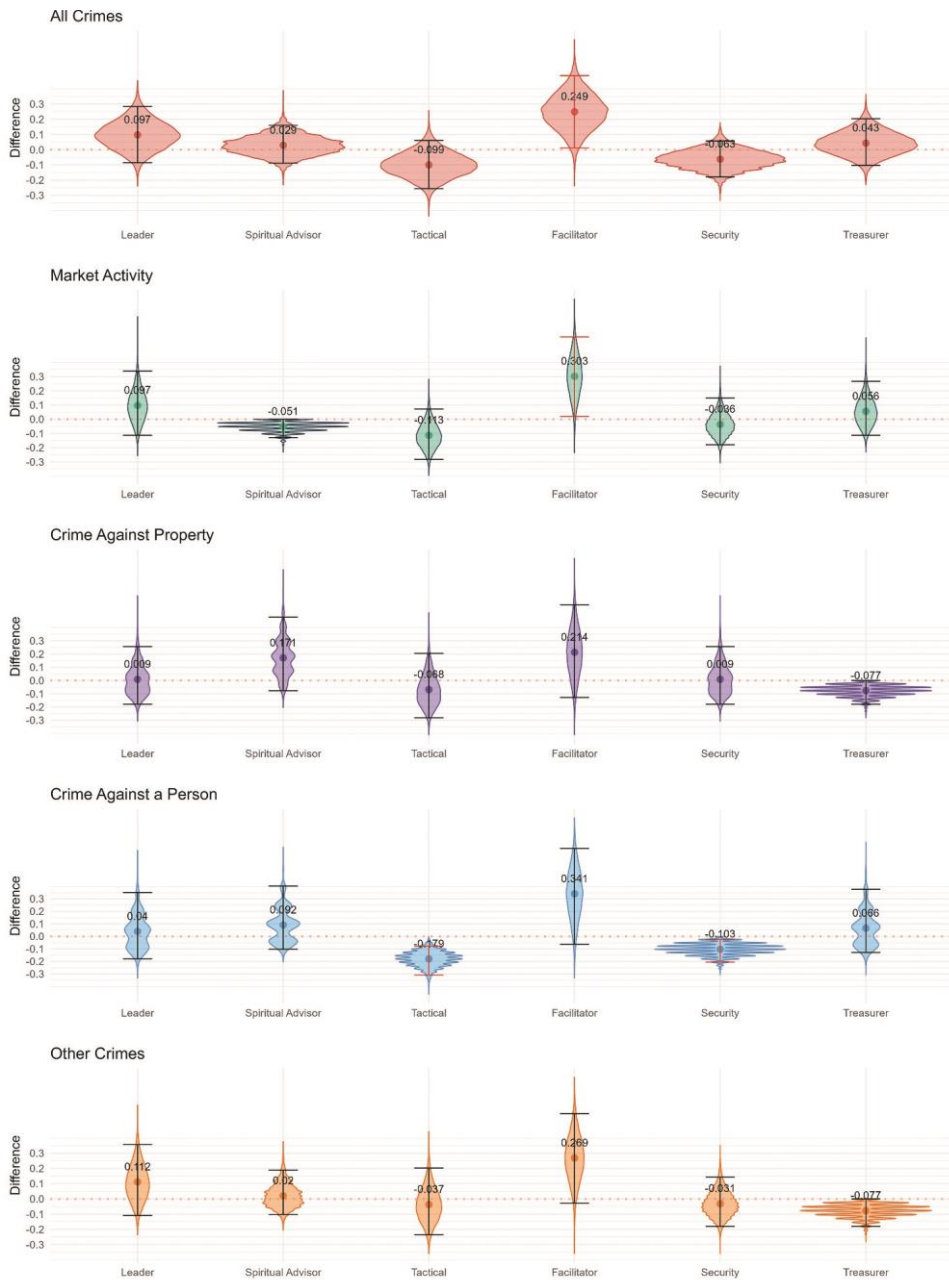


Figure 5. Heatmap of operational roles by criminal Activity.

When placed under a bootstrap hypothesis test with a 95% confidence interval, the facilitator and tactical roles were observed to hold a statistically significant relationship with criminal activities. Facilitators held a significant positive relationship with all criminal activities, and market-based criminal activities (Figure 6). This demonstrates that actors who conducted tasks aimed at facilitating the operational activities of the terrorist cell(s) had an increased chance of being engaged prior or concurrently in criminal activities. In contrast, the same bootstrap hypothesis test demonstrates that the tactical operational role held a significant negative relationship with crime against a person. This indicates that actors who were assigned the role of committing the final act of the terrorist operations were less likely to have engaged in prior or concurrent criminal activities against a person. These results indicate that actors who facilitate terrorist operations are more likely to engage in non-terrorist criminal activities, whilst those who actually commit the acts are less likely to engage in crime against a person.



Note: The violin plot displays the distribution of bootstrapped differences (with 15,000 repetitions) in crime participation by role. The shape of each violin represents the distribution of these bootstrapped differences. Inside each violin, there is a dot representing the observed difference in crime participation for that particular role. The error bars extending from the dot represent the 95% confidence interval, calculated using the bootstrapped differences. If an error bar does not cross the horizontal line at $y = 0$, it indicates that the observed difference is statistically significant at the 95% confidence level. The color of the error bar (red or black) indicates whether or not the confidence interval crosses zero.

Figure 6. Operational roles and criminal activities: bootstrap hypothesis test.

Discussion

We find that prior and concurrent criminality is widespread throughout the network. We argue that this supports previous literature and the *new* crime-terror nexus. We also find that crime against a person is particularly sporadic and not instrumental. We suggest that the lack of instrumental crime against a person in the network is reflective of the required balance between security and efficiency. Second, we discuss the results of the centrality measures and how this relates to criminal activities. We observe that although there are no significant relationships, the existence of the criminal and market components suggest differential association. Lastly, we discuss the relationship between criminal activities and operational roles. We find that the operational role of facilitator is associated with increased criminality, and the role of tactical is associated with decreased criminal activities against a person. We argue that the increased criminality of facilitators supports the *new* crime-terror nexus, and also the existence of skill transfer. With this in mind, we also argue that the decreased criminal activities against a person by the role of tactical illustrates that targeting conventional targets might not necessarily be the best approach by law enforcement to prevent terrorist activities.

What is the extent and type of criminal activities of actors within the Australian neo-jihadist network?

We found that 39% of the network had been involved in non-terrorist related criminal activities prior to and during the commencement and planning of terrorist operations. This finding supports other studies that analysed the criminal activities of terrorists in a European context, which have reported between 25% and 65% of convicted terrorists having criminal histories.⁶² Besides supporting previous literature, the large proportion of criminal activities within the Australian Neo-Jihadist network also supports the *new* crime-terror nexus. Indeed, there were several cases of actors in the network directly using their criminal activities to finance and/or prepare for planned terrorist operations. One such case study was the sale of illicit drugs within the Sydney Pendennis cell to finance the common *sandoog* for their terrorist operations. This illustrates a more individualistic approach to terrorist financing, and less of a reliance on crime at an organisational level. An individual-based approach in financing terrorism therefore supports the call for increased research on the *new* crime-terror nexus.

The few manifestations of violence among the network contrast with much of the literature which suggest higher incidence. While this does not disprove the existence of criminally violent terrorists, it suggests that crime against a person is not a distinctive characteristic of terrorist networks. Basra et al., Ljujic et al., Paoli et al., Rakewek et al., Ruggiero, and Ünal,⁶³ all suggest that convicted and suspected terrorists have higher rates of violence than what we observed in this network. Most non-terrorist related convictions for crime against a person in the Australian Neo-Jihadist network was committed during youth,

or road rage incidents. Instrumental violence was rare, and only two individuals engaged in this whilst attempting to steal from a service station. This result may be explainable through the security efficiency trade-off.⁶⁴ Since terrorist operations have limited urgency, and therefore do not need to be efficient, security is prioritised. Acts of violence attract more immediate attention from law enforcement – as unlike market-based crime, there are immediate victims who might report their victimisation. Therefore, it is inferable that crimes against a person(s) is discouraged as it is not a requirement to raise funds and brings increased law enforcement attention to the network. Further research is needed to explore the contradiction of these findings with the extant literature, and the eventual peculiarities of the Australian case.

What is the relationship between criminal activities and network position within the Australian neo-jihadist network?

The social network analysis approach taken by this paper has facilitated an examination of the relationship between criminal activities and network positioning of actors. Existing literature suggests that individuals engaged in successful criminal activities are embedded in social networks and score higher on centrality.⁶⁵ On face value, the average scores for the conventional centrality metrics are higher for actors engaged in prior and concurrent non-terrorist criminal activities. However, when this observed difference is placed under a statistical significance test, no interrelationships between the centrality measures and criminal activities are observed as significant. Although the relationship between network position (operationalised through centrality metrics) and criminal activities does not appear to be significant, this is perhaps due to the inability for social network analysis to fully capture the complexities involved in a criminal phenomenon. Actors may be important to a network for reasons other than their centrality. Exclusively relying on centrality metrics within social network analysis oversimplifies the landscape, overlooking vital insights into the complexities of the network.⁶⁶ In the context of studying criminal networks, actors might assume heightened importance if they control critical resources or roles integral to the execution of the network's criminal endeavours. In a terrorist context, this could span from gathering terrorist propaganda, equipment, or holding roles and specialised skills important to the operation, like bomb-making or an understanding of law enforcement strategies. Centrality metrics alone cannot account for this.

However, social network analysis of the network's structure showed a notable result through the existence of the non-terrorist criminal activities subcomponents. The presence of criminal activities and market activities subcomponents within the network support the theory of differential association. Research has demonstrated that criminals and terrorists often share similar 'underworld' networks, which increases opportunities for social interaction.⁶⁷ Skills can be learnt amongst the network, and especially between criminal and terrorist networks through the mere consequence of social interactions between individuals involved in both domains. In fact, several actors across different cells participated in criminal activities together – specifically the Melbourne and Sydney Pendennis cells who had actors

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which co-offended in criminal activities including a ram raid, retails drug dealing and a car theft.

The suggestion of differential association is supported through the subcomponent consisting of actors engaged in market-based criminal activities. This suggestion is especially supported amongst this subcomponent since many of the actors involved co-offended and mixed with other individuals in the criminal 'underworld'. For instance, three terrorist actors involved in the market crime subcomponent were also a part of a criminal group called 'DK's Boys', who were attempting to control a portion of Sydney's illegal drug market. Two network actors involved in this criminal group used their connections to sell illicit drugs and provide funds for the Sydney Pendennis cell. It is therefore inferable that the subcomponent of criminal activities and market-based criminal activities throughout the network, and the cases of co-offending, suggest that criminal activities were facilitated through social connections and interactions.

What is the relationship between criminal activities and operational role within the Australian neo-jihadist network?

Actors fulfilling tasks related to the facilitation of their respective terrorist operation (facilitators) illustrated an increased involvement with criminal activities, especially engagement in illicit market activities. This result corroborates the theory of skill transfer and the *new* crime-terror nexus. In fact, skill-transfer theory builds from Sutherland's theory of differential association but extends it to argue that the skills required for criminal activities translate effectively to the terrorist context. Engaging in non-terrorist criminal activities is associated with certain skills – especially knowledge on law enforcement behaviour and the procurement of illicit funds.⁶⁸ Skill transfer theory is suggested since there were cases of actors engaged in criminal activities and market-based crime such as drug trafficking to finance their respective cell's terrorist operation. Actors with backgrounds in illicit markets were more prevalent in resource-specific operational roles, leveraging their prior criminal experience and skills to facilitate the terrorist operation.

The significant positive relationship between the role of facilitator and engagement in criminal and market activities suggests that skills learned in such criminal activities transfers aptly to the context of the terrorist network, as suggested by skill transfer theory.⁶⁹ A notable illustration of this can be observed in the case of the Sydney Pendennis cell, wherein individuals with a history of market-based criminal activities consistently engaged in conversations related to the procurement of weapons and fundraising through illicit means. Facilitators engaged in criminal activities played a crucial role in efficiently coordinating communication and resource flows, leveraging their expertise in criminal activities to contribute to the network's operational effectiveness.⁷⁰ This highlights the significance of resources in the network's operations and suggests that engaging in criminal activities can facilitate efficient access to such resources. Furthermore, fundraising via criminal means were entirely autonomous decisions, and did not rely on the organisation. Rather, individuals

had more freedom to fundraise, afforded to them through the features of neo-jihadism. Indeed, neo-jihadism is a 'new' type of jihadism that adopts a means justifies the ends philosophy and permits followers to fundraise or commit jihad in many more methods than traditional jihadism. This liberty to fundraise via criminal means and at an individual level, supports and renews the call for research to focus on the individual rather than the organisation when researching the crime-terror nexus.

Analysis also indicated a decreased chance that actors engaged in the role of tactical would be involved in crime against a person. Indeed, tactical actors held a significantly negative relationship with crime against a person. The tactical role pertained to actors primarily concerned with conducting the actual terrorist operations, which in five out of the seven cells were intended to result in some form of violence against a person(s). This has implications for anti-terrorism policing, as the actors committing the attacks were not the same actors who facilitated them, and they were not engaged in criminal behaviour. The actors committing the attack were not overly engaged in crime against a person, however those who facilitated the attacks were engaged in criminal activities.

No other roles held a significant relationship with criminal activities. This suggests that while criminal involvement exists within these roles, it is not a defining characteristic or a universal pattern. Only the roles of facilitator and tactical held a relationship with criminal activities. In a sense, these two roles are the most critical to the employment of a terrorist operation. Conventional targets like leaders and spiritual advisors were not critical to the development of operations in this network, nor their commission. This result corroborates previous research that has attempted to debunk the idea of lone wolf terrorism. Indeed, the individuals that were meant to commit these terrorist attacks were in fact not responsible for their organisation, and instead were supported by several individuals engaged in criminal activities.⁷¹ Further investigation and analysis are necessary to delve deeper into the specific dynamics contributing to insignificant relationship between criminal activities and leaders and spiritual advisors within the network.

These findings underscore the importance of understanding the *new* crime-terror nexus, and the interplay between criminal activities and operational roles within terrorist networks. The positive relationship between criminal involvement and facilitators (associated with resource gathering and utilisation) suggests that criminal activities can contribute to a cell's operational planning. The implications extend beyond mere access to resources, emphasising how skills developed through criminal activities contribute to enabling efficient resource acquisition. Further research is needed to delve deeper into the mechanisms underlying the relationship between criminal skills and terrorist operations within terrorist networks. By examining the dynamics of skill transfer, resource mobilisation, and the utilisation of criminal skills, researchers can gain a more comprehensive understanding of how criminal involvement influences terrorist operations and the overall functioning of terrorist networks.

Limitations

This study suffers from some limitations. First, the true number of individuals with criminal activities in the network is likely higher than recorded, due to the study's primary data source being sentencing comments. In a similar sense, the effect of law enforcement investigations and revealed information, raises questions about the true centrality of actors in the network.⁷² We acknowledge that the Australian Neo-Jihadist network's structure may be limited to a few strong ego-networks, and inferences made from subsequent analyses may be constrained by this limitation. Furthermore, the boundary specification placed on this network was individuals involved in the Australian Neo-Jihadist network. This network involved relatives of individuals (no terrorist operational involvement) and eight unknown actors. Thus, the boundary is not clearly delineated by Kelly and McCarthy Jones.⁷³ For example, if the network included a much broader number of individuals who were either actually apart of the terrorist operations or not, the positional network analysis metrics like degree centrality and betweenness centrality would result in different scores. This, then in turn has implications on the results and subsequent interpretations.

Due to data limitations and the exploratory nature of the analysis, this study analyses the network as if it is a single moment in time, thus, excluding change metrics. In fact, the network is built from communication and operations that occurred over a 14-year period (2005–2019), all condensed into a single snapshot. This limits the findings of the study, as the network as it exists in this whole form may never have actually existed at any point in time. There would be increased analytical value in exploring how this network evolved, which is especially relevant for criminal activities and operational roles conducted throughout the network's lifecycle. However, the full network is made of smaller cells that existed and operated at different times. Analyzing different time periods in the network would have reduced the network, and sample size, thus limiting the potential to conduct statistically significant analyses. This is grounds for further research, which could either expand the boundary of the network, and or take a more descriptive analytical approach on the network's evolution.

The social network analysis conducted on the Australian Neo-Jihadist network considers only if a connection exists and does not account for the intensity. This limits subsequent findings, as while actors may communicate only once, and not play a significant role in the overall network, they may score high on centrality.

Another limitation stems primarily from the data on operational roles. Indeed, the data, being sentencing comments, although rich in the backgrounds of the offender and facts of the case, were not necessarily rich in describing their operational role. As a result, a limitation of the analysis is that the roles were treated as mutually exclusive, excluding any analysis of how an actor might hold multiple roles. However, this limitation does not arguably bias the results, as there were minimal cases of actors being eligible for either role based off the task descriptions. In addition, these task descriptions came directly from the empirical data. Furthermore, we would argue that the resulting roles were similar to that of Bush and

Bichler,⁷⁴ and the resulting spread of roles throughout the network echoes what one would expect from a network concerned with operational security.

A final limitation to the analysis conducted in this study was the classification system used for criminal activities. The ANZSOC⁷⁵ criminal divisions were coded into the four categories of market, property, person and other. The 15th ANZSOC division of 'offences against government procedures, government security, and government operations' was categorised as other. Given the population in question, a large proportion of the terrorist network had been previously convicted of crimes in this category. No individuals were categorised as having prior or concurrent criminal activities if their only offence was exclusively of terrorist nature. However, if they had other crimes, they were counted. This limits the analysis, as the category of other was included in the final count of actors involved in criminal activities. In this sense, previous terrorist activities were conflated with criminal activities, thus, upward biasing our estimate of the prevalence of the participation in criminal activities.

Conclusions

The findings of this study provide valuable insights into the relationship between criminal activities and operational roles within the context of terrorist operations. This paper suggests that there is indeed a relationship between crime and terrorism, and that there is merit to understanding the intricacies of the *new* crime-terror nexus. Indeed, there was a significant portion of the network involved in prior and concurrent non-terrorism criminal activities – at 39% of nodes. The presence of a connected subnetwork consisting of actors engaged in criminal activities, and also another consisting of market-based criminal activities, suggests the existence of skill transfer throughout the network. Moreover, the study revealed a positive association between criminal activities and resource focused operational roles, highlighting the ability of criminal skills to support the facilitation of terrorist operations.

Actors involved in resource acquisition and communication coordination for terrorist operations held a significant relationship with criminal activities and market based criminal activities. The skills acquired through their criminal experiences effectively translated into their operational roles within the network, enhancing their efficiency and effectiveness. These findings emphasise the significance of the criminal activities of individuals in understanding the dynamics of the operational capabilities of terrorist networks. The integration of criminal and terrorist networks suggests the need to identify individuals involved in criminal activities within terrorist networks as potential targets for dismantlement. Indeed, conventional targets like tactical and leader were found to have insignificant relationships with criminal activities, and the facilitation of the operations. The significant relationship between criminal activities and the facilitation of terrorist operations supports the call for renewed research focus on the *new* crime-terror nexus.

Further research incorporating police surveillance data and expanding the sample to include a broader range of terrorist actors would enhance the validity and generalisability of the findings. Additionally, conducting comparative studies across different regions, such as Europe and North America, and exploring the criminal activities of terrorists in the Global

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South would provide a more comprehensive understanding of the phenomenon. Future research should delve into the specific mechanisms through which social connections and skills interact, shedding light on the pathways through which criminal activities contribute to the operational capabilities and success of terrorist networks. Simulations that examine the dismantlement of networks based on law enforcement recommendations targeting network capital would also contribute to validating the findings of this study. In conclusion, this exploratory study underscores the importance of identifying the criminal activities of terrorists and their roles in supporting terrorist operations. By unravelling the intricate dynamics between criminal activities and operational roles, researchers can enhance their understanding of the complex dynamics relating to the *new* crime-terror nexus.

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