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Whom Should We Target to Prevent? Analysis of Organized Crime in England using Intelligence Records

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Abstract

Much of the literature on organized crime is based on media, arrests and prosecution records, while research based on intelligence data on this otherwise clandestine criminality is scarce. We present aggregated intelligence data on all known organized crime groups (OCGs) and OCGs members in West Midlands region of the United Kingdom, encompassing records on 2,726 highly-prolific offenders and 280 groups, collated based on over a million records from multiple law enforcement agencies. Using a cross-sectional analysis of the records, we describe in granular details the characteristics, patterns and criminal endeavor of organized crime in one of the largest regions in the United Kingdom. Social network analyses are explored as well, in order to observe the links between both offenders within the same OCG as well as between OCGs. The results debunk previously assumed notions about suitable targets in the policing of organized crime. (a) Based on internal records, police pursue is responsible for the archiving of less than 6% of inactive OCGs, while more than 2/3's of the OCGs become inactive due to 'market' reasons regardless of enforcement pursues; (b) more than half of OCG members have 'replaceable', low-level jobs (i.e., drug suppliers, enforcers and criminal activity organizers), while 20% are considered principal members of the

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groups (who are older and more experienced offenders, as per their arrest records) (c) larger OCGs appear to pose a greater threat to society than smaller OCGs, while the latter are more likely to be 'naturally' dispersed over time; (d) given the inefficiencies that characterize the current pursue approach, a promising avenue of exploration is the targeting of younger and less experienced co-offenders of OCG members, before they 'formally' join the OCGs and through preventative mechanism. We discuss these findings and offer scholars and practitioners new considerations for future inquiries.

Keywords

police – organized crime – prevention – intelligence records

In the United Kingdom, organized crime is classified as a threat to national security (HM Government, 2010) while, at a local level, it continues to blight some of Britain's most vulnerable people and communities (HM Government, 2013). This has broadened the policing challenge, imposing a statutory obligation on the 43 forces of England and Wales to work together and with other agencies to effectively tackle the threat (Home Office, 2015). Making best use of resources to tackle a threat that is simultaneously causing harm at a local and global level is challenging, not least because law enforcement's understanding of the threat posed by organized crime and the evidence base for "what works" in trying to tackle it, is largely underdeveloped (Gilmour, 2008).

In order to understand how to tackle organized crime more efficiently, the first step is to characterize this world in the most valid way. However, research on the threat of organized crime is limited because while law enforcement agencies have largely embraced one version or another of an "intelligence-led" approach (Ratcliffe, 2003; Ronczkowski, 2001), legal restrictions placed on access to intelligence records limits the availability of data for academic analysis (Cabinet Office, 2013). The National Strategic Assessment of Organized Crime concluded that insufficient data for academic research limits the success of law enforcement practices (National Crime Agency, 2016; see also Maguire, 2003; Sheptycki, 2004; Innes et al., 2005). By comparison, the bulk of data available in the United Kingdom is crime data (e.g., arrest and survey data from the Office for National Statistics [2017] and the Home Office [via www.police.data.uk]), but large parts of organized crime do not appear in official statistics. Such data do not include police intelligence reports about activities they cannot prove or information about emerging trends, with victims

being reluctant to talk about their experiences. These intelligence data sources could aid emerging trends research regarding the activities of organized crime, as arrest and conviction data provide only a limited portrayal of organized crime, particularly in the emerging field of cybercrime (Levi et al., 2016), where the 'criminological iceberg' effect (Ben-Yehuda, 1986) or 'dark figures' (Tierney and O'Neill, 2013:17) of unreported crime limit our understanding of the problem.

Our intention in this paper is therefore to provide a systematic account of organized crime across four forces in the same policing region (West Midlands, Staffordshire, West Mercia, and Warwickshire) using intelligence data. A rich account of the threat of organized crime can inform the appropriate police response on whom and how the police should target. Uniquely, this paper utilizes sensitive yet anonymized intelligence records, with a cross-sectional analysis of the characteristics of crime groups and their members. The results then inform our discussion, about more appropriate methods to target organized crime, then strategies implemented thus far.

We will argue that much of the work of law enforcement to target organized crime in the United Kingdom had focused on pursuing, prosecuting and disrupting people engaged in serious and organized crime. Yet the evidence from policing research more broadly suggests that preventing crime *ex ante* is more efficient than tackling crime *ex post*. The evidence on prevention of street crimes (Weisburd and Sherman, 1995; Braga et al., 2012), domestic violence (Strang et al., 2017), and juvenile delinquency (Lipsey, 1992), offers a more cost-effective tool for dealing with crime. Beyond the utilitarian justification for using prevention, there also seems to be a moral imperative; preventing rather than pursuing is in fact the first of Robert Peel's principles (1853) for an ethical police force. A preventative approach carries the added benefit of building policing legitimacy (Tyler, 1993) and legal compliance by demonstrating a commitment to helping rather than persecuting the people recruited into organized crime. This, in turn, could provide a basis for building community support in the fight against crime, and undermine the perception of organized criminality as a "viable action alternative" (Wikström et al., 2012:19). Therefore, it is logical to consider prevention for organized crime. The key question, however, is whether there is evidence to support a prevent model. The literature in this space is long on theory but short on evidence (Nagin and Telep, 2017). There are no causal studies, under controlled settings, on the efficacy of the Prevent model for organized criminal behavior. In fact, there are no published rigorous assessments of *any* of the England and Wales initiatives against organized crime. The current paper presents a start in this direction.

The West Midlands Anti-Organized Crime Approach

The West Midlands *Serious and Organized Crime Strategy* (West Midlands Police, 2017) follows the four P's (Pursue, Prevent, Protect, Prepare) of the national strategy (HM Government, 2013), with the operational parameters applied to ensure greater consistency with well-established crime-prevention approaches such as routine activity theory (Cohen and Felson, 1979) and integrated offender management (Williams and Ariel, 2012):

> PREPARE: prepare for the threat of organized crime and maximize opportunities to improve the efficiency and effectiveness of our response;
> PREVENT: prevent people from engaging or re-engaging in serious and organized crime and reduce the impact that they have where this occurs;
> PROTECT: protect locations, businesses and organizations from organized crime and reduce the impact on them where serious and organized crime occurs;
> PURSUE: pursue individuals, groups and networks engaged in organized crime to disrupt their activities and bring them to justice.

While well-established tactics exist in relation to the 'pursue' and 'protect' strands, the same cannot be said for preventative activity to target would-be recruits, where there is a lack of understanding in terms of who to target and how (Ariel, 2014). In an attempt to learn by doing (Schank, 1995), activity to date has focused on police visits to individuals in response to reports of low-level gang activity or street-level drug dealing. The visits are aimed at preventing people from engaging or re-engaging in serious and organized crime and are designed around three criminological theories – deterrence, desistance and defiance – in an attempt to maximize effectiveness. Turning first to deterrence, the treatment design leans heavily on the work of Sherman and Neyroud (2012) by considering how to increase the perception among people visited that the certainty, speed or severity of punishment for any future crimes they commit has increased. Secondly, the treatment design incorporates learning from integrated offender management (Williams and Ariel, 2014) and Operation Turning Point (Neyroud, 2015) to encourage desistance from crime to a level indistinguishable to a non-offender (Farrington, 2007). Finally, each officer receives training on the importance of police legitimacy (Tyler, 2004; Bottoms and Tankebe, 2012) to minimize the risk that the visits involve a real or perceived lack of procedural justice (Lind and Tyler, 1988), as this could cause specific defiance (Sherman, 2013) and create a backfiring effect that accelerates an individual's journey into organized crime. The visits are semi-structured and delivered by a dedicated team of officers with

thorough recording and monitoring processes in place to minimize heterogeneity (Gaines and Kuklinski, 2015) in the treatment delivered. Yet, despite all these efforts, a lack of understanding about how organized crime groups operate has, to date, prevented the development of an effective selection criteria or evaluation method, undermining both the effectiveness of the tactics and the ability of policymakers to make an informed decision about how best to tackle organized crime.

This paper attempts to conduct basic research which might lay the foundation for future causal inferences on the effect of the Prevent model against organized crime. Through a *descriptive* model of organized crime in the West Midlands area, we move away from the use of arrests and convictions, and illustrate the benefits of using intelligence records as an operational tool in daily initiatives against gangs and organized crime. We show that intelligence records provide scholars and practitioners with new ways of targeting organized crime, using prevention rather than a Pursue model.

Methods

Research Design

As stated above, the aim of this research it to utilize police intelligence records to provide a systematic analysis on the organized crime population in the west midlands region in order to better understand the threat. We employed a cross-sectional analysis to enhance our understanding of the characteristics of crime groups and their members, and used available intelligence records to identify potential candidates for targeting and prevention, using social network analysis.

Data

The primary reason that the literature in this field has focused on case studies or anecdotal data is the limited primary data on organized crime available in the public domain. When previous studies on organized crime did take place, they were mostly based on arrest or conviction records (e.g., more recently Englefield and Ariel 2017). These represent important data points, as they illustrate the outcomes of law enforcement, but in a world of clandestine criminality and matching law enforcement initiatives, there is more to the phenomenon than official statistics. Unlike street crimes with direct victims, organized crime does not always have a specific set of victims that would file a complaint to the police. Drug trafficking and dealing, arms smuggling, and defrauding the state on a massive scale are but a few examples of organized criminality that rarely appear in arrest records. However, these activities cause an incredible

level of damage to society. These methodological limitations of arrests and conviction data are well noted in the literature (Ben-Yehuda, 1986; Tierney and O'Neill, 2013:17; Levi et al., 2016),[1] but it is almost impossible for scholars to gain access to sensitive information such as covert policing reports, and informal statements by victims and witnesses (however, *cf.* Horowitz et al., 1997). Yet, the consequence is that our collective knowledge is limited, undermining our understanding of both the patterns and concentrations of organized crime, as well as "what works" (Sherman, 2013, p. 377) as an effective police response to this widespread phenomenon.

In contrast, we use several layers of data, which includes intelligence records in addition to numbers of arrests. The data was anonymized in order to share the aggregated analyses with the public domain.

These subject-level data points include the entire universe of data captured on organized offenders, their groups, victims, social links, and information collated from partner agencies such as the tax authority (HMRC), Registrar of Companies, and other governmental agencies. By implication, each offender has several data points. For instance, John Doe was arrested 10 times (for

1 The reason for this is because legislation ensures that the people with the greatest access to sensitive data are the people with the greatest level of security clearance (Ministry of Defence, 2013), and the process for achieving such clearance, by necessity, weeds out anybody with criminal convictions or associations. Further, once vetted, an individual will only be given access to such data for a specific operational objective. Consequently, nobody analysing the data will have ever had first-hand exposure of how organized crime groups operate and are unlikely to be reviewing it for criminological purposes. This leaves law enforcement agencies in the unenviable position of being reliant on information from people with either high exposure to data who are constrained by organizational thinking or people with low exposure to data but a broader range of experiences. Putting to one side inevitable unconscious organizational bias, this creates significant limitations on the ability of police forces to consult communities on how to solve crime problems, thus acting as a barrier to building legitimacy (Tyler, 2004).

When data can be placed in the public domain, it is often crime and arrest data recorded after the event. While important for researching historical crime trends, the value of this data in informing our understanding of organized crime is limited because it only captures information about crimes the police are aware of and criminals they have arrested. This creates a real risk that crimes involving victims who are reluctant to come forward are unknown to the police and emerging trends are not identified until they escalate into a significant threat. Meanwhile, the criminality of the most effective criminals and groups is not examined, undermining the value of any resultant criminological analysis.

various offences) over a period of five years; this led to proactive intelligence activity that provided six intelligence leads (of varying 'strengths' of reliability) on 'jobs' John Doe has carried out on behalf of his organized group. A witness has filed a report that John Doe carried out four jobs, which corroborated two of the intelligence leads acquired. Therefore, we observed 18 lines of data in the system. Of particular interest to us was the way these offenders engaged with one another and how they co-offend. The literature on co-offending strongly suggests that observing the links between offenders can teach us a great deal about patterns and concentrations within criminal networks (Berlusconi 2017).

When the unit of analysis is the organized crime group, we can observe information at the macro level to illustrate the size and scope of each group, their specializations, structures and geographic dispersion on a cross-sectional basis.

Data Collection Procedure

Interestingly, the shift from arrest data only to police intelligence means there is now too much, rather than not enough, available data. This is counter-intuitive from an academic perspective, where more is often viewed as better (Morris 2009); however, from a law enforcement perspective, particularly in a digital age, the challenge is different. Much of the data required to follow Marcus Felson's 12 steps to understanding the "web of crime co-operation" (Felson, 2006:16) is readily available to the police, but there are terabytes of it. While advances in big data and digital analytics will no doubt assist in the understanding of organized crime, much of the data collated by intelligence agencies is "noise" – i.e., information that does not mature into usable materials, intelligence leads, or actionable evidence. This noise becomes particularly problematic when police agencies, particularly in this space, have limited capacities and must prioritize the allocation of resources.

Unpicking usable data from noise can become difficult (see, for example, Sheptycki, 2004). One way is to use big data analytics, such as random forest modeling, which can assign weights to numerous different variables. Another way is to use subject-matter experts (as is often the case in intelligence policing), who clinically assess the usefulness of each data point. While the former – actuarial or statistical modeling – is in principle superior, we presently utilize the latter: a primary dataset extracted from a national organized crime group mapping tracker (referred to hereafter as OCGM).

The OCGM tracker is owned and managed by the Organized Crime Coordination Centre, which is part of the United Kingdom's National Crime Agency. The database was created to standardize the way in which law enforcement

agencies record the known characteristics of "individuals and groups that are known [to be active in serious and organized crime] through intelligence and operational activity" (National Crime Agency, 2017, p.9). This criteria deliberately requires lone offenders, who engage in serious and organized crime without being affiliated to a particular group, to be recorded on OCGM. While this leads to a strange situation whereby an Organized Crime Group with one member appears on the tracker, it is important as it assists us when exploring linkages between groups that support a wider criminal network.

The OCGM is continuously updated by all ACPO forces, the National Crime Agency (NCA), and a range of law enforcement agencies. It is a registry in which criminals involved in organized crime are managed nationally. This dataset gives the most accurate available picture of the nature and extent of serious organized crime in the UK, based on the assessment of those who enforce the law 'against' organized crime groups. Specifically, it contains sufficient data to present reliable results.

Our database was created based on this tracker. Our data procedure included several steps. First, we cleansed the data in order to create discrete data categories. As the tracker is a manual registry of information, there are human errors in the recorded data – for example, an organized crime group member's name was spelt "John Smith" and "Jon Smith," and therefore it required cleansing. This data-cleansing exercise was laborious, given the large number of data points on each offender (as described below).

Second, we amalgamated the data available on organized crime offenders with the data on groups to which they belong, as well as with the relationships between these organized crime groups as viewed by those who police them (see Lynd, 2015:3). The data from each force and agency was then used to produce regional and national aggregations that describe a previously unavailable picture of organized crime.

Third, the specific names of groups, offenders, witnesses, and victims were anonymized in order to download the sensitive data from police data mainframes to a university system.

Limitations of Data

First and foremost, it must be highlighted that there is a wide diversity of views as to what constitutes organized crime in terms of activity, structure, and governance as well as how it is perceived in societal terms (e.g., Von Lampe, 2015; Black et al, 2000). Any attempt to gain a consensus of views is beyond the scope of this research. Therefore, our definition of organized crime is neither consistently accepted as accurate by academia, nor applied across time and space by law enforcement practitioners.

By selecting OCGM as the primary dataset, the research is bound by the definition of organized crime set out by the National Crime Agency (2018), which is:

> Serious crime planned, coordinated and conducted by people working together on a continuing basis. Their motivation is often, but not always, financial gain. Organized criminals working together for a particular criminal activity or activities are called an organized crime group.

While any attempt to define such a complex phenomenon is inevitably open to challenge, the definition used seeks to strike a balance between being broad enough to capture the wide range of activities undertaken by criminal groups without including all forms of co-offending. To that end, the conceptualization of organized crime in the United Kingdom is broader than definitions focused on crime that arises out of the market for illegal goods and services (Black et al, 2001). This is important, as it increases the likelihood that the recording by the 43 police forces and other law enforcement agencies that are required to maintain OCGM will be more subjective and therefore inconsistent.

Despite these conceptual limitations, OCGM has been selected to improve the internal validity of measurement by drawing on a dataset that has clear parameters that are consistent pre and post research (Sherman, 2010). That said, there are a number of vulnerabilities in the measurement validity of the OCGM tracker as the data that arise principally because the information has been collected for law enforcement rather than research purposes.

The bulk of the vulnerabilities relate to inaccuracies within the law enforcement data recording processes (Bachman and Schutt, 2003) and the reality that all law enforcement data is incomplete (Sarnecki, 1990). Consequently, the research findings consider that the OCGM, inevitably, does not capture the totality of the organized crime population resident or active within the West Midlands. The data are also quite 'dirty' for research purposes, and open-text variables need to be categorized into analyzable data points.

The OCGM tracker is, essentially, a means of recording past knowledge; often, it is not possible to accurately confirm the structure and members of an OCG until an operation has been completed. At this point, the OCGM becomes an administrative tool rather than a forward facing method of managing threat, risk and harm. The focus on the past means that the tracker is only a moment in time view, reflecting on a current or – on many occasions – historic intelligence picture.

The above flaws highlight a further problem to the measurement validity of OCGM, namely its failure to remove either conscious or unconscious bias

in police judgement. Worse, it creates the risk that the bias will be amplified as the reason for placing groups onto OCGM is to increase law enforcement activity against them. Mitigating these risks is an important issue requiring thorough attention, but that attention is beyond the scope of this research.

Taken together, there are clear limitations to the primary dataset utilized that have significant potential to undermine the reliability of the findings. Nonetheless, it is still true that OCGM provides the most complete dataset available, for all the frailties that have been clearly stated, it is less incomplete than relying solely on arrest or conviction figures. This paper therefore argues that the data retains sufficient validity to produce meaningful findings capable of informing our understanding of organized crime and the opportunities to tackle it.

Analytical Approach

We use descriptive statistics to illustrate patterns and concentrations of the data. We first analyzed the data on groups, followed by an analysis of the individual offenders. The variables used in the analyses included the reasons for forming the group and the reasons for considering the group as inactive. We then focused on the role of group size in organized crime. The harm each group inflicts on its environment, through the organized crime group scoring system, is explored as well. The scoring system is a clinical assessment made by the regional organized crime unit, and it encompasses the overall threat, risk, and harm that a group presents based on its criminality, intent, and capability (ranging from 0 to 232). We then moved on to the characterization of organized crime groups in the West Midlands area, including the specialization of diversification of the criminal network and economic analysis of assets, as well as links to other organized crime groups.

Analyzing organized crime in the West Midlands region with the offender as the unit of analysis is the next logical step. The rich data on the members allows us to illustrate, with some detail, who these offenders are, their criminal behavior, their position in the group, their criminal background, and their professional background.

Finally, we used social network analysis through open-source software (Gephi) to create cartographic network maps. This software allowed us to graphically explore the relationship between offenders in the OCGs. In practice, we computed the number of links that each actor has with other actors (co-offenders). We looked at the "betweenness" of these actors (Freeman, 1977; Newman, 2005), which is a measure of the centrality of the actor in a network: visually, this means that each actor and the degree of betweenness are measured by their relative value from within the graph. Each offender is represented by a circle, or node, and the number of connections, or edges, represent the links each node has with other nodes. The links were measured using the

intelligence leads. We subdivided the intelligence records into co-offenders who are OCG members and co-offenders who are not OCG members. Non-OCG members are not considered targets of the regional organized crime unit (although they can potentially be targeted by other police units). This process was carried out to explore the nature of criminal behavior within and outside the OCG network.

Outcomes

Characterization of OCGs

Table 1 lists the characteristics of OCGs in the West Midlands. As shown, nearly half can be linked to registered companies. The database identifies 482 companies, at an average of 3.57 companies per OCG.

TABLE 1 *Characteristics of OCGs*

Characteristic	N and % of OCGs
Group size (Mean)	6.59
Group size range	1–67
Has a link to registered company(ies)	135 (48.21%)
N companies owned/ controlled by OCG	
Vehicle/transportation	51
Retail	44
Catering	36
Licensed premises	33
Recreation	16
Health/beauty	11
Sexual	11
Property	8
Security	4
Environmental	3
Professional services	3
Has an impact outside the West Midlands region	105 (37.5%)
Has links to other OCG/OCGs	98 (35%)
Furthers its enterprise through UK border ports	29 (10.36%)
Has an impact outside the UK	20 (7.14%)
Has an impact on national security	1 (0.36%)

A third of the OCGs are linked to other OCGs, which suggests that the organized crime network is inclusive and opportunity-based (otherwise we would see more rivalry between groups and less cooperation between them). Of particular note is the lack of internationality in the OCGs' activities: only one out of 10 OCGs can be linked to crime outside England and Wales, while more than a third (37.5%) can be linked to crime outside the geographic region of the West Midlands, but within the United Kingdom. The breakdown of links within the United Kingdom is shown in Fig. 1 below, with geographic proximity to the West Midlands region encompassing more than two-thirds of the links (e.g., North West, East Midlands, Yorkshire and Humber, and North East). The link to the South West is less clear, with the main inference drawn from the tracker being the use of West Midlands crime groups to service the drugs market in the South West.

How Many OCGs Operate in the West Midlands and When do they Stop Being Active?

The OCGM lists 280 fully-identified organized crime groups (OCGs) within the West Midlands region, of which 155 are considered to be currently (as of

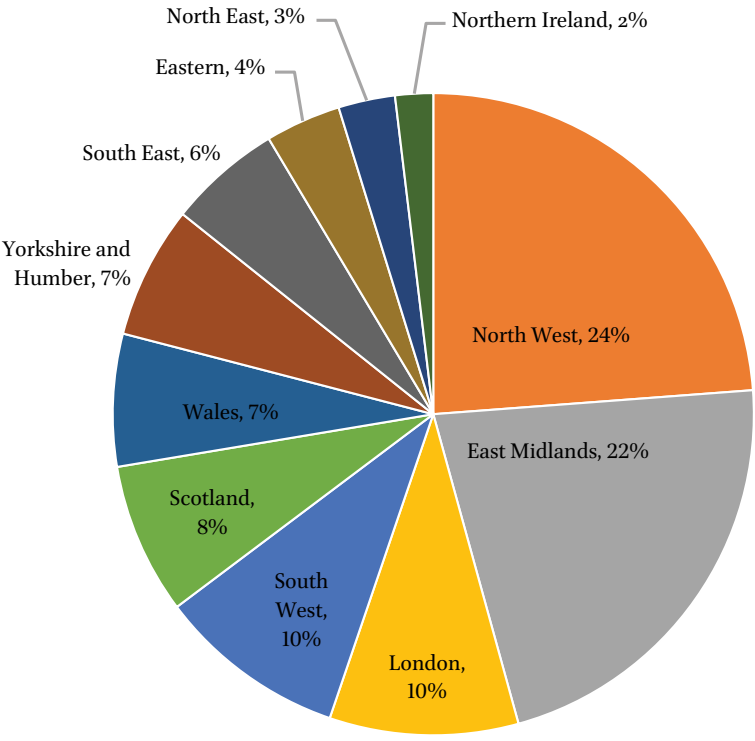

FIG. 1 *West Midlands Region OCGs links to other regions within the UK*

August 2017) active and 125 are considered to have ceased their activity (see Fig. 2). The reasons for cessation are shown in Table 2, and these include: lack of intelligence of any criminal activity (n=51; 41%); professional decision that the group is no longer active (n=32; 25.8%); the group has amalgamated with another organized crime group (n=4; 3.2%). Most striking is the limited number of organized crime groups that were eradicated/dismantled through police disruption: only (n=7). If the assessments are correct, then the police are not the primary reason for the cessation of OCG activities; it is likely that most are driven out of business by other OCGs, are disrupted by wider public service activities or cease for unknown socio–economic reasons.

The Effect of Group Size

If police disruption does not adequately explain the cessation of organized crime, one possible explanation could be group size, as larger networks may be better placed to provide the "infrastructure, resources, skills and experience necessary to plan and carry out the crimes concerned" (Cornish and Clarke, 2002:42). Furthermore, larger groups may be more likely to survive in the competitive and violent quest to control illegal markets (see Fiorentini and Peltzman, 1997) compared to smaller groups that depend on individual offenders and are potentially vulnerable to the inevitable turnover of personnel over time (Harding, 2014:31). However, at least for the West Midlands region, this does not seem to be the case, as both active OCGs (M=11.42; SD=11.38) and archived OCGs (M=8.52; SD=7.85) average about 10 members (see Fig. 3); small OCGs seem to evaporate more often than larger OCGs

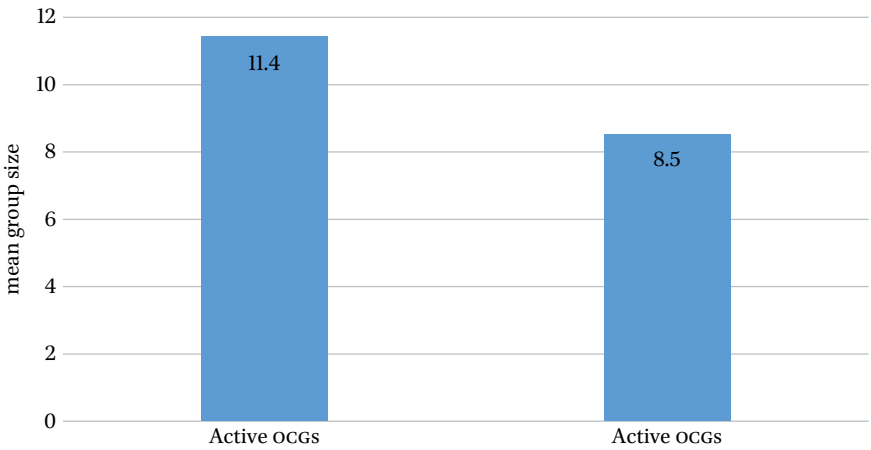

FIG. 2 *Comparing Active and Archived OCGs in West Midlands Region*

We then compared OCGs' sizes and their OCGM scores (Fig. 2). We found a moderate association between the variables (r= 0.299; p≤.001), which suggests that the organized crime population or marketplace is somewhat dominated by larger crime conglomerates or monopolies: the larger the group size, the greater the threat it poses to the West Midlands.

TABLE 2 *Official Reason for Archiving Groups on the OCGM (Concluding that an Organized Crime Group is No longer Active)*

Reason for 'archive' classification	**N and % of OCGs**
No current intelligence that OCG is active	51 (41.13)
Professional assessment that OCG no longer active	32 (25.81)
Principal member(s) arrested and received custodial sentence	21 (16.94)
Disruptive activity by police	7 (5.65)
Intelligence received that group no longer active	5 (4.03)
OCG has amalgamated with another OCG	4 (3.23)
Principal member of the group has died	1 (0.81)
Principal member has joined another OCG	1 (0.81)
Principal member now works alone	1 (0.81)
OCG has fragmented into smaller groups that only conduct low level criminality	1 (0.81)
No rationale	1 (0.81)

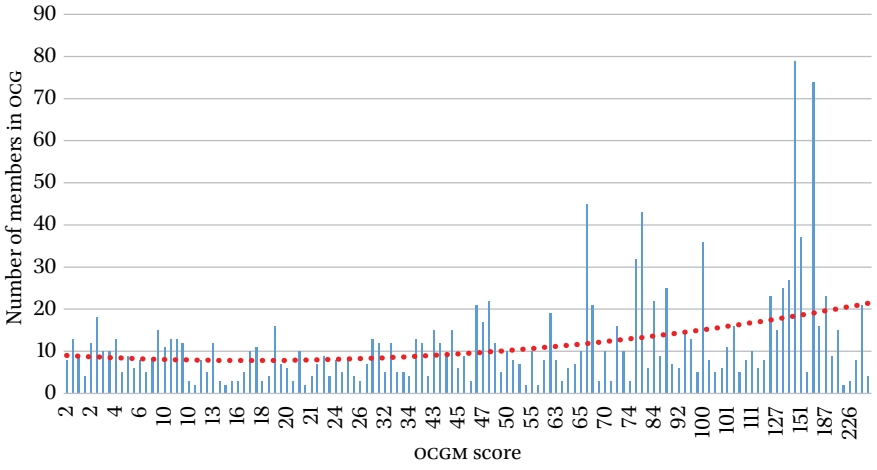

FIG. 3 *Linking OCG size and OCGM Score*

Reasons for Formations and Crime Specialization

Out of 280 OCGs, the reason for their formation is known to the police in 184 cases (Table 3). The majority of groups were formed as special vehicles for committing organized crime (58.2%), while 39.3% formed as urban street gangs that subsequently 'uplifted' into OCGs. Unlike other European OCGs such as in Denmark, a very small proportion of the OCGs are motorcycle crime groups (n=2) or travelling crime groups (n=3). In an age of digitization, we expected to find more 'online OCGs'; however, this was not the case for West Midlands OCGs (n=4).

A breakdown of the categories of crimes committed by an OCG is found for 111 of the groups on the OCGM tracker (Table 4); in total, these groups have 268 links to crime categories, or a mean of 2.41 crime types per crime group (standard deviation = 1.41). This suggests that OCGs in the West Midlands diversify their portfolio, as suggested by Campana (2011), rather than specialize in one area of work. Most OCGS deal with drugs and firearms (83 out of 111) and traditional illegal commodity markets, together with violent and financial crimes, to maintain market share, manage their illegal gains, and continue to dominate organized crime activity. Only 7% are directly involved in cybercrime.

Estimated Assets

Table 5 lists the estimated assets of OCGs as of August 2017, as well as the number of OCGs in each range. Based on an assumption that the assessment is correct within the ranges set, even the most conservative estimate (where each group holds assets totaling the lowest value in the category and unknown values are zero) would mean that the organized crime population in the West Midlands holds assets totaling £125,875,000.

TABLE 3 *Reason for OCG Formation*

	N and % of OCGs
Formed for purpose of committing organized crime	163 (58.21%)
Formed as an urban street gang	11 (39.29%)
Reason formed unknown	94 (33.57%)
Formed as a virtual crime group	4 (1.43%)
Formed as a travelling crime group	3 (1.07%)
Formed as motorcycle crime group	2 (0.71%)
Formed as football related organized crime group	1 (0.36%)

TABLE 4 *Crime Types in which OCGs are involved*

Crime type	N of OCGs
Drugs/firearms	83
Violent activity	60
Specialist money laundering	40
Economic crime	26
Sexual offences	13
Cyber crime	8
Organized immigration and human trafficking	8
Commodity importation	7
Environmental crime	1

TABLE 5 *Estimated Assets and n of OCGs*

Asset Bandwidth	N of OCGs
£10m+	8
£1m-£10m	32
£250k-£1m	51
£25k-£250k	45
<£25k	25
Unknown	119

Characteristics of Organized Crime Group Members

The organized crime group population in the West Midlands region comprises 2,726 people, of which 94.6% are male (Table 6). Forty-one percent are North European Whites, 27% are Asian, and 18.9% are black. The mean age of OCG members is 36 years, and this appears to be inconsistent with the age–crime curve, which suggests, at a population level, that offending would be expected to increase throughout the teenage years and then decrease (Farrington, 1986), and the crime curve is "essentially replicated for offender groups that are prospectively defined" (Sampson and Laub, 2005:15). Instead, the results indicate the presence of offender groups (Nagin, 2004) within the West Midlands which have members who continue to engage in criminality throughout the life course (Moffitt, 1993). Also of note is that 17.2% of the organized crime population maintain a legitimate occupation, raising the potential that

TABLE 6 *OCG Members – Personal Characteristics*

	N and %s
N	2,726
Male	94.6%
Mean age (SD)	36.1 (10.3)
Ethnicity	
White – North Europe	1,120 (41.1%)
Asian	734 (26.9%)
Black	514 (18.9%)
Chinese, Japanese, South East Asian	52 (1.9%)
White – South Europe	32 (1.2%)
Middle Eastern	26 (0.9%)
Unknown	248 (9.1%)
Maintain a legitimate occupation	469 (17.2%)
Illegal immigration status	26 (0.9%)

organized crime is seen as a viable action alternative (Wikström et al., 2012) to supplement an individual's income, or that legitimate occupations are maintained to avoid suspicion or launder criminal proceeds.

Overall, the specific role played by an OCG member in a group is known for 2,160 of the overall population. The roles performed reflect, unsurprisingly, the nature of the activities performed by the groups, as set out in Table 7. However, the proportion of people performing peripheral roles (such as a money mule or handler) was much lower than might have been expected, raising interesting social dynamics that are explored further below.

Social Network Analyses

The first major finding of the social network analysis is that the offending rates of the three major roles in the OCGs – principal (n=439), significant (n=824) and peripheral (n=599) – are such that the latter group is significantly less criminogenic than the principal and significant members of OCGs. This was somewhat counterintuitive (see Englefield, 2012), as we expected that the low-ranking functionaries in the criminal network would carry the heavy lifting on behalf of the group and, by implication, get arrested at higher rates. However, this was not the case (Fig. 4).

Next (Fig. 5), and perhaps related to the criminal behavior pattern of each rank depicted above (Fig. 4), we observe that non-OCG members are more

TABLE 7 *Characteristics of OCG Members – Offending Patterns*

	N (%s or SD)		
Mean Arrests (SD)	21.8 (20.7)		
Incarcerated (as of August 2017)	219 (8.0%)		
Subject to lifetime offender management schemes	10 (0.4%)		
Status in OCG and Mean Age per rank			
Principal Member	533 (19.6%)		40.1 (10.8)
Significant Member	1,071 (39.2%)		35.7 (10.5)
Peripheral Member	672 (24.7%)		34.3 (10.0)
Membership Status unknown	450 (16.5%)		35.0 (8.5)
Role in OCG			
Supplier (drugs)	810 (30%)	Corrupter	20 (1%)
Enforcer	290 (11%)	Overseas coordinator	19 (1%)
Organizer	218 (8%)	International controller	18 (1%)
Money launderer	185 (7%)	Human trafficker	17 (1%)
Courier	104 (4%)	Immigration facilitator	11 (0%)
Chemist/cultivator	64 (2%)	Cash collector	10 (0%)
Supplier (firearms)	61 (2%)	Counterfeiter	8 (0%)
Technical specialists	51 (2%)	Interpreter	7 (0%)
Burglar	47 (2%)	Supplier (malware)	7 (0%)
Finance specialist	44 (2%)	Money mule	6 (0%)
IT specialist	36 (1%)	Supplier (identification)	4 (0%)
Transportation specialist	32 (1%)	Counter surveillant	3 (0%)
Handler	29 (1%)	Rogue trader	1 (0%)
Internet specialist	29 (1%)	Supplier (data)	1 (0%)
Supplier (other)	28 (1%)		

likely to co-offend with more senior members of the OCGs rather than peripheral members. The number of non-OCG co-offenders is significantly greater in the principal and significant ranks, compared to the third rank [$F(1861)=4.078$, $p=.017$], while the Tukey HSD post-doc test shows nonsignificant differences between the two top-tier ranks ($p=.909$). We return to this finding below.

Figs. 6–17 provide a cartographic illustration of 12 discrete OCGs in the West Midlands region (picked at random from the 280 OCGs). The number in each figure is the anonymized OCG name. Based on the intelligence records, these illustrations show how different OCG members offend. The red nodes are OCG 'formal' members and the blue nodes are criminals who are

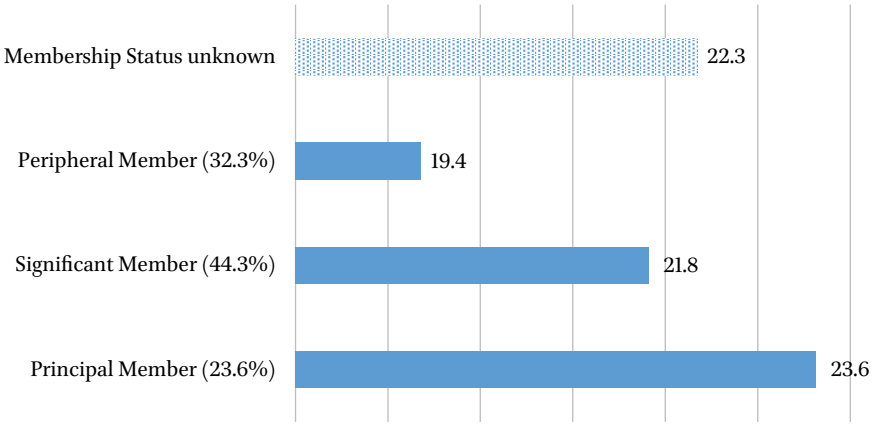

FIG. 4 *OCG Status and criminal history*

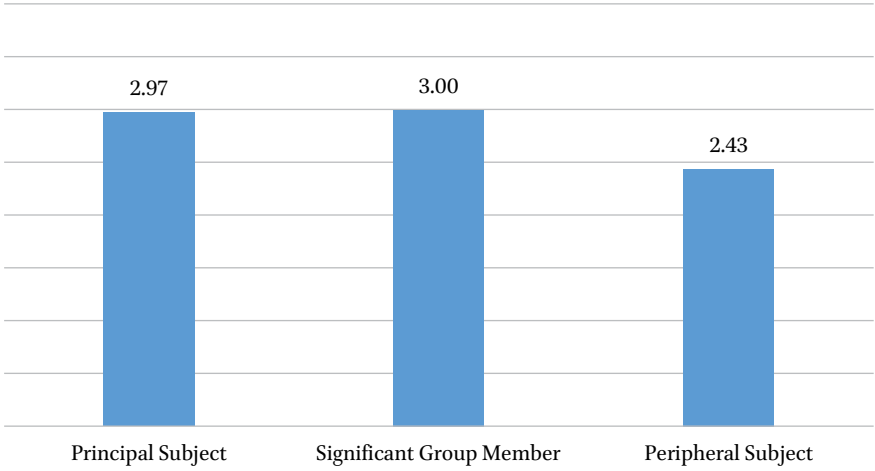

FIG. 5 *Mean Number of Non-OCG Co-Offenders per OCG Member Rank*

listed as co-individuals with OCG members but are not formally OCG members themselves. These non-OCG members are not targeted by the regional organized crime unit (i.e., are not subject to Pursue, Protect, Prepare or Prevent initiatives).

As shown, OCG size varies – from six members in Fig. 11 to 54 members in Fig 16. Also shown is the way in which OCGs commit crimes with non-OCG members. While Group #20/700073 (Fig. 8) rarely acts with non-OCG members, Group #20/00191 (Fig. 15) is more diversified and has nearly the same number of OCG members as non-OCG members in its criminal network. Also demonstrated is the variance in the degree to which non-OCG members are utilized

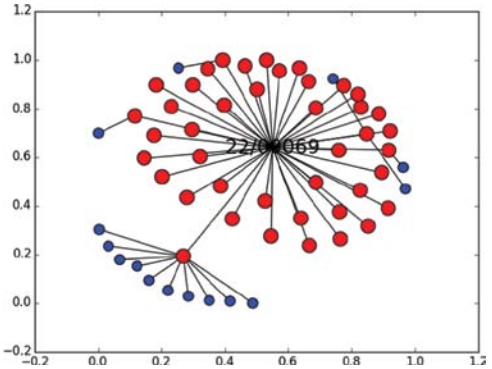

FIG. 6 *OCG #22/00069 – Social Network Analysis*

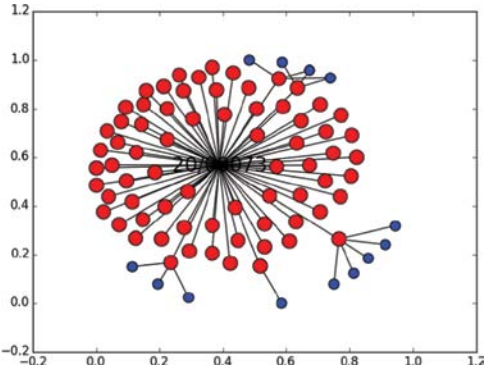

FIG. 8 *OCG #20/700073 – Social Network Analysis*

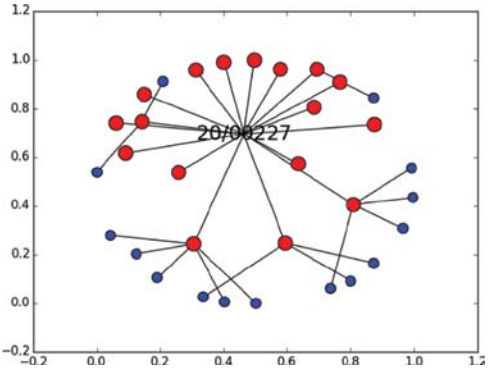

FIG. 7 *OCG #20/00227– Social Network Analysis*

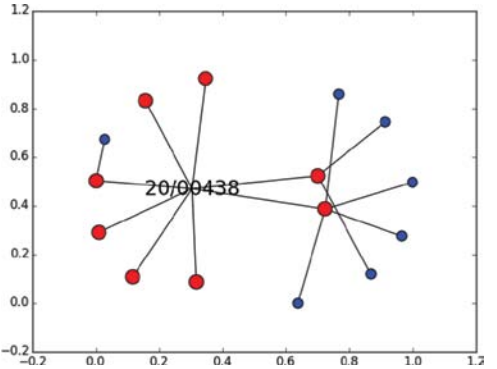

FIG. 9 *OCG #20/00438– Social Network Analysis*

by OCG members – either for sporadic and single-crime links (e.g., Fig 10), or a systematic involvement of non-OCG members in crimes (e.g., Fig. 12 and Fig. 16). Fig. 6 (Group #22/00069) shows that while most of the OCG network does not commit crime outside the group, one particular member (bottom left) systematically co-offends with non-OCG members. Future research should look closely at the types of crimes and links that such co-offending patterns entail.

Discussion and Conclusions

To the best of our knowledge, this is the first attempt to paint a complete picture of organized crime in a country or region using intelligence records. The

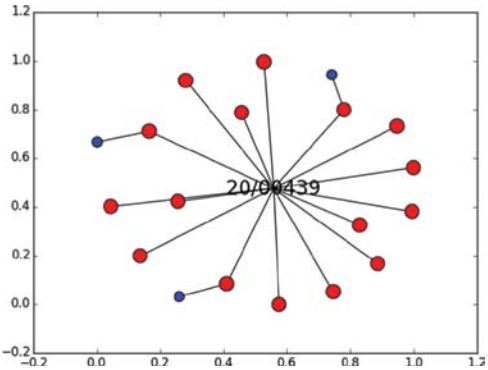

FIG. 10 *OCG #20/00439 – Social Network Analysis*

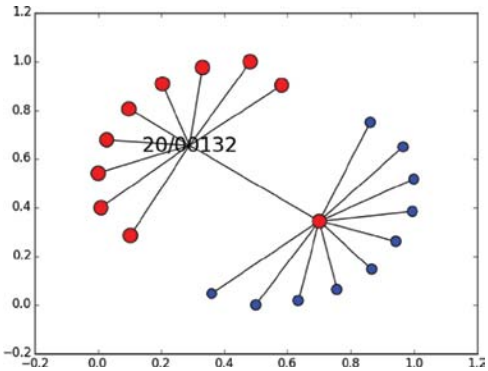

FIG. 12 *OCG #20/00132– Social Network Analysis*

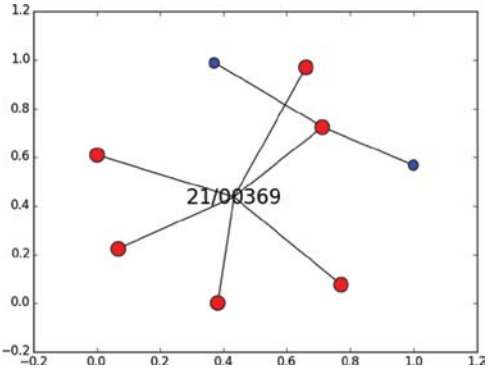

FIG. 11 *OCG #21/00369– Social Network Analysis*

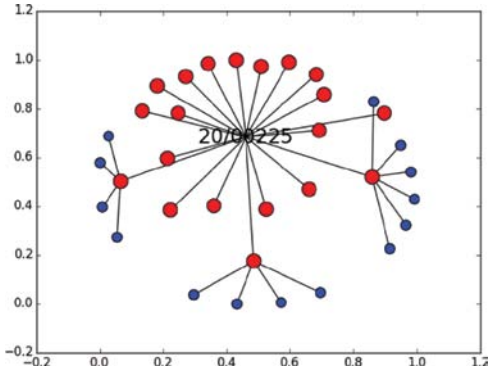

FIG. 13 *OCG #20/00225 – Social Network Analysis*

rich nature of the data enabled a cross-sectional analysis, coupled with a social network analysis that lays out a more comprehensive depiction of the organized crime problem than attempted in earlier studies.

Our research identified 280 organized crime groups in the West Midlands region, comprising 2,726 highly prolific offenders (22 arrests per offender). Ten percent of these members were incarcerated at the time of the study. The group size ranged broadly, from one member to 67 members, with the larger groups being more threatening and harmful to society based on the OCGM risk score. We also showed that half of the members carried out 'classic' OCG roles, such as enforcers, drug pushers, and crime enablers. A further finding is that more than a third of the OCG groups have a known link to other organized crime groups, and there are 144 links in total.

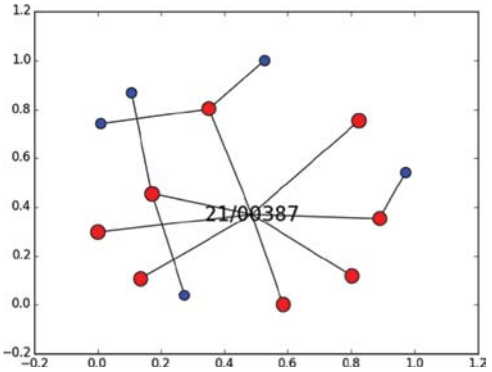

FIG. 14 *OCG #21/00387– Social Network Analysis*

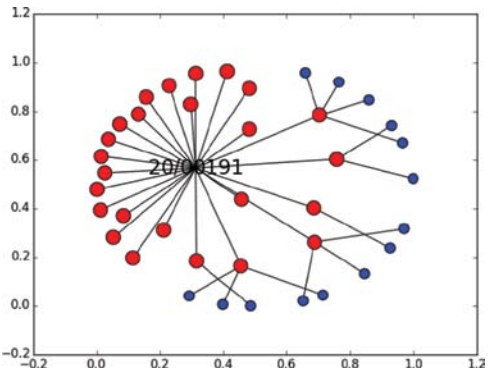

FIG. 15 *OCG #20/00191– Social Network Analysis*

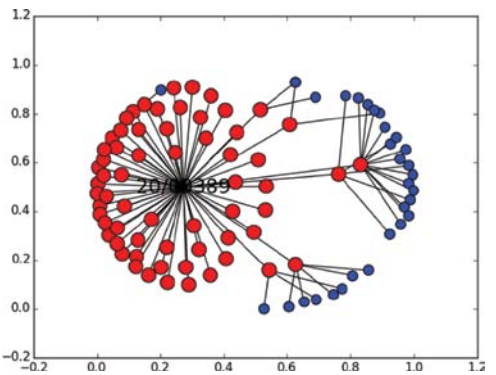

FIG. 16 *OCG #20/00389– Social Network Analysis*

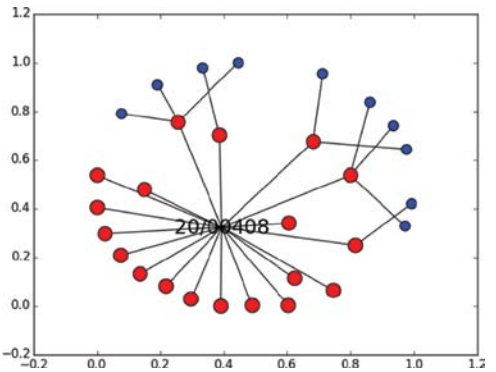

FIG. 17 *OCG #20/00408 – Social Network Analysis*

Based on the clinical assessment made by the anti-OCG unit, nearly half of the OCGs in our data are deemed archived. Of greater concern is whether the OCGs have not ceased their activity but have become better at avoiding detection. The professional judgment rationale introduces the potential for police bias or corruption that cannot be ignored. However, assuming the judgment calls are valid, the reason why groups cease to operate is not because they are too small to compete in the marketplace or have become so big that they attract police attention and are disrupted. From a policy perspective, what we found most striking is the limited number of organized crime groups that were eradicated/dismantled through police disruption: only (n=7). If these figures are reliable, it suggests that the pursue approach has, thus far, been limited in its success in this area. Additional interventions are therefore required beyond the classic

approach of pursuing an OCG's significant or principal members. We return to these below, given the results of the social network analyses.

The intelligence records show that the overarching reason for the formation of most organized crime groups in the West Midlands is a specific intention to commit crime and the need for a group to do it. These can be considered 'special purpose vehicles'. It is the intent to commit crime, and presumably profit from it, which is the main driver behind the creation of criminal networks – as opposed to being a by-product of collegial social networks. The formation of only 11 groups as urban street gangs is worthy of mention, as it is consistent with Densley's assessment of how gangs evolve into organized criminality (2015), but it does not represent the overall pattern of organized crime in the West Midlands. Attention must, nonetheless, be given to sexual gratification as a motivation for 13 organized crime groups, particularly as this is likely to involve some of the most extreme personal violations of vulnerable victims and is also likely to be underreported to the police, therefore contributing to the above-mentioned 'dark figures' (Tierney and O'Neill, 2013:17) of unreported crime.

Structurally, we found that organized crime groups in the West Midlands region do not follow a pyramid formation that indicates a strong hierarchical structure; instead, there appears to be far more senior members than junior players. This is perhaps not surprising given that the mean size of an organized crime group is less than 10 members, and it is reasonable to infer that most members play at least some significant part in the group's organization. What is still unclear, however, is whether organized crime groups are stable entities based on strong bonds of trust or whether they involve a high degree of insourcing and outsourcing with other crime groups.

One final note is the large number of links to registered companies, which suggests that OCGs are highly active in a broad range of activities. Many of the companies involve activities needed to conduct the range of criminal activities highlighted above. This could be explained either as OCGs maintaining these businesses as fronts to hide their criminality or their criminal capabilities enabling them to enhance their profits through legitimate activities. It also seems that OCGs acquire service-industry companies with heavy cash flow to launder their proceeds of crime through legitimate business.

Policy Implications

The OCGM tracker provides a national framework for capturing organized crime data to inform threat assessments and decision-making. There is also a high degree of consistency between regions and a national tasking framework

that depend on its continued use. In light of the need to understand the politics of the field in which policing operates, there is also a strong case to argue that greater use of OCGM regionally will enhance each force's ability to meet national requirements, which brings benefits in terms of support from other agencies and funding opportunities. This should not be read as suggesting that OCGM as a necessary evil, as the data it collates enables a better understanding of the size, scale, and structure of the organized crime threat in the region selected.

The above analysis of OCGM reveals a multi-faceted, multi-million-pound industry with no overarching structure or dominance by crime conglomerates exercising monopoly power. Overall, law enforcement's understanding of why OCGs cease their activities is weak, thus undermining their ability to understand what works and to inform operational activity. The mapping of organized crime groups on OCGM advocates a regional approach to organized crime given the high proportion of OCGs currently managed at a local level that operate across the region and beyond.

Furthermore, the structure of the organized crime marketplace indicates a high degree of interdependence and linkages, but they are better viewed as business associations than social networks. This creates networks that are often too big to be understood as an entire entity and need to be broken down. Meanwhile, neither OCGs nor the links between them appear to provide a silver bullet as a single unit of analysis. This creates the risk that social network analysis without specific parameters in terms of which operational problem is being considered will raise more questions than answers.

This research suggest that crime groups link together not because of social networks but through the need for co-operation in order to commit crime and maximize profit. It therefore means that if a link is broken, OCGs will actively seek another link to replace the node. This is troubling, as there appear to be numerous opportunities to do so, given our finding that very few unique roles in OCGs exist. Those that are rare (e.g., various suppliers) appear to be due to a limited need for the role rather than unique skills required to perform these functions. Therefore, identifying and targeting links to a single OCG is unlikely to provide sufficient opportunities to dismantle the group.

Even where a 'pursue' approach works (there were 219 people in prison at the time of the research, less than 10% of the organized crime population), there is every indication that the market is resilient enough for OCGs to continue operating while incarcerated or for another group to fill the gap they leave. Therefore, while there is some retrospective endorsement of pursuit tactics, there is also an assertion that a wider range of tactics is needed. We

suggest considering the Prevent strand of the anti-OCG policy. The biggest gap on OCGM is the absence of people on the edge of OCGs that are vulnerable to being drawn into their criminality and our understanding of current group members' criminological factors that indicate whether they are likely to escalate in terms of criminality.

Taken together, the above literature and research illustrates a combination of economic and social mechanisms that have created a complex operating environment for criminal networks engaged in serious and organized crime. None appear to be mutually exclusive, and further evidence is needed before any theory or law enforcement tactic can be relied upon as the singular unit of analysis or form of approach. Indeed, each theory serves a different human need (status, money, and association) and each tactic has a different target audience (organized criminal for "pursue," vulnerable recruits for "prevent"). It is therefore reasonable to work on the premise that criminological theories that describe the drivers for organized crime and law enforcement approaches to tackle it do not do so in isolation, or as a simple cause-and-effect relationship. Rather, they do so in a multi-layered environment where individual and group experiences lead to decisions that adapt to their surroundings and police tactics in their endeavor to commit serious and organized crime.

Clearly, the descriptive nature of this research is just the first step on a journey, and many potential routes lie ahead. This paper asserts that, given the adaptability of the current organized crime population, future research should focus on developing and evaluating prevent programs to stop the next generation of recruits joining their ranks. It is here that the biggest gap in our understanding exists, as OCGM currently contains no data on potential recruits who are vulnerable to joining OCGs, and ambiguity about the policing contribution to 'prevent' has undermined attempts to displace a traditional policing culture in which many officers seek to focus solely on crime-fighting activities (Paoline, 2004). There is a perception that police culture is resistant to change (Crank and Crank, 2014), and it cannot be discounted as an influential factor, but a focus on this alone would underestimate the "power of the field in which policing takes place" (Chan, 1996:23). It is unthinkable that public officials, senior police leaders, or local communities would endorse a policy that abandons attempts to engage in direct enforcement activity against the offenders that pose the greatest real and immediate threat to communities. Nevertheless, such research is needed to confirm that pursuit-based activity is the correct tactic of choice for tackling criminal networks and also to explore whether preventative activity is viable as either a complementary or alternative approach. In light of both the importance and limitations of professional

judgment when making decisions about how to reduce organized crime, as well as the potential resistance to an evidence-based approach (Sherman, 2015), such research should include contributions from both scholars and law enforcement professionals. Furthermore, it should design and field test tactics aimed at removing the recruitment ground for organized crime and severing the link between youth delinquency and criminality across an individual's life course (Sampson and Laub, 1992). To do so would further our understanding of issues of both scientific and social importance in the quest for a safer society, protected by a legitimate police service.

Limitations

While promising, more evidence from intelligence records for a social network analysis approach is required both in terms of who to target and how to target them. Studies to date have identified a strong correlation between a delinquent and a delinquent peer group (Kempf, 2011; Sarnecki, 1990) but have not established the causal inference necessary to enable an evidence-based change in police practice (Sherman et al., 1998). Furthermore, because network analysis cannot tell us which way the influence flows in a link between criminal associates or groups (Felson, 2006), there are practical limitations to its application as a stand-alone approach.

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