The determinants of group membership in organised crime in the UK: A network study

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Abstract: In this paper, we explore the determinants of co-membership in organized crime groups in a British police force. We find that co-membership of OCGs is higher among individuals who share the same ethnicity and nationality; who have committed acts of violence; and who perpetrate the vast majority of their crimes in the same area. We also find a homophily tendency in relation to age and gender, and that task specialization within groups is driven by the type of activity. We interpret some results as conforming to the argument that recruitment from a small area and similar ethnic/national background increases cooperation and reduces the likelihood of opportunistic behaviour in a context of rather effective policing. Our findings do not conform to the suggestive image of OC members as 'urban marauders' and OCGs as large and powerful multinationals. OCGs tend to be small, localized and formed by people with the same background.

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This study is dedicated to Carlo Morselli, colleague, collaborator, and friend

1. Introduction

Since at least the 1950s the literature on organized crime (OC), encompassing mafias, drugs cartels, trafficking organizations and urban gangs, has posed a set of key questions: are OC groups large, powerful criminal organisations that dominate criminal markets, recruit from a range of sources, span different countries and take advantage of globalization easily, or are they rather small in size, formed by individuals who share the same ethnic background, operate locally and in competitive markets? This study aims to revisit some aspects of this debate by mapping the structure of criminal groups in one region of the UK and identifying the determinants of groups' membership.¹

The paper continues as follows: the next section discusses the theoretical perspectives on organized crime groups in relation to their size, ethnic composition, age, locality and task specialization – and the underpinning mechanism(s) potentially leading to the observed arrangements. It also spells out the hypotheses tested in this work. Section 3 describes the nature of the data and the methods used in this study, while Section 4 presents the descriptive statistics of the data. Section 5 tests the hypotheses. Section 6 concludes.

2. Theoretical perspectives on organized crime groups: size, ethnicity, age, locality and tasks

The debate on the size of OCGs inevitably intersects with discussions on the internal organizational structure. The belief that illegal markets are subject to central control by a few, large groups, with a reputation for violence and able to influence authorities dates back at least to the 1950s (Kefauver 1951; Task Force Report 1967; for insightful discussion, see Morselli 2005: 10-18, also Wade 1996).² Since the 1980s, several scholars have questioned such an assessment. Reuter and Rubinstein (1982) find that certain illegal markets in New York City in the mid-1970s—illegal lotteries, loansharking, and bookmaking—were

populated by numerous, relatively small, often ephemeral firms. When researching drugs traffickers imprisoned in the USA, Reuter and Haaga (1989) report that their subjects tended to operate through temporary and dynamic partnerships. Similarly, Adler (1985: 2) finds that 65 high-level drug smugglers and dealers in California in the late 1970s were working in small groups, often based on short term agreements. Eck and Gersh (2000), who examined 620 cases of drugs investigations in the USA, find that most groups were small, nonhierarchical, and temporary coalitions. In the sample of 39 drug trafficking organizations analysed in Natarajan and Belanger (1998), the average number of the organizations' members was 11 (for similar conclusions, see Zaitch 2002; Paoli 2002; Madi 2004; Morselli 2009; Malm and Bichler 2011; for a comprehensive review, see Bichler et al. 2017). Other authors have reported that some groups appear to be highly organized profit enterprises with clear employer-employee relationships (Eck and Gersh 2000). Natarajan et al. (2015), who studied 89 organizations investigated some by the Drugs Enforcement Administration and some by NYC prosecutions, report the existence of both types: 12.8% of the cases investigated in NYC had a corporate organizational style while 30.1% had a more transient, communal business structure (the average size of the groups is 11 members). 54% of the cases investigated at the federal level also involved a corporate structure: in this sample, the average number of organizations' members is 127.

The extent of ethnic homophily within groups has also been comprehensively researched and debated. Since at least Asbury (1927), scholars of gangs based in the Anglo-American context have noted that gangs are ethnically homogeneous (see, e.g., Thrasher, 1927; Anderson 1990; Sánchez-Jankowski, 1991; Song, Dombrink, and Geis 1992; Klein, 1995; Spergel, 1995; Chin 2000; Vigil 2002; Esbensen, Brick, and Melde 2013). Ethnicity is also a crucial factor in explaining gang formation and membership (Vigil 1988; Moore 1991; Adamson 2000; Alonso 2004; Freng and Esbensen 2007; Morselli et al. 2010). A recent study of a black street gang in London has also concluded that "there is a tendency for gang members to associate and co-offend with other gang members from the same ethnic group" (Grund and Densley 2012: 389; see also Grund and Densley 2015, Reiss, 1986). Yet, scholars of mafias have found that rules that explicitly forbid somebody to join *because* of their skin colour or ethnic background are the exception. "I think mob guys are the most unracist people in the world. They are just greedy," said Sammy 'the Bull' Gravano, the underboss of the Gambino Family in the late 1980s and early 1990s. Anybody can join the Sicilian mafia and, e.g., Neapolitans have been admitted (Varese 2017: 39). The Italian-American mafia has

changed its admission rules in 1970s, when, to be eligible, the member's father has to be Italian (before, one had to be Italian on both sides). For the Japanese Yakuza and the Russian mafia (the so-called *vory-v-zakone*), there are no rules favouring—or excluding—certain ethnicities (Varese 2017: 39). Several nationalities are represented within the 'Russian' mafia (Varese 2001). Equally, one does not need to be from Calabria to join the calabrese `ndrangheta. Individuals born either in the North of Italy (and with no blood connection to *calabresi*) or even abroad have been made members (Varese 2011). A Neapolitan Camorra outpost in Aberdeen "even managed to recruit a British citizen" who then received a monthly salary for years paid by the group (Campana 2011a: 213).³

Crime groups might also be similar as far as age and gender are concerned. Homophily has been observed in several studies in relation to age (Reiss and Farrington 1991, Warr 1996) and gender (Warr 1996). The well-known "age-crime" curve suggests that co-offending decreases with age and that, as offenders grow older, they tend to move from acting alone to co-offending (Reiss 1988, Reiss and Farrington 1991, Carrington 2002, Conway and McCord 2002, Piquero et al. 2007).

The extent to which groups are highly localized or span large territories has also attracted attention and has led scholars to reach different conclusions. As noted by Coutinho et al. (2020: 58), "locations form a structure of opportunities in which actors and groups interact. It is not only that locations make interaction possible, they may also encourage it by focusing it in a specific place." Similarly, Felson (2006) has introduced the concept of "convergence settings" to indicate spaces where actors interact, share information, get recruited and more generally conduct criminal activities together. Hence, recruitment and criminal activities might be limited to a small territory, as suggested by scholars above. British criminologist Dick Hobbs articulates the opposite view, suggesting that contemporary organized crime groups in the UK are formed by "urban marauders" (Hobbs, 2001: 552). The word 'marauders' conveys the impression that gang members constantly move around and are committing crimes in several jurisdictions. This view of organized crime has been best articulated by the portion of the literature that suggests that OC is no longer a phenomenon rooted in a particular territory (Picarelli, Shelley, and Corpora 2003; Barak 2001; Castells 2000). A testable hypothesis is whether members of the same group commit the vast majority of their crime in the same locality or whether they roam around and commit crime in a variety of localities.

Next to attributes of actors and location, members also perform tasks. To what extent do we observe task homophily within groups? Soudijn (2014), in a study of 31 Dutch cases involving large-scale cocaine importation, finds that groups include a variety of financial facilitators involved in money-laundering operating together with drugs traffickers. The alternative scenario would suggest that individuals involved in the same activity are more likely to be members of the same group, implying a degree of specialization. Campana and Varese (2013) find a positive impact of sharing a violent act on cooperation within two criminal organisations, namely a Russian Mafia group operating in Rome and a Neapolitan Camorra group.

In conclusion, the literature has broadly documented a variety of potential arrangements: some groups tend to be small and transient, while others have corporate organizational style, some tend to be made of people of the same ethnicity while others do not exclude 'foreigners', some are made up of people of similar age and gender and are located in the same locality, while others appear to be 'urban marauders', decoupled from a locality and taking full advantage of globalization. Finally, some groups include individuals coordinating across tasks while others seem to specialize more. What are the mechanisms driving such diverse results?

A plausible key mechanism producing these results is the level of police effectiveness in repressing crime, and the related question of police and state corruption. As the level of police pressure increases, OC groups become more secretive, are forced to recruit from a smaller pool and the reach of their operations decreases. For instance, the quasi-legal status of the Japanese mafia has enabled the Yakuza to grow in size and complexity (Varese 2017: 31). More structured and durable organizations are more likely to emerge when policing is ineffective and/or corruption widespread, as in the case of Colombia in the 1980s. Fuentes (1998 cited in Reuter 2018: 370) reports that just one cell of a drugs trafficking organization he studied in Colombia had up to 300 workers employed in at least six different roles. When corrupt payments to authorities are well organized and coordinated, larger groups have an advantage over smaller ones, as in the case of Tajikistan (Reuter 2018: 367). High level political corruption also has enabled the Sicilian mafia to grow in the period between the 1950s and the 1980s, and the Italian American mafia from the 1930s to the 1960s (Paoli 2003; Lupo 2009; Varese 2011b; Reuter, Paoli and Greenfield 2009; Reuter 2018).

In a context where state action is broadly effective, groups face difficulties in growing and in undertaking complex and diverse functions. Group structure needs to be simple, making internal control and discipline easier to monitor. Several authors have noted that homophily has a tendency to make cooperation easier. The decision to engage in a cooperative enterprise amounts to a decision to trust a person to do what she promised she would do and, in a criminal context, not to betray fellow criminals to the authorities. Sharing some key features, such as common ethnic background, might make cooperation more likely (Campana and Varese 2013; Burt and Knez 1995; Gambetta 1988; Smith 1980: 375). Shared ethnic identities is a mechanism fostering cooperation because it makes it easier to monitor and punish those who are tempted to engage in opportunistic behaviour (Campana and Varese 2013). Although of varying degree of effectiveness, shared nationality, gender and age also might increase cooperation. By having shared similar experiences in the past as a function of having the same age and/or gender, two actors might be more inclined to work together than two actors who come from extremely different personal backgrounds. For example, having grown up in a similar period, might make it easier to check claims made on one's identify and background.

In the face of police pressure, groups would find it hard to grow significantly in size, to operate across multiple jurisdictions and to engage in complex tasks. We believe that police pressure leads to OC groups being smaller and local in scope. The above discussion leads to the development of the following hypotheses about (co-)membership of OCGs in *a context of broadly effective policing*:

- Co-membership is higher among individuals who share the same ethnicity, nationality, age, gender;
- Co-membership is higher among individuals who commit the vast majority of their crimes in the same area;
- Co-membership is higher among individuals who carry out the same tasks (task specialisation within groups);
- Group membership tends to be small.
- 3. Data and Methods

Thames Valley Police (TVP) is one of the largest territorial police forces in England and Wales, covering a population of over 2 million people located in the South East of England. It serves cities such as Oxford, Reading, Milton Keynes and Slough as well as rural areas. The South-East of England is the richest part of the UK (HoC 2018). Each year police forces in England and Wales are evaluated on how effective they have been (HMIC 2017). According to the 2016 PEEL Report, this Constabulary was just below average for number of OCGs per one million population in 2016, and its effectiveness was rated as 'good' (1 out of 43 Police Forces were rated as 'inadequate'; 13 as 'Require improvement'; 28 as 'Good'; and 1 out of 43 as 'Outstanding') (HMIC 2017).⁴

Map 1. Thames Valley Police Jurisdiction



Figure from Wikipedia (CC BY-SA 3.0)

Each police force collects data on OCGs in its area. The analysts based their definition of OCG on the 'Organised Crime Group Mapping Manual'. Such a definition is sufficiently general to include a wide variety of groups, in terms of both size and activities. Below is the passage from the OCGM Manual (2010) that refers to the definition of OCG:

Individuals, normally working with others, with the capacity and capability to commit serious crime on a continuing basis, which includes elements of: planning/ control/ coordination/ structure/ group decision making [form an OCG]. Serious crime is that

which causes or has the potential to cause significant harm. [...] Serious crime is defined [...] as crime that involves the use of violence, results in substantial financial gain or is conducted by a large number of persons in pursuit of a common purpose, or crime for which a person aged 21 or over on first conviction could reasonably expect to be imprisoned for three or more years (OCGM Manual 2010: 15).⁵

A disparate group of offenders become an OCG on the basis of a value judgment of analysts and police officers, which in turn is based on police encounters, confidential intelligence, and members' self-identification (Interview 1).

The data include fully anonymized information on all OCGs active in Thames Valley between 2010 and 2016 as well as on individual members. For this paper, we relied on two distinct data sets. The first includes an anonymised list of organized crime groups and their members (as well as members' characteristics). We used such information to build a twomode network (members-to-groups) and then project it to create a 1-mode network membersto-members (i.e., the co-membership network). The resulting network is binary and undirected. Such network was enriched with information about OCG members' characteristics, including country of birth, nationality, ethnicity, gender and age. The second data set includes information on the specific activities OCG members engaged in. The activities are based on events recorded by the force (N = 14,495 between January 2010 and October 2016). Such events include the type of crime, first three digits of the postcode of where the crime took place, date of the crime, and the OCG member's role in the event (offender/victim). Data on events were extracted from the police database using a 'targeted extraction' strategy (Campana and Varese 2020): we selected a set of actors (i.e., the OCG members), identified the events they were connected to and extracted such events (this is similar to the strategy followed, among others, by Ouellet et al. 2019). Information about events was then linked to the first data set as an additional set of attributes of the OCG members. The events included in our data set are not limited to instances where the OCG member was arrested. Rather, they include instances where the member was a 'Suspect' (28.1%), when 'No further action' was taken (21.2%); when the suspect was 'Detected' (20.7%), or 'Charged' (12.0%), or 'Arrested' (10.7%). We also have events labelled as 'Postal requisition' (a type of summon, 3.2%) and 'Other' (4.1%).

Most network studies of gangs are based on anonymized police co-arrest records (McGloin and Piquero 2010; Papachristos et al. 2012; Papachristos and Wildeman 2014; Schaefer 2012). The police record whether two gang members have been arrested together in a specific instance.⁶ Normally a network is constructed with the nodes as the individual members and undirected ties indicating co-arrests (Grund and Densley 2012; Papachristos, Wildeman, and Roberto 2015; Oatley and Ewart 2011). Such a type of data set allows scholars to unpack the internal structure of the OCG using individual-level network data and map sub-groups and cliques. However, police co-arrest data are limited by the fact that not every offence leads to arrest (Hughes 2005). Some co-arrest data do not in themselves distinguish between gang members and non-gang members (Pyrooz et al. 2010). A handful of studies have gone beyond co-arrest data by relying on police field intelligence observation cards recording non-criminal encounters with the police (Papachristos, Braga and Hureau 2012) and expert interviews with law enforcement personnel (Braga et al. 2001; Kennedy, Braga and Piehl 1997).⁷

The present study follows the tradition of using police data to study gang and organised crime groups. However, we go beyond co-arrest data when building our co-membership network, using instead the police's value judgment, which in turn is based on a variety of sources, including police encounters, confidential intelligence and members' self-identification (see Campana and Varese 2020 for a discussion of attributing OC membership, and the benefits of an intelligence-based attribution). One advantage of such an approach is to limit the impact of the often-cited bias that top-level OCG members might appear less in police arrest data – or not appear at all. Police-based membership attribution is not without its limits, including knowledge gaps on certain individuals/groups and errors in attributions. As with all police data, also our evidence might suffer from the potential selectiveness of police enforcement, which might see some individuals being targeted more than others depending on race and/or place of residence (Black 1970).

Our evidence covers OCGs active both in relatively large cities as well as in smaller towns and the countryside. As we have data on the Thames Valley Police region, we are able to offer a macro picture of several micro drives of group membership and activity. Finally, we have interviewed an analyst that oversees the creation of the database in order to gain a better understanding of the biases and limitations intrinsic to our database as well as the procedures followed by the police when collecting the data as advocated by Campana and Varese (2020).⁸

We employ Exponential Random Graph Models (ERGMs) to test our hypotheses. ERGMs are a family of models specifically designed to estimate tie formation in networks (Hunter et al. 2008; Lusher et al. 2013; Cranmer et al. 2021). As we are only interested in exogenous covariate effects – and not endogenous network effects such as reciprocity and higher-order effects – our models do not require stochastic Markov chain Monte Carlo (MCMC) techniques to estimate the effects (Lusher et al. 2013; Cranmer et al. 2021). Thus, they do not suffer from problems of degeneracy and do not require goodness-of-fit diagnostics (they are akin to regression models for networks: Cranmer et al. 2021: Ch. 4). To minimise potential biases generated by different levels of police enforcement against different groups/individuals, variables capturing criminal activities as well as participation in violence have been dichotomised before inclusion in the models.

4. Organized crime groups in Thames Valley

In the period 2010 to 2016, analysts in TVP identified 811 members of OCGs. As detailed in Table 1 below, most members are male, born in the UK and with British nationality. The OCGs on record here have members whose median age is 32 years, indicating a degree of maturity and a far cry from a youth gang. There is also an international dimension to the criminal groups: 44 countries of origin are represented in the data set. Drugs and theft are the two main activities the groups engage in. Frauds refer mostly to low-level cheating on social security rather than sophisticated international operations (Interview-1). Of the OCG members, 61% have been involved in acts of violence, suggesting variation in the use of violence.

Attribute	N	%
Gender: Female	50	6
Male	761	94
Age: median	32 years	
Country of Birth:		
Number of countries in the dataset	44	
Born in the UK	619	76
Nationality: British	664	82
Ethnicity:		
White	402	49.5
Black	202	24.9
Asian	199	24.5
Other	8	1.1
Activities by OCG members:		
Drugs	523	64.5
Theft	448	55.2
Sexual offences	151	18.6
Fraud	122	15.1
Money laundering and other (illegal)	109	13.4
trade		
(Other)	(577)	(71.1)

Table 1. Descriptive statistics of the actors in the data set

The 811 individuals are members of 162 groups. The median membership is 4; the mean membership is 5.3; and the maximum membership is 21. Figure 1 below presents data for groups' sizes. Except for a few large groups, most OCGs in Thames Valley are small in size, as predicted by Reuter (1985).





It should be noted that the Police manual allows analysts to create a file on a 'group' even if at first only one offender is identified as being a member: "Initial research may identify only one offender, but professional judgement may indicate the existence of a group" (OCGM Manual 2010: 15). In the data set we have 12 such groups. Most groups have between 3 and 5 members, although large OCGs exist with more than ten members each. 6.4% of actors have a multiple membership: 47 actors were members of two groups while 5 actors were members of three groups.

Figure 2 maps the ties among members of OCGs in Thames Valley. A tie between two nodes indicates shared membership in the same group. As noted above, some individuals are on record as belonging to more than one group.





The size of the node indicates degree centrality, which captures the number of OCG comembership ties that an individual possesses. The network has 811 OCG members (nodes). These members have established 6,556 membership ties. The network has 124 components, the largest of which has 45 nodes. Density, which captures the ratio of ties to the number of possible ties, is 0.010 indicating a high level of fragmentation of the network.

5. Determinants of OCG memberships

We now turn to what determines membership by modelling network ties using ERGM models. As noted above, a tie between individuals indicates co-membership of a given OCG. Each tie is binary and undirected: an actor is either a co-member of a group (1), or s/he is not (0), and each tie is reciprocated. Like marriage, actor A cannot *not* have a tie to B while B has a tie to A. Ultimately, we test what features individuals who are in the same OCG tend to share (Lusher, Koskinen and Robins 2013).

The first model is presented in Table 2. The first variable, Edges, reflects the density of the network and is akin to the intercept in regression models—thus is of limited substantive interest. The variable Gender is positive: individuals of the same gender are more likely to be

members of the same group, which points to a certain degree of gender homophily within groups (this is potentially due to women joining groups where there are already other women present). It should also be noted that the number of women recorded in the data set is small (n=50). The absolute difference in Age is negative, meaning that co-members have a tendency to be of similar age.

Effect	Estimate	St Error	Log Odds	Sig.
Edges	-7.670	0.091	0.01	***
Gender	0.235	0.059	1.26	***
Age (abs difference)	-0.054	0.003	0.95	***
Post town	3.343	0.059	28.30	***
Nationality	0.569	0.044	1.77	***
Ethnicity	1.482	0.041	4.40	***
Violence	0.728	0.044	2.07	***
AIC: 27281 BIC: 27536				

Table 2. ERGM model of membership tie formation in OCGs in Thames Valley

Note: Effects modelled as 'nodematch' except for age ('absdiff'). For violence, 'nodematch' considers only homophily between actors who have carried violence (differential homophily).

Furthermore, OCGs in Thames Valley show a tendency to be formed by people of the same nationality and ethnicity, supporting a well-known tendency of gangs to cluster around ethnic and national lines. Ethnicity is, among the two variables, the one with the highest estimate value. Controlling for other variables including nationality, there is a strong tendency for people of the same ethnicity to be also in the same group. Further, we find a positive effect of violence on co-membership, meaning individuals who have committed an act of violence are more likely to be part of the same group.

We now turn to the issue of co-location. Police data include a variable related to the 'geographical reach' of each group based on their intelligence. Police intelligence suggests that almost 91% of OCGs have a reach that is confined to either the local police area or to more than one UK police area—usually a nearby police area. To delve deeper into the issue of location, we coded, for each OCG member, the number of places where each individual has been involved in more than 1 criminal event. The variable is based on 'post town', a

formal designation given by Royal Mail (2004) to some 1,500 localities in the UK.⁹ In Thames Valley there are 44 post towns.¹⁰ The results are telling: 345 out of 811 individuals have committed their criminal acts in one post town (42.5%); 544 out of 811 individuals have committed their criminal acts in just two (67%); 649 out of 811 have committed their criminal acts in three post towns (80.1%). Only 25 actors have committed their criminal acts in ten or more post towns (3%; the maximum number of post towns where an individual has committed their criminal acts is 20). It should be remarked that these data cover a five-year period.¹¹ At the descriptive level, it seems that most members of OCGs in Thames Valley are not marauders. Rather, they appear to commit the vast majority of their crimes in a small area.

The model presented in Table 2 goes beyond the descriptive statistics cited above by modelling the impact of the place where each criminal activity is carried out on the establishment of a membership link (and controlling for other variables). The result indicates that individuals who have been involved in criminal events within the same post town are 28 times more likely to be part of the same group (as indicated by the odds ratio). This result is theoretically important and indicates that OGC groups operating in a context of broadly effective policing are highly localized.

Effect	Estimate	St Error	Log Odds	Sig.
Edges	-8.136	0.106	0.01	***
Gender	0.201	0.058	1.22	***
Age (abs difference)	-0.054	0.003	0.95	***
Post town	3.422	0.057	30.63	***
Nationality	0.650	0.045	1.92	***
Ethnicity	1.486	0.040	4.42	***
Violence	0.576	0.047	1.78	***
Drugs	0.665	0.047	1.94	***
Fraud	0.321	0.044	1.38	***
Theft	0.386	0.043	1.47	***
Sexual offences	-0.136	0.040	0.87	***
Money laundering and other	0.166	0.045	1.18	***
illegal trade				
AIC: 26948 BIC: 27107				

Table 3. Extended ERGM model of membership tie formation in OCGs in Thames Valley

Note: Effects modelled as 'nodematch' except for age ('absdiff'). For activities and violence, 'nodematch' considers only homophily between actors who have carried out the activity/violence (differential homophily).

Next, Table 3 includes the activities undertaken by members of OCGs. The results for ethnicity, nationality and co-location still hold true in this model. The same applies to the effects of gender, age difference and violence. In addition, being involved in the same activity increases the likelihood that two individuals are a member of the same group. From the group's perspective, this suggests a degree of coordination and specialization. This effect is strongest for drug-related activities and violence; weakest for money laundering and other illegal trading activities. Fraud and theft record an effect size that is almost half of drugs. There is one clear exception to this pattern: sexual offences. Two individuals who have committed a sexual offence tend not to be part of the same group. This suggests that sexual offences tend not to be group-based, but carried out by OCG members independently.

5. Conclusions

This paper tested a number of hypotheses on the determinants of OC group membership using a novel network data set, the Thames Valley Police data set, which include records of criminal events and encounters with law enforcement that go beyond formal arrests (i.e., coarrest data). To analyze these data, we build the membership network of OC groups and test whether co-membership is higher among individuals who share the same ethnicity, nationality, age and gender; whether co-membership is higher among individuals who commit the vast majority of their crimes in the same area; and whether co-membership is higher among individuals who carry out the same task. We also report on the size of groups. In a context of broadly effective policing, we find that OC groups tend to be formed by people who have the same ethnicity and nationality; have the same age and gender; and commit acts of violence together. Finally, individuals who have been involved in criminal events within the same post town are between 28 and 30 times more likely to be part of the same group (as indicated by the odds ratio). Broadly speaking, these results confirm our theoretical expectations on the determinants of group membership in a context of broadly effective policing: groups find it hard to grow in size, reach and complexity and are forced to recruit from people known to them and operate locally.

Our results go well beyond what is expected by the existing literature: we find evidence that individuals who carry out the same task tend to be part of the same group, yet only for *some* tasks. The effect is strongest for drug-related and violent activities, and weakest for money laundering and other illegal trading activities. Fraud and theft have an effect size that is roughly half of the one calculated for drugs. One can also conjecture that the higher the effect, the higher the degree of internalization of an activity. We also present clear evidence that sexual offences are likely not be coordinated at the group level but carried out independently by OCG members. In other words, sexual offences follow different patterns and mechanisms to those underpinning OCG activities more generally. Thus, task homophily – or task coordination – within OCGs depends on the activity performed.

We believe that the underlying mechanism that accounts for these results is police efficacy. In Thames Valley, the level of efficacy of the force is high, hence it does not give rise to opportunities to join resources among groups to corrupt the authorities, and to grow in size and complexity, recruiting individuals from different backgrounds. It should be noted that this study does not address all issues raised in the literature discussed in Section 2. For instance, we cannot establish whether criminal markets in Thames Valley are competitive or subject to monopolistic control, although we strongly suspect that they are easy to enter and competitive similarly to what Baika and Campana (2020) found in relation to drugs markets in Newport, Wales. In any case, we can safely reject the seductive view of OC as an overpowering entity formed by 'urban marauders'.

Appendix

Table A1. Description of the variables

Variable	Description of the Variable
Gender	Gender of the OCG member (male / female)
Age (abs difference)	Absolute difference in age between two OCG members
Post town	A formal designation given by Royal Mail to some 1,500
	localities in the UK. In Thames Valley there are 44 post towns
Nationality	Nationality of the OCG member
Ethnicity	Ethnicity of the OCG member re-coded as: White, Black,
	Asian and Other
Violence	Violence against the person (including murder, attempted
	murder, kidnap/abduction, arson with the intent to endanger
	life, all types of assaults including against police officers,
	manslaughter, possession of firearms or any other item
	endangering life, threat to kill).
Drugs	Drugs-related offences; it includes Class A, B and C drugs
	(both supply and possession)
Fraud	Banking and credit card fraud, insurance fraud, public sector
	fraud (e.g. benefit fraud, personal tax fraud/evasion), identity
	card fraud, identify theft.
Theft	All types of burglaries (residential, commercial, industrial) and
	all types of thefts (from a person, from a vehicle, shoplifting)
Sexual offences	Sexual activities involving a child of any age under 16; sexual
	offences, exploitation, grooming of children and young
	persons; sexual offences, exploitation and rape of vulnerable
	adults; sexual offences, exploitation and rape of adults; familial
	sexual offences.
Money laundering and	It includes: proceeds of crime offences; cash based
other illegal trade	business/organisations (including high value dealers, casinos,
	restaurants, charities); exploitation of bank accounts (including
	smurfings, front accounts, 3 rd party usage); overseas placement
	of criminal finances or assets; trade based money laundering;
	smuggling criminal property (cash), fencing,
	handling/receiving stolen goods, illegal
	importation/exportation/distribution of high value items (e.g.,
	vehicles, art, antiquities)

Interview cited in the text

Interview-1 (June 2017), Police Analyst, Thames Valley Police.

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ENDNOTES:

¹ In this paper, we use the concepts of 'gang', 'criminal group' and 'organised crime group' interchangeably. For further discussion on the issue, see Campana and Varese (2018) and Campana and Varese (2020).

² Such a view has resurfaced after the end of the Cold War, with authors predicting that large criminal conglomerates were easily colonizing distant territories. For a critical discussion, see Varese (2011a).

³ See also: *Statement of Charges against Antonio La Torre + Others [Denuncia a carico di Antonio La Torre (1956) + Altri*], Regione Carabinieri Campania, 2000, p. 175 and Campana 2011b.

⁴ PEEL stands for Police Effectiveness, Efficiency and Legitimacy.

⁵ The Police consider OC to be: "Organised crime can be defined as serious crime planned, coordinated and conducted by people working together on a continuing basis. Their motivation is often, but not always, financial gain. Organised criminals working together for a particular criminal activity or activities are called an organised crime group" (National Crime Agency, 2016).

⁶ Sierra-Arévalo and Papachristos (2015); sometimes 'seeds individuals' are also included, namely individuals who are not confirmed by police as gang members, but are within three ties of confirmed members.

⁷ See Morselli (2009: 44-47) and Campana and Varese (2020) for a further discussion on data sources in criminal network analysis.

⁸ A similar procedure was followed in Campana (2018) and Baika and Campana (2020).

⁹Originally, Post Towns coincided with the location of delivery offices. See:

https://www.ofcom.org.uk/ data/assets/pdf file/0031/49756/paf.pdf.

¹⁰ 44 Post Towns e 202 post codes (2 digits). The average population size is 40,000 for post towns and 10,000 for 2-digit postcodes.

¹¹ If we filter the data and consider at least two criminal acts, these are the results: 558 individuals (out of 811) have committed more than one criminal act in one single post town (68.8%); 698 out of 811 in two post towns (86.1%); 743 out of 811 in three post towns (91.6%), while only 8 individuals are associated with committing crimes in 10 or more post towns (1%).