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Measuring gang membership in England and Wales: A latent class analysis with Eurogang survey questions

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Abstract

This paper examines the conceptual and empirical adequacy of the Eurogang Network's survey measurement of gang membership. Using data from a nationally representative survey of young people in England and Wales, we employed a latent class analysis to model variation in the characteristics of peer groups. We found that while Eurogang survey items identified a distinct group of young people involved in more frequent and serious offending, this definition also extended to a separate group whose only 'vice' was recreational drug use. We discuss the conceptual validity of extending the 'gang' label to this latter group, together with the pressing need for more developmentally sensitive measures of peer networks in adolescence.

Keywords

Gangs, drug use, latent class analysis, measurement invariance, Eurogang

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Introduction

The last decade has witnessed a global increase in the official acknowledgement of, and willingness to address, criminally involved youth gangs. The empirical evidence base has, however, grown much more unevenly, with the United States remaining very much the 'world leader', nations such as the UK and Spain representing 'emerging' research contexts, and nascent literatures developing only recently in diverse places such as Mexico, Hong Kong and Israel. Common to all of these areas, however, is the considerable and often acrimonious disagreement that exists among academic researchers, practitioners and policy makers in relation to: (a) the definition of gangs; (b) the nature and extent of the gang problem; and (c) the usefulness of gangs as a concept for framing policy intervention. In this paper we focus on definitional and measurement issues.

Gang definitions continue to be a controversial issue; and one could be forgiven for thinking that there are as many definitions as there are gang researchers or relevant stakeholders. Although there may be good reasons for some of those differences (for example, scientific and policy concepts may serve legitimately different purposes), some academics argue for a consensus definition because it is an important prerequisite for communication and knowledge accumulation. This is particularly relevant in the context of comparative research: 'without common measures, comparisons are threatened by the spectre of measurement bias' (Weerman et al., 2009: 6). Indeed, it was the need to make such comparisons that led the Eurogang Network – an international collective of gang researchers – to produce such a consensus on the definition of gangs and to develop a set of standardised tools to identify these groups through survey and ethnographic methods (for details, see Weerman et al., 2009). This working group of the European Society of Criminology defines street gangs as 'any durable, street-oriented youth group whose identity includes involvement in illegal activity' (Weerman et al., 2009: 20).¹

The Eurogang Network produced a set of survey questions to operationalise this concept as part of their standardised youth survey instrument. This survey measure departs from the traditional approach to measuring gang membership employed in most North American research, which relies on what is often referred to as the 'self-definition' approach. Survey respondents are simply asked whether they are members of a gang (e.g. 'Are you now in a gang?'; 'Do you belong to a gang?'), although sometimes additional qualifiers (e.g. involvement in illegal activity, initiation rites, colours, established leaders) are added. North American criminologists consider this a valid approach that identifies a distinctive set of individuals. Adding additional qualifiers tends to identify demographically similar but more criminally orientated gang members with elevated levels of risk, both in the US (Esbensen et al., 2001) and elsewhere (Bradshaw, 2005).

When Eurogang researchers first began the process of developing survey measures of gang membership it soon became clear that the self-definition approach would not work: there were no obvious common translations across the large number of European languages that carried the same cultural meaning for the US term 'gang'. Even within the UK, at least until very recently, it is contestable whether the term had the same connotations among young people as it does in the US. For example, in a recent survey, 23% of a youth sample saw themselves as a gang, although 'in most cases this related to being a group of friends who shared a number of things in common' and 'did not qualify for what constitutes a gang for criminologists' (Hayden, 2008: 24).

This led to the development of an alternative approach. Rather than asking individuals whether they are gang members, the Eurogang survey instrument includes a series of questions about the sort of peer groups that respondents associate with, then classifies individuals depending on their answers. To be counted as a gang member according to this operationalisation, the respondent must answer positively to all questions designed to measure the definition elements (i.e. durability, age composition, street orientation, etc.). Apart from these core definitional questions, the survey instrument devised by Eurogang researchers also includes further questions about peer group characteristics often associated with gangs ('*descriptors*') so that researchers include them at their own discretion. These include questions about the territorial, organisational, compositional and behavioural dimension of the group. These descriptors are thought to be useful for the *characterisation* of gangs but are thought by Eurogang researchers not to be essential for the *definition* of a gang.

These survey questions have now been used in a variety of published single-country studies in England and Wales (Anderson et al., 2010; Sharp et al., 2006), the United States (Matsuda et al., 2012), Spain (Martín-López et al., 2011) and the Netherlands (Weerman, 2012), but also, in their core version, as part of the International Self-Report Delinquency Study II (ISRDI-II; Gatti et al., 2011). So, for example, we now know that for young people aged 12–15, the prevalence of gang membership using this stable definition varies markedly across the 30 participating countries in the ISRDI-II, ranging from as low as 1% to as high as 16%.

Apart from generating a body of research on prevalence, risk factors and consequences of gang membership, we now see an increasing number of studies assessing the methodological properties of this operationalisation of gang membership. Some of these studies have focused on clarifying the degree to which there is consistent overlap between different operationalisations of gang membership (e.g. Eurogang versus self-definition) and to establish their construct validity (Matsuda et al., 2012; Sharp et al., 2006). The consensus emerging from these studies is that the Eurogang measure (like measures based on self-definition) identifies a distinctive set of individuals characterised by (1) the accentuated presence of risk factors and (2) with a disproportionate involvement in delinquency and antisocial behaviour. Equally, we have also learnt that different operational definitions produce reasonably comparable levels of gang membership prevalence. However, they seem to identify different individuals within them. There is only a small overlap (around 13%), at least in the US, between individuals identified as gang members by self-definitional approaches and those identified as such using the Eurogang definition (Matsuda et al., 2012).

There is also an ongoing discussion as to whether elements of the definition employed in the Eurogang survey operationalisation are the correct ones. For example, in the British context there has been (1) some level of resistance by public bodies and think-tanks to the Eurogang definition (Centre for Social Justice, 2009; Pearce and Pitts, 2011; Sharp et al., 2006) and (2) a trend for these bodies to ask for additional (sometimes alternative) criteria, such as the presence of one or more particular properties (a name, a leader, a territory, a discernible structure, conflict with other gangs, etc.) or, at the very least, a high level of engagement in illegal *and* violent behaviour so that they can be distinguished from other peer street groups (Hallsworth and Young, 2004). Indeed, although the now discontinued

Offending Crime and Justice Survey (OCJS) and the Youth Justice Board survey series on youth offending used Eurogang questions, the Crime Survey of England and Wales (CSEW) module recently developed for children aged 10–15 has instead opted for a different way of measuring gang membership. This module asks a small subset of these children whether they are a ‘member of a street gang’ – clarifying to the respondents that a street gang refers to ‘groups of young people who hang around together and do all of these things: commit violent crimes together and, spend a lot of time in public places and, usually have a name, an area or territory, a leader, or rules’.²

Even within the Eurogang Network there seems to be some ambivalence about the degree to which the core classifying questions work sufficiently well; the Eurogang Program Manual’s emphasis on the necessity ‘of separating street gangs from other forms of law-violating youth groups’ (Weerman et al., 2009: 6) perhaps speaks directly to this ambivalence. Aldridge et al. (2012), researchers associated with this network, have raised some questions about the operationalisation and respondents’ understanding of some of the core indicators (e.g. street orientation, ‘doing illegal things is seen as okay by the group’). They also argue that, notwithstanding the wide variety of existing gang types, the Eurogang measures may classify as gangs some groups that ‘arguably should not be considered gangs’ and provide a number of examples based on qualitative data.

Thus, despite the efforts of the Eurogang Network to provide a clearer definition and operationalisation and the findings generated through its use, we (1) continue to see some resistance to the proposed measures and (2) have a limited understanding of its methodological properties. What is at stake in these debates is, firstly, the conceptual question of the ontological status of ‘the gang’ and, secondly, the possibility of ‘net-widening’ with regard to youth and youth justice policy (Bullock and Tilley, 2008; Smithson et al., 2012). This article aims to examine the extent and nature of heterogeneity in youth group formations as defined by Eurogang-style ‘definer’ and ‘descriptor’ survey items. More technically, we use a latent class analysis (LCA) approach to establish the degree to which we can find homogenous subsets of respondents that can be characterised as gang members in a way that matches the Eurogang definition. Essentially, latent class analysis aims to identify subsets of survey participants that respond to a set of items (in this case, questions about the characteristics of the youth groups they associate with) in a similar fashion. It detects and sorts survey participants into different ‘classes’ based on characteristic patterns of response. Respondents with similar patterns of response will be grouped together in classes. Its use, then, allows us to identify a set of ‘latent’ (i.e. not directly observable) classes that reflect the qualitatively different characterisation of youth groups as they exist in the population. We also assess measurement invariance of the resulting model across age, that is, we examine to what degree the characteristics of youth peer groups remain similar enough across adolescence for us to assume that the operationalisation works with different age groups.

Methods

Sample and design

This article uses data from the 2005 wave of the OCJS. The OCJS was a government-sponsored longitudinal panel survey containing nationally representative data on young

people's victimisation and self-reported offending in England and Wales using a multi-stage stratified random sample design. The survey was first undertaken in 2003, when it interviewed people aged 10–65 years living in private households in England and Wales. The survey was repeated annually until 2006, but from 2004 onwards only interviewed those aged 10–25. The OCJS contained a 'rotating panel', that is, in each subsequent year the previous year's sample was re-interviewed and augmented by a further 'fresh' sample. The response rate for the 2005 wave was 83% for the panel component (totalling 4421 respondents) and 70% for the fresh sample (totalling 817 respondents). Interviews were conducted face-to-face, but also included a self-completion computer-assisted component to record offending and drug use (Phelps et al., 2006).

In 2004, for the first time, and as result of a collaboration with the University of Manchester and the Eurogang Network (Sharp et al., 2006), the survey incorporated questions to measure gang membership. These questions were taken from the standardised Eurogang Youth Survey, although the Home Office introduced minor modifications in wording and response option configuration (particularly in the 2006 sweep of the study). Consequently, for this analysis we use data from the 2005 wave. These questions were not asked to all the participants in all waves, but only those aged 10–19; we therefore restrict our analysis to that younger age group. The purpose of our analysis was to identify types of groups composed primarily of young people, which were stable (i.e. having a duration of greater than three months). We thus excluded from analysis all respondents that reported not socialising with a stable youth group. This resulted in a final sample of 2553 individuals, out of the 3653 young people aged 10–19 that participated in the 2005 OCJS wave. Readers should be aware of this when reading the relative size (prevalence) of the classes we report later.

All the variables were binary indicators (see Table 1 for wording and proportions). In addition to youth and durability of peer group (the criteria constraining our sample) we used the three core markers used by Eurogang researchers to identify gang members (street orientation, the group does illegal things together, it is okay for the group to do illegal things). However, we also treated as an empirical question whether other organisational properties often associated with gangs help to identify gang members and thus included indicators for the group having a name, a leader, rules and a territory (the only such items included in the OCJS). The consideration of these criteria as defining or not was hotly debated within the Eurogang Concept Working Group in the process of producing the final definition and, as we have seen, there are still researchers and public bodies that deem them important. Finally, we also included indicators measuring the type of offending members of the peer group engage in collectively. This is consistent with the suggestion that the empirical examination of gang typologies requires the simultaneous consideration of both organisational and behavioural characteristics (Spindler and Bouchard, 2011). The final model thus includes 12 binary indicators to define the classes.³

Statistical analysis: latent class analysis

We applied LCA to empirically investigate the different patterns of stable youth formations. LCA is a statistical technique that allows researchers to identify discrete latent

Table 1. Variables included in the latent class analysis model.

Items wording	Proportions
Does this group spend a lot of time together in public places like the park, the street, shopping areas or the neighbourhood?	.52
Does this group have any areas or places that it calls its own?	.20
Does this group have a name for itself?	.11
Does your group have a recognised leader or leaders?	.10
Does your group have rules or codes for group members?	.07
Is doing illegal things seen as being OK by your group?	.10
Do people in your group actually do illegal things together?	.13
Have people in your group done any of the following things together in the last 12 months:	
Used force or violence against other people	.07
Broken, damaged or destroyed things	.06
Stolen things	.05
Used drugs	.15
Do you consider this group of people we have been talking about to be a 'gang'?	.16

The Eurogang Network defining criteria to characterise a *stable youth group* as a gang have been bolded.

variables from a series of categorical indicators and form classes or groups based on cases that appear to be similar (Collins and Lanza, 2010; McCutcheon, 2002). It is a technique similar to factor analysis: only the single latent variable is categorical. The cross-classification of 12 dichotomous indicators yields 2^{12} possible response patterns ranging from those that respond 'no' to all the indicators to those that respond 'yes' to all indicators. That results in 4096 possible response patterns. LCA aims to explore whether we can represent all these response patterns by a smaller number of 'classes', without losing information (McCutcheon, 1998). There is an increasing number of criminological exemplar applications that illustrate the basic principles of LCA and provide a more mathematical characterisation (see, for example, Francis et al., 2004; Jackson and Kuha, 2010) than we are able to provide here. The use of this method in this research allows us to group respondents into different 'classes' according to their pattern of responses across the set of questions about the characteristics of the youth formations they associate with. Each subject then has an estimated probability for being in each of the separate classes. The models assume local independence insofar as, conditional on class, the observed variables are independent within the classes. It also assumes that the probability of responding in a particular way for a given item is the same for all individuals within the same class but may be different for those in other classes (Bartholomew et al., 2008).

All models were fitted using MPlus (version 6.12) software. Initial models to identify the number of classes were estimated using maximum likelihood with standard errors that are robust to non-normality and non-independence of observations. We employed 3000 random sets of starting values and 100 optimisations in the final stage to avoid convergence to a local maxima. In order to determine the appropriate number of classes

we assessed the Akaike Information Criterion, the Bayesian Information Criterion (and a version of it that adjusts to sample size), the adjusted and unadjusted Lo–Mendell–Rubin Likelihood ratio tests of model fit, and a parametric bootstrapped likelihood ratio test. Residuals were inspected to assess problems of local independence and, as indicated above, this led to a reduction in the number of items used in the final model. However, this exclusion of some items did not affect our conclusions about number of latent classes or affect the interpretation of the resulting classes in any significant way.

The final models presented here account for the complex survey design and use a full information maximum likelihood solution to missing data: that is, we used information from all respondents, even if they failed to respond to *some* of the items, except for three individuals that were missing information on *all* variables in the model. We used in the analysis weights that had been developed by the original survey organisations to adjust for selection and non-response (for details of their estimation, see Phelps et al., 2006).

Measurement invariance: multiple group latent class analysis

A key question when assessing this sort of measurement model and the characterisation that results from it is whether we can assume measurement invariance; that is, whether the same results will be obtained across all subgroups of the larger sample (Collins and Lanza, 2010). A particularly salient dimension of subgroup variation in this context is age: the characteristics of young people's social networks are likely to change considerably during adolescence. We know, for example, that the prevalence of gang membership (like crime prevalence) follows a predictable curvilinear pattern. Published analysis of the 2004 wave of the OCJS (Sharp et al., 2006) suggests a peak prevalence of gang membership at age 14–15. Therefore, in order to test for measurement invariance across age, we created a new binary variable splitting the sample into two groups: those age 15 and under and those 16 and over.

Results

Firstly we treat the sample as a single group and try to identify the optimal number of latent classes. The estimation of the latent class solution proceeds incrementally, beginning with a solution that includes just one latent class (which is effectively no latent classes, as it represents the whole population under study) and then adding additional classes sequentially until the best fitting solution is found. The model fit criteria associated with each solution are reported in Table 2. As noted above, two different approaches to model fit are used. Information criteria for which the model with the lowest values is selected, and the likelihood difference test that identifies whether the estimated solution is a significant improvement on a solution with one less class. We see that, up to the model with five classes, the values for the information criteria continue to reduce and that all the likelihood ratio tests are statistically significant. However, the values for the information criteria show no improvement in the six-class model (they all increase) and the adjusted and unadjusted versions of the Lo–Mendell–Rubin likelihood ratio test are no longer significant when we compare the six-class with the five-class model. Thus, when we treat the data as a single population (i.e. consider all age groups of young

Table 2. Comparison of different latent class analysis (LCA).

Model	AIC	BIC	ABIC	LMR LR test P-value	ALMR LR test P-value	BLRT P-value
1-class LCA	21,006	21,076	21,038	—	—	—
2-class LCA	18,571	18,717	18,638	0.000	0.000	0.000
3-class LCA	17,969	18,191	18,070	0.000	0.000	0.000
4-class LCA	17,622	17,920	17,758	0.000	0.000	0.000
5-class LCA	17,437	17,852	17,607	0.000	0.000	0.000
6-class LCA	17,478	17,885	17,640	0.564	0.566	0.000

The table displays the Akaike Information Criteria (AIC), the Bayesian Information Criteria (BIC) and the sample-size adjusted Bayesian Information Criteria (ABIC), as well as the Lo–Mendell–Rubin Likelihood Ratio test (LMR test), the adjusted version of this test (ALMR test) and the bootstrap likelihood test (BLRT). MPlus does not compute BLRT when adjusting for complex survey design, thus the BLRT reported here is presented for analysis not taking into account this feature of the data.

people together), our analysis suggests a five-class solution as the most appropriate one for the data.

The resulting five-class solution is presented in Table 3. This table provides the latent class probabilities (the relative size of the classes) and the conditional probabilities for each of the classes. Conditional probabilities are the probability that an individual will respond positively to an item ‘conditional’ on being in that particular class, but can also be read as the distribution of responses across the items within a given class. A conditional item probability closer to 1 indicates that the members on such class endorse a ‘Yes’ response to the item in question. On the other hand, a conditional probability that is very small or zero suggests that the members in such a class do *not* endorse the ‘Yes’ response to that item. We have labelled the identified classes in a way we think helps aid their interpretation. Three of these classes can be considered as ‘non-deviant’, insofar as the probability of engaging in group offending or illegal activity is near zero, and two of them as ‘deviant’, in that what sets them clearly apart from the other three is the higher probability of some form of group offending.

The most prevalent class of youth formation that can be observed in Table 3 is what we designate the ‘normative group’. It has nearly 0 probability for all the items included in the model and the lowest conditional probability on street presence. It is different from the second most prevalent class, which we term the ‘street-oriented group’, in that the respondents in the latter class present a high probability of spending time in public places. Respondents in the third class share with those in the first two a very low probability of participating in illegal activities or belonging to a group ‘for which doing illegal things is seen as okay’. What distinguished this class from the two former classes is that respondents have a high probability of answering that they belong to a group with: a name, leader, rules of conduct and, to a lesser extent, a place that they call their own.⁴ Consequently, we call this third class the ‘quasi-formal group’.

The respondents clustered in the two ‘deviant’ classes have high probabilities of belonging to peer groups (1) for which doing illegal things is seen as okay, (2) that do illegal things together, and (3) that spend time in public places, all key markers of the

Table 3. Five-latent-class model of deviant and non-deviant youth formations.

Assigned label	Latent class				
	Normative	Street oriented	Quasi-formal	Drug users	Delinquent
Probability of membership	.60	.20	.04	.11	.05
Conditional probability of a Yes response					
Spends time in public places	.38	.87	.49	.62	.97
Have areas it calls its own	.05	.44	.51	.27	.79
Has a name	.01	.14	.72	.05	.55
Has a leader	.01	.15	.70	.04	.51
Has rules of conduct	.01	.02	.80	.03	.22
Doing illegal things is seen as ok	.01	.03	.01	.62	.75
Group does illegal things	.00	.03	.00	.77	.82
Engages in vandalism	.01	.02	.01	.14	.61
Engages in violence	.03	.07	.00	.16	.52
Engages in theft	.01	.03	.03	.16	.53
Uses drugs	.05	.05	.02	.74	.64
See group as a gang	.03	.38	.24	.09	.78

The labels for the items relating to the Eurogang definition have been bolded. Conditional probabilities >.5 are in bold to facilitate interpretation.

Eurogang operationalisation. None of the other three classes exhibit notable probabilities in relation to the first two of these three items. However, we can also observe some notable differences between these two ‘deviant’ classes. In one class, the only type of illegal activity performed by the peer group that seems particularly prevalent is drug use. We call this class the ‘drug user’ class. It is notable that, although respondents in this class have a high probability of answering ‘Yes’ to the Eurogang key markers, the probability is lower than for the final class. It is, indeed, the final class that seems to conform best to the idea of a delinquent youth group or gang. Respondents in this class (what we term ‘delinquent youth groups’) have the highest probabilities of answering ‘Yes’ to the key Eurogang markers as well as other peer group offending items. Equally, they present a high probability of belonging to groups with a territorial orientation and that see themselves as a ‘gang’. The latter is an interesting finding given previous discussions about the relevance of self-definition. The conditional probability of providing a positive answer to this item for this class is of a similar magnitude to the other Eurogang identifiers; in other words, this item seems to be as important a marker as some of the other core ‘definers’. However, it is important to notice that it does not discriminate as well as the others from the *non-deviant* classes. Two of the non-deviant classes, the ‘quasi-formal’ groups and the ‘street-oriented’ groups have small but non-trivial probabilities of

answering yes to this item. The same pattern applies to the territorial orientation item. Perhaps we can think of these two dimensions as *necessary* but not *sufficient* conditions for gang membership.

We now present the results from our analysis aimed at establishing measurement invariance of our resulting classification across age. Can we establish that the five-class solution works well for both younger and older respondents? If so, can we go one step further and establish that the nature of these five classes remains the same across age? First we explored whether the general latent structure (i.e. the number of classes) was different across age. The analysis suggests that a five-factor solution was indeed appropriate for both younger and older respondents. We then assessed whether latent class proportions and item-response probabilities were the same across the two age groups. In order to achieve this we compared a model in which we fixed these parameters to be the same to a model in which the item-response probabilities were allowed to vary across the age groups and performed likelihood ratio tests to see whether the former had a poorer fit. The results suggest that complete measurement invariance does not hold: some item-response probabilities are different across the groups and the size of the latent classes also vary. After carrying out a series of these adjustments and tests, we established that the best fitting model was one in which the conditional probabilities for four items were free to vary across the two age groups: spending time in public spaces, perceiving the group to be a gang, group participation in theft, and group use of drugs. The other items were fixed to be equal across age groups. Table 4 presents the results of the final selected model.

In general, it is fair to say that despite these differences in item-response probability, we can retain the assigned labels as a way to distinguish the five latent classes. The five classes we identify retain a similar interpretation across age in terms of what distinguishes them from each other. We can still identify a delinquent youth group, a drug use youth group and three non-deviant youth groups (quasi-formal, street oriented and normative). However, the relevance of some of the characteristics of these classes do change with age. Firstly, street orientation becomes less salient as respondents reach the late teens. It seems that, as young people age, a group presence in public places becomes less likely for both deviant and non-deviant groups, although the proportional decrease in conditional probabilities is smallest for the 'delinquent youth groups'. Secondly, during the late teens, drug use becomes more salient for the two deviant classes and marginally higher for what we have called the non-deviant classes. This is consistent with patterns reported by research on drug use and age. Thirdly, the self-definition of the group as a 'gang' also seems to be linked with age. Pretty much all of the groups are less likely to self-define their group as a gang during the late teens. Finally, as the age crime curve would suggest, thefts also seem to decline with age.

Keeping very much in mind these differences in item probability (which as Collins and Lanza, 2010, suggest it means we are now comparing 'apples-to-oranges') it is also remarkable to observe the differences in the relative sizes of the latent classes. These changes are also consistent with our understanding of developmental change. The drug use youth class, which we should remember has a higher conditional probability of drug use for the older respondents, markedly increases in size with age, jumping from a proportion of .04 to .17. Many more young people belong to this type of group during their late teens. On the other hand, the delinquent youth group class, now more inclined

Table 4. Five-latent-class model of deviant and non-deviant youth formations allowing for measuring variance across age (OCJS, 2005).

Assigned label	Latent class				
	Normative	Street oriented	Quasi-formal	Drug users	Delinquent
Probability of membership					
10–15	.57	.23	.09	.04	.07
16–19	.63	.12	.03	.17	.05
<i>Conditional probability of a Yes response for invariant items</i>					
Have areas it calls its own	.04	.42	.43	.25	.73
Has a name	.01	.14	.67	.06	.52
Has a leader	.00	.16	.63	.02	.50
Has rules of conduct	.01	.00	.73	.03	.25
Doing illegal things seen as ok	.01	.03	.01	.57	.77
Group does illegal things	.00	.03	.00	.80	.86
Engages in vandalism	.01	.06	.00	.09	.59
Engages in violence	.02	.08	.00	.14	.48
<i>Conditional probability of a Yes response for variant items (10–15)</i>					
Spends time in public places	.50	.87	.61	.73	.95
Engages in theft	.00	.04	.04	.23	.58
Uses drugs	.02	.04	.01	.58	.57
See group as a gang	.07	.44	.39	.10	.82
<i>Conditional probability of a Yes response for variant items (16–19)</i>					
Spends time in public places	.23	.68	.33	.45	.87
Engages in theft	.00	.02	.02	.11	.36
Uses drugs	.06	.11	.03	.81	.80
See group as a gang	.02	.18	.16	.03	.56

Conditional probabilities >.5 are in bold to facilitate interpretation.

towards drug use and marginally less delinquent in other ways, is also less prevalent across the older groups (.07 versus .05). This is also consistent with the age–crime curve pattern. Equally, the decline in significance of street orientation is not only reflected in a lower probability across all of the classes, but also in the diminishing size of the non-deviant ‘street-oriented group’ which reduces by half (.23 for the younger group versus .12 for the older group). To summarise, the changes in item probabilities and the changes in latent class size seem to mirror each other and are indicative of familiar and well-described patterns of developmental change that take place during the late teens.

Conclusions

The Eurogang definition has been praised, if not necessarily as the most conceptually suitable definition of a gang, then for the attempt it makes to provide researchers with a consistent starting point in identifying, measuring and characterising youth gangs (Wood and Alleyne, 2010). There are, however, those who, from a critical perspective, consider

(1) that the Eurogang descriptors are too broad and contribute to 'over-definition', stigmatisation and criminalisation and (2) that it is an impossible and misguided task to make clear distinctions separating delinquent and non-delinquent groups (Joseph and Gunter, 2011).

Despite these concerns, our findings suggest that to a large degree the questions selected by Eurogang tend to be answered in a way that allows the identification of a homogeneous subset of respondents that for the most part matches the expectations of Eurogang researchers. In particular, the items asking respondents to report whether their peer group approves of and engages in illegal activity seem to discriminate well between young people that associate with deviant groups and those who associate with non-deviant groups.

Nevertheless, our findings also suggest that the criteria employed in the Eurogang definition are likely to conflate as gangs two distinct types of youth groups: delinquent youth groups and youth groups primarily involved in drug taking. The respondents classed in delinquent youth groups indeed have high conditional probabilities for all the Eurogang markers (i.e. street orientation, endorsing illegal acts, etc.), as well as high-to-moderate conditional probabilities for other properties considered to be '*descriptors*' but not '*definers*' by Eurogang researchers: territorial orientation, self-perception as a gang, etc. (see Table 3 for details). In contrast, those respondents included in the 'drug taking class' have low conditional probabilities for (1) any other group deviant behaviour apart from drug taking, (2) having a territorial orientation, and (3) perceiving their group as a gang. This is consistent with previous quantitative and qualitative evidence. If we had good theoretical reasons to treat groups of young drugs users as *gangs* this should not be a problem. We are not persuaded that such reasons exist; in fact, there is an obvious risk of harm in this approach regarding net-widening and stigma, particularly in the context of the normalisation of drug use amongst youth. Therefore, we believe that it is strongly advisable to adjust the Eurogang criteria, either to omit the 'drug-using' group altogether or to report separate analyses alongside those of the 'delinquent' group. To the extent that some recent large-scale research efforts (ISRD-II) do not collect sufficient information to make this discrimination, it is important to interpret their findings cautiously.

It should also be noted that, even for the class that comes closest to matching the properties of a gang – the 'delinquent' group – the conditional probabilities for group participation in a variety of criminal offences are only moderate. This is consistent with both (1) the notion of 'cafeteria-style' offending for delinquent youth groups, and (2) previous analysis of the 2004 wave of the OCJS suggesting that engagement in more serious crime (knife or gun possession, drug dealing, etc.) is rare among groups defined as gangs *in survey research*. For example, Sharp et al. (2006) indicated that, of all young people in delinquent youth groups, only 4% reported members of their group carrying guns and only 17% reported their group carrying knives. Let us not forget that by design, self-report surveys, such as the OCJS, tend to exclude young people with a particularly high risk of gang affiliation (e.g. those in youth offending institutions) and higher levels of offending.

Finally, our findings also suggest some degree of measurement variance across age; that is, the nature of the classes changes over the course of adolescence. This suggests, in particular, that the Eurogang operationalisation of gangs as *street-oriented* groups is

better suited to measure younger, as opposed to older (i.e. late teens), deviant youth groups. More generally, this measurement variance is a reminder of the very dynamic nature of adolescent peer systems. The emergence of drug use at the group level in the later teens is consistent with developmental trends on individual use of drugs, whereas the trend towards less ‘hanging out’ in the street is also in line with important changes that take place during adolescence and young adulthood. These differences are consistent with our understanding of developmental change: ‘to remain functional, the peer group has to change with the individual’ and ‘the peer system transforms to accommodate shifts in individual’s interest and relational capacities’ (Brown, 2004: 385 and 387). Some research has suggested that emphasis on individuality, as well as intimacy with romantic partners, increases as control, conformity and concerns with belonging declines; groups become less hierarchically structured around status and influence (Brown, 2004). Our finding should act as a helpful reminder that ‘the gang’ is not a homogeneous category and that we need a greater appreciation of these social developmental processes in future research on the antecedents and consequences of gang membership.

In summary, we do not think there is anything intrinsically wrong with using the Eurogang definitional items in order to produce approximations of the prevalence of delinquent youth groups, so long as (1) we understand these are just that: approximations; (2) we include questions that allow us to identify those groups of young people primarily focused on drug-taking; and (3) we recognise that requiring a street orientation is likely to capture younger (i.e. early teens) deviant groups better than older ones.

Consistent with the claims of some critics (Joseph and Gunter, 2011), we have identified some imprecision in measurement, but measurement error is unavoidable; the point is to recognise this and then strive to understand and minimise it in relation to a given problem. The strength of the latent variable modelling approach we follow here is that it allows researchers to take this error into account. We would therefore recommend using a latent class modelling approach when conducting future quantitative gang research, although as it is a complex solution it is limited in scope to large samples. Another evolving approach is not to focus so much on measuring gang *membership*, but in measuring gang *embeddedness* (also as a latent variable), that focuses on the degree of involvement in the gang (Pyrooz et al., 2012) rather than simply on membership per se.

Unfortunately, the future of this sort of survey research on gangs (and more generally, youth offending) is uncertain, at least in the UK. The OCJS was discontinued in 2006, and cognate Youth Justice Board surveys also ceased in 2009. The remaining opportunity to ask gang-relevant questions is in the CSEW, although this is with a relatively small subsample (roughly around a 1000) of 10–15-year-olds, without a panel element, and using a rigid definition that does not allow for international comparisons. So, despite the UK Coalition Government’s rhetorical emphasis on evidence-based gang policy (Shute et al., 2012), we have, in fact, witnessed a major disinvestment in the production of high-quality research data that constitutes a major part of this evidence base. The ontological project of gang research requires data as well as definitions.

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Notes

1. The clarifications in Eurogang materials further add that a gang is (1) a group (three or more individuals), (2) that has existed for at least three months, (3) that hangs out in public places, (4) with members predominantly in their teens and early twenties, (5) engages in criminal or delinquent activity (not just bothersome behaviour) and (6) for which illegal activity is normal or accepted behaviour in the group.
2. The unweighted and unadjusted point estimate is about 3% of the respondents for 2010–2011.
3. Earlier models tested used the full range of peer group offending categories measured in the OCJS (six additional indicators: use of threats, selling drugs, etc.), but presented technical problems with model estimation: violation of the assumption of local independence and very low prevalence of some of the group-offending behaviours (e.g. carrying knives or guns). Consequently, we opted for more parsimonious models solving those problems, but with remarkably similar substantive results, using only the final 12 indicators listed in Table 1.
4. It is important to highlight that the introduction to the 'gang module' devised by Eurogang starts with a question that asks respondents whether they belong to groups such as sport teams, youth clubs, scouts or any other formal groups, and only then asks about other groups of friends. The purpose of this is to make respondents aware that it is not those sort of formal groups that the questions are about.

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