

THE GROWING PAINS AND COMING OF AGE OF “BIG” GANG RESEARCH: EXPLORING THE HISTORY OF GANG SCHOLARSHIP USING TOPIC MODELING AND CHANGE POINT DETECTION

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ABSTRACT

This chapter examined turning points in the history of gang research. I build on the work of Pyrooz and Mitchell (2015) and expand their systematic review of gang research to cover the period between 1834 and 2021. Using this database, I examine trends in publication using change point detection analysis to identify turning points in the productivity of gang scholars. I then rely on Natural Language Processing (NLP) methods, topic modeling techniques, and scientometrics to explore the origin of these turning points and the evolution of subareas of interest in gang research. Gang scholarship evolved rapidly starting in the late 1980s, fostered by policy interests of the U.S. federal government, exploded in the 1990s and 2000s with the availability of longitudinal data and the internationalization of gang research, and since the 2010s has continued to grow and to exhibit impressive diversity and increasing sophistication.

KEYWORDS: gangs, research, history, topic modelling, systematic review

1. INTRODUCTION

In 1834, James Arthur Robert Stevenson published an account of the Phansigar—a group of about 60 men of “the most deliberate and decided villains that stain the face of the earth” (Stevenson 1834, 280). The Phansigar (meaning strangers in Urdu, a close language relative of Hindi) were described by British colonial officers in 19th century India as gangs of murderers who would strangle travellers using handkerchiefs “always of a white or a yellow colour, those being the favourite colours of their tutelary deity” (Stevenson 1834, 281). British colonial officers would often begin to refer to these crimes as “thugee” such groups as “thugs” from the Hindi word “thag” meaning to cheat or deceive (Wagner 2007).

In the five page document, Stevenson (1834) describes the composition of the gang (“they admit into their fraternity persons of all castes and persuasions”), their rules and values (“They were sworn to a fair division [of booty], to secrecy, and to inviolable fidelity to each other”), their interaction with the justice system (“there are but few instances of the Phansigars being convicted in a court of justice, although they have been repeatedly apprehended”), and even the motivations for gang involvement (“if we don’t *p’hansigar*, how are we to live”).

Stevenson’s manuscript is the first academic description of gangs found in Pyrooz and Mitchell’s (2015) systematic review of gang literature, which this paper seeks to extend. Even then, we can see through Stevenson’s description of many of the themes and questions modern gang scholars have grappled with. In this paper, I examine how gang research has evolved over time by analyzing its scholarly publication record. Rather than conduct a narrative review of the literature, I follow Pyrooz and Mitchell’s lead in conducting as systematic and all-encompassing review of the publication record as possible. The objective is to take a data driven approach to this review and highlight trends in productivity and focus in gang scholarship. While

systematically coding and reviewing every publication of the history of gang research would provide a more complete overview, it would be incredibly complex and labor-intensive. Instead, I use natural language processing (NLP) techniques and other data analytic techniques to examine the evolution of gang research from 1834 to 2021.

Pyrooz and Mitchell (2015) show that gang scholarship experienced incredible growth starting in the 1990s. The authors relied on the concept of “Little Science, Big Science” introduced by De Solla Price (1963), the father of modern scientometrics, in arguing that we entered the era of “big gang research” in the 1990s. De Solla Price (1963) was himself influenced by an article published a few years before by Weinberg (1961) who referred to the major scientific accomplishments of the 20th century—space exploration, particle accelerators, nuclear energy, etc.—as “Big Science”. While Weinberg does not provide a clear definition of what constitutes “Big Science”, he describes it as science that is receiving large-scale support both financially and in the popular discourse. Weinberg’s concerns were that “Big Science” would ruin science with a “triple disease—journalitis, moneyitis, administratitis” (p.162)—by judging of the merit of scientific idea in the popular press or congressional hearings rather than in scientific forums (journalitis), allocating funding and resources to big, popular projects as opposed to smaller basic science projects (moneyitis), and creating a bloated administrative structures to oversee and direct scientific efforts towards public agendas (administratitis).

De Solla Price (1963) argued that we should not be surprised by the apparent sudden transition from little to big science. In fact, the author argued that it is a fundamental law of science that scientific production should grow exponentially until reaching saturation. De Solla Price (1963) proposed that growth in science should follow a logistic curve, making the era of “Big Science” as inevitable as short—a period of transition between little science and what the

author optimistically called the period of “New Science”: “Saturation seldom implies death but rather that we have the beginning of a new and exciting tactics for science, operating with quite new ground rules”(p.32). As of 2013, Pyrooz and Mitchell (2015) showed that there were many reasons to be optimistic that growth would continue and explored the factors that led the field to an era of big gang research.

Pyrooz and Mitchell (2015) argued that the transition from little to big gang research was facilitated by generalized changes in social sciences and the fields of criminology and criminal justice in particular, such as a larger number of publication outlets and publications per issues, a turn to quantitative research, lower costs of doing research due to innovations in computing, open access to data for secondary analysis, and technologies that facilitate collaborations. The authors end their chapters with optimism for the continued growth of the discipline, primarily due to the internationalization of research on gangs and the inclusion of cross-disciplinary efforts.

An important contribution of Pyrooz and Mitchell’s chapter was their survey of key gang researchers to identify key turning points and important periods in the history of gang scholarship. They identified five important periods in the history of gang research:1)The Classic Era (Early 20th century – 1950s) generally establishing the gang as an object of empirical study most notably through the work of Thrasher’s *The Gang* (1927), 2)The Golden Era (1950s-Mid 1960s) during which “the study of gangs *was* the study of delinquency” (Pyrooz & Mitchell, 2015, p.41) with several classic theoretical treatises published, a focus on empirical theory testing, and a blending of theory and practice, 3)The Social Problems Era (1960s – to this day) when scholars began to focus more on the criminal and problematic aspects of gangs and their members, the national scope of the gang problem, and a general shift from sociological to

criminological perspectives which continues to this day, 4) The Empirical Turn (Late 1980s – to this day) which was fostered by large scale efforts to collect longitudinal data on gang members, most notably through the Causes and Correlates of Delinquency studies, and led to an increase in quantitative analyses as well as the development of life-course perspectives, 5) The International Turn (2000s – to this day) referring to the growth of research outside the United States, in large part due to the Eurogang program of research.

The use of surveys for the purpose of mapping the history of gang scholarship and important turning points provides great insights, especially for the earliest periods. This is consistent with De Solla Price's theory: during “little gang research”, it is relatively easy to be aware of most of the important ideas, innovations, and perspectives in the field. However, such an approach becomes problematic as the field transitions to “big gang research”. An important characteristic of “Big Science” is that it becomes exponentially more difficult to be aware of all of the research that is being produced in our own field. This could explain why survey respondents identify more turning points and more definite periods with clear signpost in the early days of gang research and fewer turning points and indefinite periods in later periods.

In this chapter, I set out to explore what fueled growth in gang research and examine whether these turning points in the productivity of gang scholars lead to changes in the makeup of gang scholarship. Growth in scientific publications can indicate an increase in interest in the topic which can be driven by internal or external factors to a discipline. Internally, new discoveries can stimulate growth by opening up new avenues of research, which may cascade into even more new research and even specialization over time. Externally, social changes or discoveries in other fields can drive interest in a given area of research by injecting more

resources into the field and increasing the number of scientists willing to dedicate their time to the topic, particularly students choosing to focus on an area for their dissertations.

Growth can also be reflective of changes in the way science is being conducted more generally. For instance, an increase in the number of scientific outlets, changes in the pressure to publish and other norms regarding career advancements (e.g. value of journal articles vs. books), and a shift from solo publications to team science are all factors that could lead to growth in a field, even if the field in question does not appreciatively evolve in its substance or popularity. Therefore, growth or productivity are not inherently good or bad for a discipline and they are not necessarily a gauge of scientific advancement. However, I posit that changes in productivity—especially those with sudden onset leading to sustained levels of productivity—are likely to have root causes that can tell us much about the evolution of a discipline. It is through this lens that I explore the history of gang research in this chapter.

2. CURRENT STUDY

With the benefits of eight additional years of gang publications since Pyrooz and Mitchell's analysis, an important goal of this chapter is to investigate whether gang scholarship has indeed continued its trajectory into big gang research. Furthermore, given the difficulties inherent in identifying turning points and provide a complete overview of gang scholarship given the volume of research, I rely on computational tools to identify both turning points in the productivity of gang scholars and to explore the evolving composition of gang research. My goal is to build on the work of Pyrooz and Mitchell (2015) by examining sudden changes in the productivity of gang scholars and examine the composition of research produced between these changes in the hope that it will shed light on the causes for these shifts in productivity.

To identify turning points, I rely on change point detection (CPD) methods. CPD is a technique that identifies abrupt disruptions in time-series where the properties of the series (e.g. its mean and variance) change. CPD is often used to identify anomalies in the monitoring of medical conditions (e.g. heart rate, electroencephalogram), abrupt climate change, or speech pattern recognition (Aminikhanghahi and Cook 2017). By applying this technique to the volume of yearly gang publications, I can break down the history of gang scholarship in slices of time punctuated by abrupt changes. These change points—which I call turning points—reflect rapid but sustained changes in the publication pattern of gang scholars. The assumption is that these changes are caused by exogenous or endogenous factors that stimulate or decrease the intensity of gang research. This approach also identifies periods in between these turning points of relative stability, either in the mean of a time-series or its variance.

An important point of departure from Pyrooz and Mitchell's (2015) quantitative analysis of growth is that the CPD model is applied on the yearly count of publications, rather than the cumulative count of publications they use to identify a major turning point in the growth of gang scholarship. The authors point to 1993 as the beginning of the transition from “little gang research” to “big gang research” on the basis that it marks the largest year-over-year growth rate in the history of gang research. Furthermore, Pyrooz and Mitchell (2015, p.35) argue that there is “little reason to draw attention to the first half of the twentieth century [...] [because] the size of that body of research pales in comparison to what took place in the beginning of the 1990s”. While it is clear that the 1990s saw a dramatic change in productivity, 1993 is the end point of this change. A goal of this analysis is to shed light on the conditions that led to the rapid growth in 1990s (and other periods) which requires the identification of the beginning point of this change. Moreover, other important shifts in productivity may have occurred in the earlier and

later in the history of gang research that may be masked by the size of the shift in productivity in the 1990s, but are nevertheless meaningful.

To shed light on how gang scholarship changes at and between these turning points, I use NLP techniques and topic modeling to explore how the interest and attention of gang scholar shifts over time. These techniques allow me to efficiently classify thousands of journal articles into groups of topics within gang research. By doing so, I am able to explore what areas of gang scholarship are most responsible for changes in productivity, how research interests have evolved over time, whether new topics emerge at specific points in time, and generally how gang research diversifies over time.

In the next sections, I describe the methodology used to expand the systematic search of gang studies conducted by Pyrooz and Mitchell, the development of the topic model, and the implementation of the change point detection algorithm.

3. METHODOLOGY

3.1 Data collection and coding

The main goal of this paper is to expand the review conducted by Pyrooz and Mitchell (2015), which covered all gang-related research published until 2013. Pyrooz and Mitchell gave me access to the list of documents they identified in their original search and I replicated their methodology to add to that list any documents published between 2014 and July 2021. Below is an overview of the methodology used for the expanded search and refer interested readers to Pyrooz and Mitchell for a more detailed description of the methods used for the earliest time periods.

In order to remain consistent with the previous search, I used the same search strategy and inclusion criteria as Pyrooz and Mitchell (2015). We relied primarily on Google Scholar

(GS), looked for search terms gang OR gangs included as part of the title of the article, and conducted the search by year. Although restricting the search to articles with keywords in the title is an important limitation, this strategy was necessary due to GS limiting the search results returned from a query to 1,000. A query producing a number of results above this threshold would introduce bias due to GS's sorting algorithm, above which little public information is available. For instance, searching GS for documents published in 2021 using gang* OR gangs* "anywhere in the article" produces an estimated 106,000 results, whereas limiting the search "in the title" produces 558 results. However, for studies published before 1993, the setting "anywhere in the article" was used since the number of search results for yearly searches was below the GS result threshold. Pyrooz and Mitchell (2015) also supplemented their search with searches of Web of Knowledge (now Web of Science [WoS]) using the same search criteria described above.

The greatest concern with this approach is that studies that might be relevant to this review might not include the string "gang" as part of the title. I supplemented the updated and Pyrooz and Mitchell's initial searches with Web of Science (WoS, previously known as Web of Knowledge). Using the same keywords, I used the "topic" setting to refine the results which directs the search engine to look for keywords in titles, abstracts, author provided keywords, and KeyWords Plus¹. Even after the inclusion of these articles and the removal of duplicates, the majority of articles (93.7%) in the final database includes the string "gang" in their titles.

Following the work of Pyrooz and Mitchell, I excluded articles that were primarily discussing chain gangs, gang rape, motorcycle gangs, and other organized criminal groups (e.g.

¹ KeyWords Plus are based on a proprietary algorithm which generates keywords from "words or phrases that frequently appear in the titles of an article's references, but do not appear in the title of the article itself" (Clarivate, 2022, https://support.clarivate.com/ScientificandAcademicResearch/s/article/KeyWords-Plus-generation-creation-and-changes?language=en_US)

mafia) unless they included a comparative element with gangs that met the Eurogang definition: “any durable, street-oriented youth group whose involvement in illegal activity is part of its group identity” (Weerman et al. 2009, 20). I also excluded conference presentations, book reviews, news articles, and grant proposals from the results, and included all articles published in English or at the very least provided an English translation of the title and abstract of the article.

Each entry was extracted from GS and entered in a Zotero database. Research assistants reviewed each entry to remove duplicates and articles not meeting our search criteria, as well as classifying entries in 7 types of documents: 1) scholarly journal articles, which includes articles in peer-reviewed publications, 2) book chapters or encyclopedia entries, 3) reports (e.g. government reports, white papers, etc.), 4) dissertations and theses, 5) trade publications (e.g. specialized magazines and non-peer-reviewed journals of professional associations), 6) books, and 7) others (e.g. unpublished manuscripts, conference papers, etc.).

3.2 Topic modeling

To identify subareas in gang research, I used NLP techniques to clean and analyze the titles and abstracts of journal articles. Specifically, I used a technique called topic modeling using the python package BERTopic (version 0.10.0; Grootendorst 2022). This topic modeling technique is an unsupervised machine learning technique, meaning that the model can extract meaningful categories of documents without requiring any kind of a priori classification of these documents into a set of categories (i.e. training set). This is advantageous from both a practical and analytical perspective. From a practical standpoint, the sheer number of documents would require a considerable amount of time and effort to generate a classification. From an analytical standpoint, using a data-driven approach to identify subareas of gang research avoids potential biases associated with the a priori creation of labels. As we will see below, the growth of gang

scholarship has been associated with an impressive diversification of subtopics investigated.

Given the size and complexity of modern gang research, it would be foolish to expect even the most well-read gang scholar to be able to keep up with the pace of progress in the field.

The goal of topic modeling is to extract a set of coherent topics from documents by examining co-occurrences of certain words or common multi-word expressions (e.g. n-grams) across the entirety of the set of documents. BERTopic is an algorithm that incorporates three stages: 1) Document embedding, 2) Document clustering, and 3) Creation of topic representations. Document embedding creates a numeric representation of documents using a type of neural networks architecture called transformers. Transformers are based on pre-trained models and can learn the meaning of text by examining the use of different words in context. As the name suggest, BERTopic relies on a version of the BERT (Bidirectional Encoder Representations from Transformers; Devlin et al. 2018) called SBERT (Sentence BERT; Reimers and Gurevych 2019). Once embedding is complete, the algorithm reduces the dimensionality of the embedding of the documents using UMAP (Uniform Manifold Approximation and Projection) and then does a cluster analysis of the documents using the HDBSCAN algorithm to create clusters of topics. Finally, BERTopic creates representations of topics using a class-based version of the term frequency-inverse document frequency (TF-IDF) metric. C-TF-IDF quantifies the relative importance of any given word within a class of document (in this case, a cluster of documents returned by the first two steps of the algorithm) relative to its frequency in all documents.

Topic modeling, of course, is nothing more than that: a model. In this context, there are many caveats to consider before interpreting the findings of topic models. First, the texts used for the analyses are limited to the title and abstracts of these articles. The main reason for this

decision is simple: extracting thousands of pdfs from paywalled publisher websites is a cumbersome task to do manually, and often too complex to accomplish via automation (e.g. web crawlers). Abstracts in peer-reviewed articles are typically publicly accessible, which allowed us to automate their extraction. From an analytical standpoint, while using abstracts limits the amount of information we can leverage about each article, it also has several advantages over using full texts for our analyses. When well-designed, titles and abstracts should be reflective of the main focus of the documents. Full texts on the other hand include several sections that may not be useful for the purpose of classification. For instance, literature reviews often cover several topics of prior research that are only tangential to the article's actual focus, which could make it difficult to properly classify documents.

Second, relying on abstracts limits the analysis to articles in some types of scholarly journals ($n=2,722$). For instance, articles in law review journals often do not include abstracts which led me to exclude law review articles altogether (8.2% of articles). Furthermore, many older articles often did not include abstracts and machine-readable text from these articles were often more difficult to extract as they tend to be published in pdf formats of lower quality. To ensure that my models are not overly biased against older articles, I used optical character recognition (OCR) wherever possible to transcribe the first few paragraphs of articles without abstracts. Of the 2,498 articles excluding law reviews, abstracts could not be found for 7.5%. Those missing abstracts are disproportionately from older articles: while papers published before 1990 make up 9.5% of all articles, they make up 22.3% of the articles without abstracts. The final number of articles used for the topic model is 2,311.

Third, the model we used assigns articles to a single topic based on a probabilistic model. Some articles may not neatly fit into a single topic, either because they cover several topics or

because the topics they cover are quite unique. We explored other topic modeling strategies such as Latent Dirichlet Allocation (LDA) models, which assigns multiple topics with a certain probability to each document. The results from these models were difficult to interpret and did not create useful categories, perhaps because such techniques perform better on longer documents. That said, the BERTopic model does not force articles into topic categories if the probability of assignment to any topic is too low or if more than one topic has a high probability of assignment. The initial model could not classify 25.4% of articles. However, upon manual inspection of the assignment probabilities of the model, many of these articles were assigned to one of the 2 topics with the highest assignment probability (61.1%). After manual assignment, a little under 10% of articles (n=228) could not be classified in any specific topic.

3.3. Change point detection

To identify turning points, I used a time-series analysis technique called change point detection (CPD), which is an algorithm that breaks down a time-series into segments whose points have similar statistical properties (i.e. mean and variance). By doing so, I can identify important changes in the time-series and the periods of stability they intersect. I used the binary segmentation algorithm (Edwards and Cavalli-Sforza 1965) implemented in the *changepoint* (version 2.2.3) R package (Killick et al. 2022) to identify important changes in the overall trend in publishing. For this analysis, I focused on the number of documents published yearly between 1920 and 2021 (only 10 articles were published before 1920). I also restricted the algorithms to identify change points separated by at least 3 or more years to avoid capturing single year outliers.

3.3. Organization of the analysis and discussion of findings

The analysis and discussion of the findings is organized as follows. First, I describe the database of gang scholarship Pyrooz and Mitchell and I have created. Second, I report on the findings of the CPD model and examine growth rates in the cumulative growth of gang scholarship and compare these trends with other trends in the general sciences and criminology, more specifically. Third, I explore the years of entry to gang scholarship of the most productive gang scholars. Fourth, I describe the results of the topic model. Fifth, I combine these different analyses to describe each of the periods identified by the CPD model. It is important to note the identification of periods of gang scholarship is strictly based on the results of the CPD model, not the topic model. I use the topic model to describe qualitative differences between periods identified by the CPD model. Finally, I discuss the findings and propose some explanations for important shifts in productivity over the history of gang research.

4. RESULTS

4.1 Growth in gang scholarship and identification of turning points

The search yielded a total of 6,452 documents published between 1834 and 2021 from 6,149 unique contributors. Of those documents, 42.2% were scholarly journal articles, 15.6% were book chapters or encyclopedia entries, 12.4% were various types of reports, 12.4% were dissertation and theses, 7.6% were articles published in trade publications, and 6.0% were books. The remaining 3.8% was made up mostly of unpublished manuscripts and conference papers.

Figure 1 shows the evolution of scholarly publication on gangs over time. The most striking observation are two incredible periods of growth in gang research—the first starting in the late 1980s and the second starting in the late 2000s. Although the earliest document found was published 189 years ago, over 90% of all gang scholarship was produced since 1990, and over 45% was published in the last decade. Pyrooz and Mitchell (2015) identified the 1990s as a

key turning point in the study of street gangs. The authors also honed in on the year 1993 as a watershed moment for the field. They also noted a slowing of the growth rate during the 2000s. With an additional 8 years to add to their data, we can examine whether this trend continued.

<INSERT FIGURE 1 – DISTRIBUTION OF PUBS BY TYPE>

When considering all publications, the CPD analysis revealed four important change points: 1956, 1987, 1991, and 2008 (Figure 2). These change points therefore reveal 5 periods of potential importance in the history of gang research, some of which reflect the periods identified by participants in Pyrooz and Mitchell's (2015) survey of prominent gang scholars.

<FIGURE 2 – CPD RESULTS>

When looking at the cumulative count of gang publications since 1950, we find that the average growth rate of the gang literature is 6.0% per year, meaning that on average, the gang literature doubles in size every 11.9 years. Of course, as the results of the CPD analysis suggests, growth is not constant over that period: between 1988 and 1991, the average growth rate was 10.7%, compared to 4.3% between 1920 and 1956, 5.8% between 1957 and 1987, 9.0% between 1992 and 2008, and 5.2% between 2009 and 2021. Reflecting on the literature up to 2013, Pyrooz and Mitchell (2015, p.35) concluded that “gang research has entered into a period of decelerating growth”. This study confirms this prediction: since 2003 the year-over-year growth rate was at its highest in 2013 (6.5%), and has averaged between 5.0% between 2014 and 2019, though has been consistently below 5% since 2017. The growth rate plummeted to 2.5% in 2020 but returned to 4.3% in 2021.

A recent study places the average growth of natural and life sciences around 4.10%, with an average growth of 5.08% since the 1950s (Bornmann, Haunschild, and Mutz 2021). Few studies have assessed growth in social sciences specifically, but Larsen and von Ins (2010) found

a growth rate between since the 1990s between 2 and 7% depending on the database used. To compare growth in gang research to similar fields, I extracted search results from WoS for the number of records per year for studies indexed under “Criminology and Penology” and “Sociology” (excluding studies overlapping with Criminology and Penology). The yearly and cumulative counts of publications for these two disciplines and for gang research are shown in Figure 3.

<FIGURE 3 – COMPARISON OF FIELDS GROWTH>

Over the entire period, the rate of growth of gang research is slightly higher than criminology and penology (5.26%) and sociology (5.01%). For sociology, the best years for growth were in the 1920s with double-digit increase between 1923 and 1927, steadily declines to between 3 and 5% by the 1940s, returns above 5% in the late 1960s through 1980, and has been hovering between 2 to 4% since. For criminology and penology, the only double-digit growth rates were between 1975 and 1977, and by 1985 would remain below 4 % until the late-2000s, where it would climb between 6 and 7% and remain stable to this day. Interestingly, unlike for gang research neither criminology and penology or sociology’s growth rate would dip appreciatively in 2020. One would expect that if the Covid-19 pandemic was responsible for the loss of productivity in gang research, the same pattern would be seen in the other disciplines.

Although these indicators are relatively crude indicators of productivity in related fields, they provide some insights as to what changes in the productivity of gang research are due to larger trends in social sciences more broadly. While the growth observed in gang research in the late 2000s seem to be reflected in the criminology and penology literature, the period of growth that occurs in the late 1980s and early 1990s seems to be unique to gang research.

Periods of growth in gang research appear to be associated with a widening of the field in terms of the number of new gang scholars. Figure 4 shows the growth in the new gang scholars using two metrics to define what I call a “new gang scholar”. Each node on the timeline is colored according to the number of scholars who published their first book or journal article that year. Most of these scholars would probably not consider themselves “gang scholars” since for 46.1% of the 3,648 scholars who published gang books and/or journal articles, their first will also be their last (in gang research, to date).

For the purpose of this figure, I define a gang scholar as someone who has published at least 4 gang-related books and/or journal articles (at or above the 95th percentile for the number of publications per author in the database). Furthermore, a “new” gang scholar simply denotes the year of the first publication in our database (any type of publication)². In total, 232 individuals fit this definition. While these individuals represent 3.8% of all contributors to the gang literature, they have collectively contributed 2,080 documents (32.24%), including 1,134 journal articles (41.7%) and 138 books (35.7%)³.

Prior to 1991, the field had never welcomed more than 3 “new” scholars in a single year. In each of 1991, 1992, and 1993, 10 gang scholars made their first entry to gang scholarship, surpassing in three years the number of new gang scholars between 1951 and 1990 (26). The 1990s would see a high of 11 new scholars in 1998 and a total of 70 new gang scholar. The 2000s would produce 5.4 new scholars per year with a low of 2 (2003) and a high of 9 (2009) and a total of 54 new scholars. By far, the two largest cohorts of gang scholars would come in

² The label “new gang scholar” is used as a convenient shorthand for “scholar who published a number of books and journal articles on gangs included in our database above the 95th percentile of the total number of articles, on a given publication year included in the search result for the article”. I found it more succinct from a writing standpoint, and mean no offense to those who would not choose to self-identify as such.

³ It is entirely possible, nay highly likely, that the year of first publication for some researchers may not be accurate. This can be due to the search strategy missing an earlier article, the citation data retrieved being inaccurate, or errors in the merging of different version of an authors’ name across different citation styles.

2010 (17) and 2011 (18)⁴. These periods of growth in new gang scholars tend to be consistent with the periods of growth in overall production observed in Figure 1.

<FIGURE 4 -TIMELINE OF SCHOLARS>

Such growth in the number of publications and gang scholars is likely to be reflected in the diversification of topics in gang research. Before examining these 5 periods identified by the CPD model in more depth, I provide an overview of the topic model for journal articles.

4.2 Topics in gang scholarship and their evolution

The topic model identified 43 topics from the titles and abstracts of articles on gangs. The first step in interpreting the results of the model was to create labels for each of the topics. To do so, I relied on two key pieces of information from the model: the keywords returned as topic representations, and the assignment probability of articles to each topic. The topic representations of the model are computed using class-based term frequency-inverse document frequency (cTF-IDF) of words and phrases in documents. The cTF-IDF metric indicates how frequent a given word or phrase is used in articles in this topic, compared to its frequency in articles of all topics. In other words, it identifies words that discriminate well between topics. While these keywords can be useful in labeling the topics, it is important to note that cTF-IDF can be misleading, sometimes putting too much weight on words and phrases that are unique to

⁴ Changing the cut-off from 4 or more articles (95th percentile) to 3 or more articles (90th percentile) adds 147 scholars to Figure 4, though the conclusions remain similar: no more than 3 new scholars in any given year prior to 1990, a notable increase in 1991 (13), 1992 (15), and 1993 (14), and 2010 and 2011 are also by far the largest cohorts. The most notable difference is in 2002 where 17 new scholars would be included using the 90th percentile, compared to 3 using the 95th percentiles. However, at least 8 of these 14 additional scholars would be included because they are part of large research teams who have publish 3 articles on a single project. The cut-off of 4 or more articles reaches a good balance between inclusion of the majority of scholars who have dedicated significant proportion of their time to the study of gangs, and those who have contributed to the gang literature because of overlap in their main areas of interest. The approach is not perfect: some scholars barely miss the cut-off and probably would be include if this review was completed in the next year or two (e.g. Ellen Van Damme, Adrian Huerta, Elke Van Hellemont, Sally Atkinson-Sheppard) and some are included that probably would themselves agree that they do not fit the label (e.g. Alex Piquero).

the topic but are poor descriptors. For instance, the keywords for the topic 25 (*Police perspectives on the proliferation of gangs*) include “North Carolina” because several studies conducted by researchers based in North Carolina are included in this topic (e.g. Yearwood & Rhyne, 2007). Furthermore, these keywords are often extracted from their meanings and require more context. For instance, both topics 2 and 15 include the keywords “sex” and “sexual”, but topic 2 refers to sex and sexual in the context of differences between males and females, whereas topic 15 focuses on risky sex practices and sexual harassment.

To put these keywords in context, I used the assignment probability which refers to the probability that a given article belongs to any given topic in the model. Many articles (34.8%) are core members of their topics and are assigned the probability 1, which indicates that their titles and abstracts include words and phrases that are uniquely link them to other articles in their topic and discriminate between other topics. Therefore, these articles can be considered “archetypes” of each topic, and each were reviewed to create the topic labels. Table 1 provides a list of the 43 topics returned by the model, along with the cumulative distribution of each topic over time, and a representative article. The representative article in Table 1 was chosen based on two criteria: 1) the article’s representativity according to the model (probability=1), and 2) citations per year. It is important to note that the representative article is not necessarily the most cited article within each topic, but rather the most cited articles with a topic assignment probability of 1. A star next to the reference indicates when the article is both among the most representative and most cited within each topic.

<INSERT TABLE 1>

Figure 5 shows the distribution of the topics over time between 1920 and 2021. Most topics follow the overall trends in publishing discussed previously with a few notable exceptions. A

striking observation from Figure 5 is the incredible diversification of gang research over the last 30 years in terms of the number of topics.

<FIGURE 5 – DENSITY TOPIC GROUPS OVER TIME>

4.3. Turning points in gang research

In the following sections, I discuss each of the 5 periods identified by the CPD model. For each period, I will explore the level of productivity associated with the period, examine some of the most cited publications from these periods, and describe the most prevalent topics during each period. I also illustrate the focus of gang scholars using word clouds representative of the period. For each period, a figure will contain two sets of word clouds representing all publications in this era, not restricted to journal articles. The top set of words simply represent the 100 most common words used in abstracts and titles of publications of this era, with the sizes of the words representing their relative frequencies. The bottom set of words represent 100 words that most uniquely represents publications of this era using cTF-IDF. The sizes of the words in this second word cloud represent the relative frequency of the word during this period compared to other periods.

<FIGURE 5 – TOPICS BY PERIOD>

4.3.1 1920-1956

The first period spans the 1920-1956 period and somewhat aligns with the era Pyrooz and Mitchell (2015) identified as beginning in the early 20th century and ending in the 1950s they called the “Classic era”. This period is one punctuated by many important historical events that had dramatic effects (e.g. the Great Depression, World War II, and the beginning of the Cold War) on all aspects of life including the conditions that gave rise to the emergence of gangs in urban areas, and structural changes in academia which made the study of gangs possible. Of

course, the phenomenon of gangs in the United States predates the 1920s by at least over a century (Adamson 2000; Howell 2015). However, the early decades of the 20th century were marked by waves of immigrations from Europe to Northeastern and Midwestern US cities, which saw the emergence of white ethnic gangs, which would eventually be replaced by African-American gangs as the Great Migration would substantially change the composition of major east coast city, Chicago in particular. The 1920s also mark the height of the influence of the Chicago School on American sociology (Martindale 1976; Cavan 1983). The convergence of the rapidly changing urban environment and the emergence of the Chicago school generated the conditions that would fuel the beginnings of gang research, but also a large part of its history throughout the 1950s and 1960s.

Table 2 shows the most highly cited books and articles published during this period⁵. Scholars often point to the publication of Thrasher's *The Gang* (1927) as the first signpost in the history of gang research. The influence of Thrasher's work on contemporary gang research is undeniable: *The Gang* has been cited 4,403 times, and average of 46.3 per year since its publication, making it the 3rd most highly cited document in the history of gang research. However, our analysis shows that Thrasher's classic did not have a statistically discernable impact on the number of gang publications. Figure 2 shows that the number of publications on gangs in the three decades that followed its publication remained relatively stable. The delayed impact of *The Gang* can also be seen in the fact that the manuscript was only cited 121 times between 1927 and 1957—an average of 4 citations a year. This may be due to the timing of the publication as the Great Depression followed by World War II likely affected academic

⁵ Citation counts for this table and all subsequent tables were collected from Google Scholar as of May 2022. Books or articles with less than 10 citations were removed from those tables.

productivity, therefore citation counts. When considering the number of citations per year the book received, it ranks as the 14th most highly cited gang book.

<TABLE 2-MOST CITED 1920-1956>

Another notable publication to come out of this era is Whyte's *Street Corner Society* (1943), by far the most highly cited publication of the history of gang research (9,618; 121.7 per year). Interestingly, *Street Corner Society* had a similar impact as *The Gang* when it first came out in 1943. Although now considered a classic of sociology, the first edition garnered little attention in academic circles and sold very few copies until it was re-issued in 1955 (Whyte 1993).

While the work of Thrasher and Whyte would eventually have a great influence on gang scholarship and beyond, theirs are the only notable publications of this era that averaged 1.7 publication per year, most of which have remained in relative obscurity. Arguably, a more important milestone of gang research—at least to scholars active at the time—comes at the very end of this period with the publication of Cohen's *Delinquent Boys* (1955). Cohen's book is the second most cited document with 8,022 citations (118 per year) and, unlike its predecessors, *Delinquent Boys* was immediately influential generating both praise and critiques in academic circles (Cavender 2010). This is reflected in 305 citations the book received in the first 10 years following its publication. Combined with the reissue of Whyte's *Street Corner Society*, the publication of Cohen's *Delinquent Boys* in 1955 marks an important turning point when it comes to productivity in gang research.

The earliest period of gang research was dominated by the *Group life, socialization, and street corner groups* (40.7%) topic and a handful of studies on *Delinquent subcultures and gang behavior* (11.1%). Figure 6 shows that the words “boy”, “group”, and “behavior” are both a

frequently used words, and words that are unique to this period relative to others. Words like “clique”, “child”, “character”, “society”, and “warfare” are lower in frequency than other words, but they are far more likely to be used during this period than in other periods. These words like reflect the concerns of this area related to the formation of cliques in the period between childhood and adulthood, their adjustment to society (see additional words such as “adjustment”, “conformity”, “acceptance”) and their involvement in “gang warfare” (e.g. Emory S. Bogardus 1943). While crime, violence, and other problems were in the minds of gang scholars of the time, it is clear that much of the research of the time, following Thrasher and the Chicago School, was more interested in describing young boys natural inclination to form groups, the psychological and personality characteristics of young people in gangs, and the neighborhood and societal conditions associated with street corner groups.

<FIGURE 6 – WORD CLOUD 1920-1956>

4.3.2 1957-1987

The second era identified covered the 1957-1987 period and encapsulates two periods Pyrooz and Mitchell (2015) called the “Golden era” and the “Social problems era”. Although the number of publications during this period pales in comparison to the later periods, the “Golden/Social Problems era” is the most pronounced increase relative to prior periods. While the 1920-1956 era averaged 1.7 publications per year, the period between 1957 and 1987 averaged 13.03 publications per year—a 666% increase over the previous period. This era includes the publication of some of the most influential works in gang research (see Table 3): Miller’s *Lower-class Culture as a Generating Milieu of Gang Delinquency* (1958), Cloward and Ohlin’s *Delinquency and Opportunity* (1960), Yablonsky’s *The Violent Gang* (1962), Short and

Strodtbeck's *Group Processes and Gang Delinquency* (1965), Suttles' *The Social Order of the Slum* (1968) and Klein's *Street Gangs and Street Workers* (1971).

<TABLE 3 -MOST CITED 1957-1987>

Although there is no denotable shift in productivity, there are good reasons to identify two qualitatively distinct periods during this era, as Pyrooz and Mitchell do. An important shift occurs in the *focus* of gang scholars from the late 1950s and 1960s to the later work of the 1970s and 1980s. We can see a hint of this evolution in the sequence of classic works listed in the previous paragraphs: research from the early years of this period focus on theoretical explanations of gang delinquency while later works focus on addressing gang delinquency. While *Group life, socialization, and street corner groups* remain an important topic of interest during this period (14.4%), it is surpassed by *Delinquent subcultures and gang behavior* (23.0%). Many new topics begin to emerge during this period, most notably *Chicano communities, Latino gang, and marginalization* (6.5%) and *Women and girls in gangs* (6.5%).

We also see the emergence of a concern for the problems gangs might pose for society as studies on *Public policy and perceptions of the gang problem* (4.3%) and *Prevention, intervention, and gang control* (3.6%) make up 7.9% of the research of this era. This is also reflected in the word clouds of articles of this period with words such as “delinquency” and “problem” (Figure 7). The continuing quest to explain but also test theoretical proposition about gangs and delinquency are represented by words like “theory”, “class”, “subculture”, “difference” and “observation”, but the emergence of community-based and social work approaches to gang delinquency is evident with terms like “worker”, “community”, “work” (often referring to social work), “staff”, “service” and “program”. Many of the words also

reflects scholars' interest in group processes: "cohesiveness", "leader", "structure", "process" (as in group processes), and an emergent interest in female gang members ("female", "girl").

<FIGURE 7-WORD CLOUD 1957-1987>

As we will see, this is only the beginning of gang scholars' concerns with addressing gang delinquency and, in later periods, will be at least partially responsible for increases in production. The turn to what Pyrooz and Mitchell called the "social problems era" was not associated with an increase in production but a qualitative shift in the focus of gang scholars. The 1957-1987 period was one where few new gang scholars emerged (see Figure 4) suggesting that this focal shift in gang research was the doing of the same few scholars who developed and tested theories in the 1950s and 1960s, now redirecting their efforts to solving problems they observed.

The end of this period will also see the beginning of the diversification of gang scholarship. With the publication of her paper *Honor, normative ambiguity and gang violence* (Horowitz and Schwartz 1974), Ruth Horowitz was the first female gang scholar to make a lasting impact on gang research. In the years that followed, a quick succession of highly influential women would make their first contributions to gang scholarship: Joan W. Moore (1978), Anne Campbell (1978) and Cheryl Maxson (1983). In 1983, James Diego Vigil—the first non-white gang scholar to make a lasting impact on the field—made his first contribution to field. It is likely not a coincidence that a slight increase in diversity of the field was associated with an increase in the diversity of the topic studied, most notably, in the emergence of the first studies focused on female gangs and members and an increase in the study of Chicano and Mexican-American gangs and communities. Whereas studies between 1920 and 1956 covered 9 distinct topics, that number would jump to 22 between 1957 and 1987.

4.3.3 1988-1991

The third period identified is also the shortest and covers the period between 1988 and 1991. The period is characterized by both a sudden level shift of the time series in 1988—from an average of 13.03 between 1956-1987, to an average of 54.25 between 1988-1991—and large within-period increase (109% increase between 1988 and 1991). Although this is not a period identified by Pyrooz and Mitchell (2015), it leads up to the major turning point they identified in 1993, which they attribute to the rise of longitudinal surveys conducted in the late 1980s and 1990s, eventually leading to an ongoing “empirical turn” of gang research. Pyrooz and Mitchell do, however, point out that “between 1988 and 1992, the rate of doubling [in the cumulative growth of gang research] dropped down to five years or less” (p.35). After nearly 30 years of relatively slow, stable growth, it is undeniable that *something* happens in the late 1980s to spark the production of an impressive amount of gang scholarship during a very short period.

Most studies published during this period were concerned with the control of gangs and gang members: *Gangs and gang membership in prisons and jails* (16.2%) and *Public policy and perceptions of the gang problem* (13.5%) are the two largest topics of this period. Other studies focused on the violence (*Place-based, temporal, and network analyses of gang homicides*) and gang-drug connections (*Drug selling and substance use*) with 8.1% each. However, focusing on peer-reviewed articles may be somewhat missing the point for this period. The 1988-1991 period is the only period where the number of reports (66) surpassed the number of journal articles (51) (see Figure 1). To put this number in perspective, the database only includes 59 reports published between 1840 and 1987. Reports have the potential to be published far quicker than peer-reviewed publications, which could explain in part the abrupt rather than gradual change of this era.

While this could be seen as a continuation of the “social problems” era beginning at the end of the 1957-1987 period, Figure 8 shows just how different the policy focus of the 1988-1991 period was from the community and social work approaches of the 1970s and 1980s. Table 4 shows that while some of the most influential work of this period advanced theoretical understanding of gangs, many focused on the interplay between gangs and drugs (e.g. Klein, Maxson, and Cunningham 1991; Fagan 1989; Skolnick et al. 1990) and gangs’ involvement in violence (e.g. Curry and Spergel 1988; Taylor 1990).

<FIGURE 8 – WORDCLOUD 1988-1991>

<TABLE 4 -MOST CITED 1988-1991>

4.3.4 1992-2008

After the explosion of research in the previous period, the 1992-2008 period sees the production stabilize at its highest level up to this point in its history. During this period, the yearly average number of publication (152.29) almost tripled the mean production of the previous period (54.25) and was 11.5 times greater than the 1956-1987 period. A notable characteristic of this period is an explosion in the diversity of topics in gang scholarship. By this period, no single topic made up more than 10% of the research published, with *Women and girls in gangs* (7.4%), *Gangs in the Central and South American contexts* (5.8%), *Peer effects, differential association, and social learning* (4.6%), and *Prevention, intervention, and gang control* (4.5%) being the most common topics. Up to this point, the model had only detected 26 different topics over the entirety of the gang literature with 49.7% of all articles falling under 5 topics. In this period, 18 new topics emerged (total: 45), and all but 2 topics contributed less than 5% of the total output of the period. Pyrooz and Mitchell (2015) argued that after 1993, gang

research moved from “little” to “big” gang research. The diversification of gang studies during this era reinforces their assessment.

<FIGURE 9 – WORDCLOUD 1992-2008>

The trend that began in the 1988-1991 period continues with a relatively heavy emphasis on the gang “problem”. Figure 9 shows an emphasis on the words “drug”, “crime”, “violence”, “problem”, “crime”, and “homicide” in the abstracts and titles of articles published during this era. This is also reflected in the highly cited research from this period with several articles focusing on violence, drugs, and policing (Table 5). This emphasis on the problematic aspects of gangs are reflected in some of the new topics that emerge for the first time: *Gang units, intelligence, and police perceptions of gangs* (2.6%) and *Civil gang injunctions and trust in the police* (1.1%).

<TABLE 5 – MOST CITED 1992-2008>

We also begin to see a shift towards individual-level analyses, in part due to the influence of longitudinal research discussed previously and many school surveys in this era in Table 5 and Figure 9. Words like “member”, “membership”, “school”, “involvement”, “family”, “risk” and “factor” in the TF-IDF word cloud shows a shift in the focus towards the individual gang member compared to previous period. Furthermore, some of the new topics that emerged in this period are consistent with an individual-level approach to gangs: *Predictors of gang membership* (1.9%) and *Gang joining, leaving, and embeddedness* (1.0%). The growth of longitudinal individual-level analyses came at the expense of studies of group processes and subcultures that once dominated prior periods: the proportion of studies classified under the *Group life, socialization, and street corner groups* and *Delinquent subcultures and gang behavior* topics

made up, respectively, 16.4 (34 studies) and 17.9% (37 studies) of the topics before 1992, but make up 2.8 (25 studies) and 0.7% (6 studies) of the literature between 1992 and 2008.

It is difficult to truly quantify the impact longitudinal surveys had on gang research during this period using topic modelling since longitudinal studies do not fall neatly in topic groups. However, individual-level analyses that have benefited most from longitudinal surveys typically fall in the *Peer effects, differential association, and social learning* (4.6%), *Predictors of offending and violent victimization* (2.1%), *Predictors of gang membership* (1.9%), and *Gang joining, leaving, and embeddedness* (1.0%). Together, these topics make up 9.6% of the literature on gangs during the 1992-2008 period.

Another trend that begins to emerge in this period are topics related to research outside the United States. Among new topics in this period are: *Gangs in the Central and South American contexts* (5.8%), *Gangs in the Canadian context* (1.4%), *Gangs, globalization, and armed groups* (0.9%), and *Latin gangs in Spain* (0.7%). When combined with *Gangs in the UK and European contexts* (2.9%) and *Gangs in the African, South Asian, and Caribbean* (1.8%), at least 13.5% of the research published during the 1992-2008 reflects research in the international context, compared to 4.3% for any period before 1992. Such an increase is no coincidence given the formation of the Eurogang program in the late 1990s, an initiative developed by Malcolm Klein to examine the presence of gangs in Europe (Weerman et al. 2009). The first Eurogang workshop was held in Schmitten, Germany in 1998 and continues to be held annually. As Weerman et al. (2009) explain, these workshops were instrumental in dispelling media-fuelled myths about American street gangs. These workshops led to the realization by many European scholars and practitioners of the communalities between youth groups they observed across

Europe and elsewhere, and the reality of street gangs in United States. Workshops soon directly led to publications, methodological manuals, and other resources.

4.3.5 2009-2021

After an almost two-decade plateau in gang research productivity, the 2010s would usher in another period of impressive growth: the average number of publications per year would increase by 58% to over 240 per year. The amount of gang publications produced during the 13 years of this period is equivalent to 95.9% of all the research published in the previous 177 years. In addition, there were more journal articles published during this period (1,543) than for the entirety of the history of gang research before 2009 (1,179). Unlike growth observed in the late 1980s and 1990s, growth between this period and the previous period can at least partially be attributed to a generalized growth in the field of criminology in general, and perhaps social sciences more broadly (see Figure 3).

Figure 1 also shows that the 2009-2021 period saw the rise of a new type of gang publication in the form of book chapters: 54.7% of all book chapters were published during this period. Several specialized handbooks were published during this period, such as *The Handbook of Gangs* (Decker and Pyrooz 2015) and the *Routledge International Handbook of Critical Gang Studies* (Brotherton and Gude, 2021), and more generalized versions such as *The Wiley Handbook of Violence and Aggression* (Sturmey 2017) and *The Routledge International Handbook of Aggression* (Ireland, Birch, and Ireland 2018). Given the incredible diversification of gang research in the previous period, the emergence of outlets that seek to review the state of research in different subareas of gang research is timely.

However, another role edited volumes seem to play during this period is furthering the research agendas of new emerging topics (e.g. *Looking beyond suppression: Community*

strategies to reduce gang violence (Gebo and Bond 2012)) but especially to discuss research in different locales, for instance, *Gangs in the Caribbean: Responses of State and Society* (Harriott, Katz, and Harriott 2015), *Global Perspectives on Youth Gang Behavior, Violence, and Weapons Use* (Harding and Palasinski 2016), *Youth Gangs in International Perspective: Results from the Eurogang Program of Research* (Esbensen and Maxson 2012), *Gang Transitions and Transformations in an International Context* (Esbensen and Maxson 2016), *Youth in Crisis: Gangs, Territoriality and Violence* (Goldson 2011), *Maras: Gang Violence and Security in Central America* (Bruneau, Dammert, and Skinner 2011). This trend is also observed in the topics of journal articles as the top 3 individual topics during this period making up over 22.8% of the published articles are *Gangs in the Central and South American context* (9.9%), *Gangs in the UK and European context* (7.5%), and *Gangs in the African, South Asian, and Caribbean context* (5.4%). The interest in Central and South American gangs is also reflected in the list of the most cited books published during this period (Table 6). In fact, of the top 10 books published between 2011 and 2019, half of the books focus on gang issues outside the United States.

<TABLE 6 -MOST CITED 2009-2021>

Another notable trend during this period is the emergence of a new cohort of gang scholars in the early 2010s (see Figure 4). In 2010 and 2011 alone, 35 of the most productive gang scholars made their debut—the two largest cohorts observed. This pattern is also reflected in the 444 theses and dissertations published in the 2009-2021 period, which represents nearly 55% of all theses and dissertations ever published.

<FIGURE 10 – WORDCLOUD 2009-2021>

While the internationalization of gang research began in the later parts of the 1992-2008 period, it was particularly dominated by research on *Gangs in the Central and South American contexts*. In the 2009-2021 period, the proportion of gang research dedicated to that topic continues to grow (+70% from the previous period), but research in other parts of the world shows much larger growth: *Gangs in the African, South Asian, and Caribbean contexts* (+203%) driven in large part by research in South Africa, and *Gangs in the UK and European contexts* (+158%).

While there are no new topics emerging during the 2009-2021 period, some topics really begin to take off during this period. Unsurprisingly, the topic with the single largest growth in its proportion of the gang literature over the 1992-2008 period is *Social media and online activities* (+1408%). Analyzing shifts in the proportion of articles devoted to certain topics between these two periods also suggests a change in the perspectives of scholars about gang membership. For instance, scholars in the period devoted less attention to the threats gang members posed to communities and institutions, predictors of gang membership, and explanations of the criminogenic effects of gang membership on individual behaviors. In this period, scholars spent proportionally more attention to how gang membership affects the well-being of gang members themselves: *Mental health, PTSD, and trauma exposure in gang members* (+489%), and *Consequences of gang membership over the life-course* (+250%). Similarly, scholars began to spend far more attention to the processes and key turning points associated with joining and leaving the gang as well as thinking about gang membership beyond a dichotomous indicator (*Gang joining, leaving, and embeddedness*, +301%), and how trauma and victimization may play a role in gang joining (*Exposure to violence, perceptions of safety, bullying, and homophobia*, +100%).

This period also shows an evolution in some topics that had a long history in gang scholarship. Most notably, research on issues associated with the experiences of gang members in prison and jails appears to shift during this period. First, while the proportion of research on *Gangs and gang membership in prisons and jails* declined by 22%, research on *Prison gang organization, governance, and illicit trade* increased by 317%. In part, this shift can be attributed to the internationalization of gang research as many studies in this latter topic take place outside the United States. Prison research also appears to follow a similar trajectory as research on gang membership: less attention to the dichotomous designations of gang membership, and predictors of misconduct; more attention to the processes make gangs important to the informal social life in prison and challenging to deal with. Furthermore, research on gangs and gang membership in prison have increasingly examined the unique challenges gang membership poses to reentry and the consequences of gang membership in prison on recidivism (*Predictors of recidivism, post-release interventions, and barriers to re-entry*, +55%).

Among the topics that declined significantly during this period are studies of the role of race, ethnicity, and gender in gangs. Studies on Asian (*Asian gangs and organized crime*, -89%; *Gangs and the Asian experience*, -86%), African-American (*African-American gangs, social change, politics and community organization*, -77%), and Latino (*Chicano communities, Latino gangs, and marginalization*, -61.7%) issues in gangs are among the topic that declined most compared to the previous period. Research on *Women and girls in gangs* also declined by 61% over the previous period.

Finally, gang scholars have devoted less attention to almost all policy solutions to gangs, expect one: *Focused-deterrence and group violence interventions* (+121%). Prior topics including law enforcement assessments of the gang problem and other suppression-based

strategies besides focused-deterrence were particularly affected by this shift: *Police perspectives on gang migration and the proliferation of gangs* (-77%), *Gang units, intelligence, and police perceptions of gangs* (-74%), and *Public policy and perceptions of the gang problem* (-72%) are among the topics with the largest decrease in this period. *Prevention, intervention, and gang control* (-34%) also declined though not to the same extent. In part, this shift in policy interests could be explained by a redirection of the focus of scholars on gangs role in facilitating gun violence in communities (*Gun carrying, access, and violence*, +243%), away from drug-related crimes (*Drug selling and substance use*, -39%) and gang-related crimes more broadly (*Fear of gangs and gang-related crime*, -59%) and more minor forms of violence in schools (*Gang presence and violence in schools*, -71%).

Figure 10 and Table 6 show that the 2009-2021 period shed some light on these last trends, suggesting that the field showed an interest in understanding the role gangs play in violence and the evaluation of intervention to reduce gang-related violence. Many of the most highly cited articles from this period either focus on the effectiveness of focused-deterrence strategies or social network perspectives on gangs and violence. Words like “youth”, “violence”, “member”, and “group” are by far the most frequent words used in publications, and words like “intervention”, “crime”, “police”, “network” and “relationship” reflect the importance of network research and focused-deterrence policing in this period of gang scholarship. The return of “group” as a distinctive keyword during this era is a reflection of the rise of network studies during this era (*Place-based, temporal, and network analyses of gang homicides*, +37%) and the increase in interest towards group-level interventions during this period, but also studies on *Extremist, terrorist, and hate groups* (+47%).

5. LIMITATIONS

Before discussing the findings of this study, it is important to understand the limitations of the techniques I use to map the history of gang scholarship. First, relying primarily on GS as a database for the identification of gang studies limits the analysis in two important ways. I already discussed the restrictions associated with GS in the methods section. The second important limitation of GS is in the quality of the citation information and citation counts provided by the search engine. Unlike other academic search engines who rely primarily on structured, indexed citation data, data about publications in GS (e.g. Author names, title, journal, year of publications) often come from automated processes that extract information from the websites that host the articles and sometimes, the reference lists of articles citing them. This process is prone many types of errors such as different spellings of the same names, wrong attribution of the date of publication (especially in the era of “Online first” and “preprint”), and even in some rare cases, the association of authors to papers they were not involved in. The sheer size of the database and the lack of manpower made it impossible to manually clean and correct all the data, though substantial efforts have been made to clean author names and merge different versions of a single name together. This is likely to be an important source of error in some of the figures and tables in this chapter.

Relatedly, the automation of the collection of abstracts for the purpose of topic modeling sometimes generated incomplete abstracts, abstracts with misspellings, and led to the inclusion of additional words or phrases outside the abstract that could influence the classification of the article (e.g. labels in structured abstracts, copyright information, etc.). The later issues were corrected to the best of my ability, either by removing certain common words from the topic modelling and word clouds (e.g. Findings, discussion, objectives, etc.) and by using regular

expressions (“regex”) to remove unwanted information. While misspellings were corrected as they were found throughout the cleaning and creation of the database, there was no way to identify incomplete abstracts, other than by validating each article manually, which could not be accomplished. Therefore, a source of misclassification of articles into topic categories may be due to incomplete abstracts.

There are important caveats associated with the specific topic modeling techniques I used. As described in the methodology section, BERTopic relies on pre-trained sentence transformers, which allows the model to find abstracts that are similar to one another. Sentence transformers are trained using machine learning techniques based on billions of pairs of sentences (or short documents) that have been identified by humans to have degrees of similar meanings. As is the case for many machine learning approaches, the specific steps that lead the model to group two particular abstract together are difficult to identify. A strength of the BERTopic approach is that it tries to identify keywords that uniquely describe each topics based on the articles the algorithm groups together. However, these keywords are identified through a completely independent process than the one used for the grouping, which sometimes leads to topic representations that are difficult to interpret (I gave a few examples of those difficulties in the methodology section). Ultimately, it can be challenging to make sense of why an article is included under one topic and not another. Furthermore, BERTopic is at its core a cluster analysis technique—an inherently exploratory data reduction technique—and objective assessment of model suitability is extremely challenging, especially given the novelty of the sentence encoding techniques.

My approach for this chapter has been to limit as much as I could any human intervention in the classification of articles of topics and the labeling of these topics, hoping to reduce the

injections of my own biases into the modeling processes, so I have resisted re-assigning any articles to a different topic than the one the model assigned it too. The only instances where manual classification was necessary was for articles the model failed to classify, despite a relatively high probability of assignment to one or more topics (see methodology for a description of this process). Throughout the process of evaluating the usefulness of the model, I have noticed certain patterns that highlight some peculiarities in the classification of topics.

The model appears to place a lot of weight on named entities (e.g. names of geopolitical entities, nationalities, ethnicities, organizations, etc.) for the grouping of articles. On one hand, this ended up being an interesting feature of the model in identifying the internationalization of gang research. On the other hand, since not all research carried out in a specific country is focused on a single topic, it also introduces some noise in the model making the classification of substantive topics—as opposed to regional topics or other topics based on named entities (e.g. race, ethnicity, gender)—more challenging. In other words, topics that seemed to be anchored around named entities are typically very diverse in their composition, reducing the distance between these topics and other substantive topic, leading to articles either failing to be classified, or pulled into topics that may not provide the best classification.

Another limitation of the topic model is due to the nature of information included in titles and abstracts. Abstracts tend to include many generic statements that reduce the usefulness of the information for classification purposes. For instance, an abstract may begin with a general statement about the importance of gang problem in society, yet the article focuses on a very specific or narrow aspect of gang research. It is also common for abstracts to include statements about policy implications of findings which may confuse the classification of articles. As for titles, it is increasingly common for scholars to include a quote or idiom as part of the title

followed by a column and a more descriptive title. Such titles may produce some additional difficulties in classifying articles.

Since articles are classified based on semantic similarity, it is possible that changes in the lexicon used to describe gangs, but also research more broadly might introduce a temporal element in the classification of articles. Articles published around the same time may have a tendency be grouped together. A similar process might lead to the grouping of articles based on regional dialects. For instance, the word “Aboriginal” is commonly used to describe indigenous peoples in Canada and Australia, leading to a few articles of gangs in the Australian context being grouped in a topic on Canadian research (hence the label *Aboriginal gangs and other gang issues in the Canadian context*).

6. DISCUSSION

After two impressive growth spurts in the late 1980s and late 2000s, gang research appears to have plateaued. Over its history, gang scholarship has not only grown in size, but it has diversified immensely both in terms of the topics covered by scholars, and the locales where gangs have been studied. The size of the gang literature is so large and its foci so diverse, that being a “gang” scholar nowadays is not as descriptive of one’s specialization as it once was. As Pyrooz and Mitchell (2015) pointed out, keeping up with gang scholarship in the era of “big gang research” is more challenging than ever. Specialization within gang scholarship seems inevitable. In the next sections, I summarize the findings associated with each periods and propose some explanations for the changes I have observed and additional observations I have made throughout the process of conducting this review.

6.1. Little gang research, or the beginnings and solidification of the science of gangs

The history of gang research begins with an era of early discovery of the gang phenomenon (1920-1956) that included the foundational work of Thrasher and Whyte and ends with the first turning point of gang research: the publication of Cohen's *Delinquent Boys* in 1955. There are many factors that make this particular publication meaningful in the history and it is difficult to pinpoint a single one. Perhaps because it was a first notable attempt to develop a theory of the gang, or perhaps because it drew much criticism for the lack of empirical data supporting the theory (see Short, 1968), *Delinquent Boys* galvanized the field. *Delinquent Boys* always has a particular place in the history of sociology as it merged ideas of the original Chicago School of the 1920s and anomie theory, from a key member of the second wave of the Chicago School, Robert K. Merton (Barmaki 2016). Following Cohen's lead, a few dedicated scholars began theorizing and testing hypotheses about the formation of gangs and the group processes that influence individual gang member behaviors (1957-1987). James Short, Walter Miller, Irving Spergel, Malcolm Klein, Richard Cloward, Lloyd Ohlin, and a few others became architects of our theoretical understanding of gangs, but importantly, they were keenly aware of the potential policy implications of their work. In fact, the classic works produced by these scholars often came from their partnerships with community organizations dedicated to address problems associated with gangs and gang membership. It is therefore unsurprising that during the 1957-1987 era, this same group of scholars became invested in these policy implications, studying the impact of social programs and social work (particularly detached workers) on gangs and their members.

6. 2. Little gang research is growing up or what happened in 1988?

It is far more difficult to attribute a single cause to the next turning point in 1988. What the results show is that there is a dramatic shift in the content of gang research from the previous

periods, with a greater emphasis on drug, violence, and law enforcement. Of course, this aspect of gang scholarship does not go away in 1992 but it is in stark contrast from the earlier periods of gang scholarship. Many scholars have discussed the shift towards suppression, but perhaps the most insightful voice on this issue is Malcolm Klein, who started writing *The American Street Gang* (1997) in late 1992 with this transition period fresh in his mind. Klein argued that the shift from community based and social work approaches of prior decades to suppression were a combination of several co-occurring factors: the failure to demonstrate the effectiveness of previous approaches, the proliferation of gangs, the perception of an increase in the violent character of gangs and the randomness of their targets, the assumed connection between the emergence of crack and gangs, and the succession of increasingly conservative national policies—starting with the “law and order rhetoric of the Nixon campaigns [...] It flowered in the Reagan and Bush eras” (Klein, 1997, p.151).

I argue that the last point raised by Klein plays an important role in the rapid growth of gang scholarship between 1988 and 1991, and marks the beginning of the large influence of federal funding agencies and the criminal justice system on gang research, most notably the United States Department of Justice’s (DOJ) Office of Justice Programs (OJP), particularly its component of the Office of Juvenile Justice and Delinquency Prevention (OJJDP). I argue that their involvement also redirected much of gang research to focus on the most problematic aspects of gangs—crime, drugs, and violence—and lead to a focus on law enforcement control strategies. Why did this happen specifically in 1988? The answer is probably that it did not really *happen* that year specifically, but had been brewing for a few years. That said, there are interesting coincidences in the policy changes that occurred specifically in 1988.

Gangs were not really on the radar of (national) politicians before the mid to late 1980s. The Juvenile Justice and Delinquency Prevention Act (JJDPA) of 1974—which is responsible for the creation of the OJJDP—made no mention of gangs until Congressional amendments in the 1980 added a subsection to the list of programs for which States can use formula grants funds: “projects designed both to deter involvement in illegal activities and to promote involvement in lawful activities on the part of juvenile gangs and their members” (*Juvenile Justice Amendments* 1980, 94:2757). In 1984, further amendments to the JJDPA mandated the OJP to make grants designed to develop and implement programs to prevent illegal activities by “gangs whose membership is substantially composed of juveniles” (*Continuing Appropriations for Fiscal Year 1985* 1984, 98:2114) and to fund studies to prepare recommendations about effective programs to promote “lawful activities on the part of gangs” (*Continuing Appropriations for Fiscal Year 1985* 1984, 98:2119).

Most importantly, the Anti-Drug Abuse Act of 1988 (1988) made numerous references to gangs, mandated the establishment of drug abuse education and prevention program relating to youth gangs, gave priority for funding to jurisdictions where drug-related crimes were committed by gangs, provided millions of dollars to the Drug Enforcement Administration, and law enforcement agencies specifically dedicated to gang-related enforcement, and amended the JJDPA further to include more funding for gang prevention and intervention, as well as statements prioritizing applications for grants and contracts “based on the incidence and severity of crimes committed by gangs [...] in the geographical area” (*Anti-Drug Abuse Act of 1988* 1988, vol. 102, sec. 4452) of the proposed programs and activities. The Act placed youth gangs in the center of the war on drugs, as Congress states that “there has been a severe, cancer-like growth of youth gangs who abuse, transport, and traffic in illegal drugs [...], engage in acts of violence, often on a random basis, resulting in death or

serious bodily injury to thousands of people, as well as terrorizing tens of thousands of others. Such youth gangs have spread their activities from southern California to more than 50 cities throughout the United States, thereby clearly indicating that the threat posed by these gangs is national in nature, requiring a strong Federal response.” (*Anti-Drug Abuse Act of 1988* 1988, vol. 102, sec. 4803)

I argue that the US federal criminal justice agencies’ interest in addressing gang violence and gang involvement in drug trafficking in the late 1980s and 1990s is probably one of the most important turning point in gang research history. Starting in the 1988-1991 period but continuing to this day, a significant proportion of gang research has been motivated by the US policy goals of 1980s and 1990s of controlling gangs, drug trafficking, and gang violence in schools—areas of focus clearly outlined in bills passed by congress in 1984, 1988, and 1992 to first create the OJP and then dictate the allocation of funding by the agencies it oversees, particularly the NIJ, BJA, and OJJDP (National Research Council 2013). The focus on gangs is evident by the formation of not one, but two national centers on gang issues within the OJP: the National Youth Gang Center within the OJJDP in 1995 and the National Gang Center within the BJA in 2003⁶. In addition, Congress created the National Gang Intelligence Center within the Federal Bureau of Investigation (FBI) in 2005.

Was the attention to gangs in the late 1980s warranted? Absolutely, especially given the record high violence in many urban areas at the time, an outsized proportion of it was believably attributed to gangs. What is more questionable is the insistence—from politicians, the media, and law enforcement—that the drug problem and in particular the crack epidemic was a result of highly organized gang activity and that the drug and gang problem were essentially synonymous (Klein, 1997). As Klein (1997, p.17) puts it “[e]verything we knew about street gangs said, ‘Hold on, that doesn’t fit’”.

⁶ The two centers merged in 2009.

At least part of the increase in scholarship during that period could be attributed to scholars attempting to challenge the ideas about the drug-gang connection. Klein et al. (1991)'s study rebutting the assumed connection between crack, street gangs, and violence and Fagan's (1989) study showing the spurious relationship between drug use, drug selling, gang membership, and violence is emblematic of this movement. Both these studies were funded by the DOJ. However, Klein (1995) states that findings of their study were actively ignored by the federal agency. When faced with the finding that 75% of crack sales incidents did not involve gangs, law enforcement agencies dismissed the findings and the NIJ declined to publish the findings saying they were out of date: "Balderdash! The institute just didn't like the findings because they didn't fit the institute's belief about gangs and crack" (Klein, 1997, p.17) The NIJ then rejected a proposal to update the findings.

I argue that placing gangs at the center of the war on drugs and increasing the availability of federal funding associated with gangs created an incentive structure for local governments and law enforcement agencies to look for gangs in their communities and perhaps redefine their jurisdiction's crime problems with gangs in mind. As a result, criminal justice actors became heavily invested in creating gang profiles, risk assessments, and emphasizing the difficulties of policing gangs. Most emblematic of this shift is the emergence of the National Gang Crime Research Center (NGCRC) in 1990 and its official publication, the *Journal of Gang Research* which specifically caters to law enforcement officials and publishes research conducted by law enforcement personnel and academics alike. The *Journal of Gang Research* alone published at least 245 articles in the database between 1992 and 2018, 12.6% of those are authored or co-authored by the journal's editor, George Knox, or the National Gang Crime Research Center. The *Journal* also highlights an important aspect to keep in mind about this and future period of

gang scholarship: productivity does not equate impact. Despite being the single largest producer of gang scholarship, the *Journal of Gang Research* is not very impactful in academic literature: while the average article in the database has 46.85 citations and 3.20 citations per year, articles in the *Journal of Gang Research* have, on average 9.98 citations and 0.53 citations per year.

6. 3. Becoming big gang research, or the diversification of gang scholarship

Gang scholars benefited tremendously from federal investments in gang research most obviously through new sources of substantial funding. Indirectly, federal investments in addressing gang issues, combined with parallel changes in policing that emphasized data-driven approaches (see Ratcliffe 2016), led to more available data on gangs from law enforcement agencies and other parts of the criminal justice system (e.g. prisons). For instance, the creation of specialized gang units is directly related investments by the DOJ starting in the late 1980s and 1990s (Katz and Webb 2006). Access to data collected by law enforcement is directly associated with the development of new areas of gang scholarship, such as the emergence of spatial and network approaches in gang research. In addition, more available funding likely meant more resources to train new scholars.

It is difficult to attribute the next two eras of gang research—1992-2008 and 2009-2021—to single, discrete turning points. The reason for such difficulties lies in the fact that much like Pyrooz and Mitchell observed, the 1990s mark the moment where “little gang research” turns into “big gang research”—when gang research became diversified to the point that many sub-fields begin to emerge. As these changes were occurring, another important change in the gang literature was being engineered: the rise of the longitudinal survey.

Pyrooz and Mitchell’s survey of gang scholars identified the advent of longitudinal surveys in the late 1980s and 1990s as the turning point receiving the largest number of

responses. Furthermore, the authors also point out that 1993 is both the largest year-to-year increase in publication and the publication of 4 articles from the Rochester Youth Development Study and the Denver Youth Survey which are among the most highly cited articles in gang scholarship. The 1992-2008 period includes the publications of the first results from the longitudinal studies of the Causes and Correlates of Delinquency Research Programme. Funded by the OJJDP, this program supported three large-scale longitudinal studies in Rochester, Pittsburgh, and Denver which all began data collection in the late 1980s and began generating publications in the early 1990s. The late 1990s and early 2000s would also see the emergence of more longitudinal studies that would make contributions to the gang literature such as the Seattle Social Development Survey, the Montreal Longitudinal and Experimental Study, and the Gang Resistance Education and Training Evaluation.

However, upon closer inspection of the publication record, these large longitudinal studies play a relatively minor role in the volume of gang research during this period, at least in terms of journal articles. While four studies using data from the Causes and Correlates studies were published in 1993, only three more will be published between 1995 and 2008. The GREAT study—besides the evaluations of the program itself—produced 11 studies between 1998 and 2007. The Seattle Social Development Survey (2) and the Montreal Longitudinal and Experimental Study (4) would produce an additional 6 studies. In total, these 6 studies contributed 24 journal articles during this period, or 2.2% of articles produced in this period. Despite their importance to the gang literature, longitudinal surveys are not responsible for the sustained production during this period, at least not directly.

Nevertheless, what is clear is that these few studies were immensely influential on gang scholarship, and likely motivated the individual-level focus that sustained production during this

period. Studies that came out from the Causes and Correlates studies, GREAT, and the other studies are among the most highly cited studies in the history of gang research (see Appendix 1) and *Gangs and Delinquency in Developmental Perspective* (Thornberry et al. 2003) which reports on the results of the Rochester Youth Development Survey ranks 7th in the most cited books (see Appendix 2). These studies provided answers to questions that are easy to take for granted today, but these answers most likely allowed the field of gang research to continue to grow. As I described previously, scholarship in the next period of gang research used data from these longitudinal surveys and others (e.g. National Longitudinal Survey of Youth, Pathways to Desistance, National Longitudinal Study of Adolescent to Adult Health) to go far beyond the initial questions the scholars who designed the Causes and Correlates studies had in mind. Thanks in large part to many of these studies and the focus on individual-level studies they inspired, a meta-analysis of the relationship between gang membership and offending was possible (David C. Pyrooz et al. 2016), the first and only published quantitative meta-analysis on an empirical question in gang research outside a handful of meta-analyses of gang programs.

Another important milestone in the history of gang research is the establishment of the Eurogang program of research. As I discussed previously, the 1992-2008 periods sees the beginning of the internationalization of research, though it is difficult to truly assess this growth from the topic model, since research in other countries may be combined with other substantive topics. Using another NLP technique called Named Entity Recognition (NER), I extracted references to specific countries from titles and abstracts of journal articles. Over the entire history of gang scholarship, I found mentions of 74 different countries, which I classified into regions of the world. Given the domination of American gang research for most of its history, I found that it was common of most gang research conducted outside the United States to name the

specific country where the research took place in the abstract and sometimes the title as it is often a key aspect of the novelty of the work. This also implies that it is generally safe to assume that abstracts that do not mention any specific countries or regions outside the United States are likely to refer to US-based research. Figure 11 shows in the top panel a comparison of the yearly volume of journal publications in US and in Non-US settings, and in the bottom panel, shows the breakdown of non-US research by continent.

<FIGURE 11>

Figure 11 makes clear that gang research outside the United States has been growing rapidly since the mid-2000s, so much so, that in 2018, it produced more research than US-based research for the first time and would do so again in 2021. While the timing does coincide with the establishment of the Eurogang program, breaking down the output of scholarship by continent shows that Eurogang program is an important but not the only reason for the internationalization of gang research, especially during the 1992-2008 period. Much of the growth comes from research in Central and South America, and research in North America, primarily driven by research from Canada, which were not necessarily regions of focus for the Eurogang program. Research in Europe, primarily driven by UK-based scholarship, increases rapidly starting in 2008 and contributes a large proportion of the rise of international research thereafter. The internationalization of research, then, plays a much larger role in the last period I have identified: 2009-2021.

What is unique about the 1992-2008 period is the sudden diversification of topics in gang scholarship. Responding the policy decisions of the 1980s and 1990s played a big role in this diversification, so has the individual-level focus brought about by the longitudinal studies, and the beginning of the internationalization of gang research. The growth of police intelligence

apparatus fostered by the federal government's investment in the fight against gangs also provided scholars with much data on gangs allowing for place-based research and research on the uniqueness of gang-related homicides to flourish, and for social network analyses to begin to emerge. The continued involvement of federal agencies, influenced by landmark legislations ((e.g. the 1994 crime bill; see Decker, Pyrooz, and Densley 2022) also made evaluations of GREAT programs and the availability of its longitudinal data, and the funding of many gang studies possible.

6. 4. Towards a new era of gang research or what comes after big gang research?

Exponential growth in science is simply unsustainable: if gang research would have continued to grow at the rate it did in the 1988-1991 period, we would have had, by the end of 2022, 14,448 articles in gang scholarship—more than double the number of studies found in this study. De Solla Price (1963) argued that science does not grow exponentially, but rather follows a logistic curve, where exponential growth quickly meets a saturation point. Natural phenomena following logistic curves rarely have the smooth S-shape we see in textbooks. De Solla Price (1963, p.23) argues that exponential curves “seem to relish the idea of being flattened. Before they reach a midpoint, they begin to twist and turn, and, like impish spirits change their shapes and definitions so as not to be exterminated against that terrible ceiling”. Phenomena following a logistic curve typically follow one of two trajectories. If conditions do not allow further growth, the logistic curve will fluctuate violently until it reaches a local minimum or a slow decline towards zero. The other possibility depends on whether the phenomenon can evolve to take on a slightly different definition:

“If a slight change of definition of the thing that is being measured can be so allowed as to count a new phenomenon on equal terms with the old, the new logistic curve rises phoenixlike on the ashes of the old” (De Solla Price, 1963, p.25).

This second possibility beautifully explains the trajectory of gang research. Gang scholarship grew exponentially in the 1990s and gradually became something new during the 2000s, until it rose “phoenixlike” in the 2010s, where it has since remained against the ceiling of a second logistic curve. The 1992-2008 period did show evidence of a “slight change of definition” in gang research—from the beginning of the internationalization of gang research to the emergence of several new topics. These changes have allowed gang scholarship to grow one more time and bring in a new generation of gangs scholars who have, since then, continued to grow these new topics of gang scholarship, leaving aside some ideas of previous periods.

The 2009-2021 period shows a field adapting to the new world gangs and their members operate in. Studies examining the importance of social media for gang violence (e.g. F. L. Stuart 2020; Patton et al. 2019; John Leverso and Hsiao 2021), the trauma and PTSD associated with gang membership (e.g. Carly B. Dierkhising, Sanchez, and Gutierrez 2021; Hayley Beresford and Wood 2016; Jane L. Wood and Dennard 2017), the rise of “alt-right” gangs (Shannon E. Reid and Valasik 2018; S. E. Reid and Valasik 2020), and homosexuality in gangs (Vanessa R Panfil 2020) are all topics have been developed in the last few years. Researchers have also undertaken important work in overlooked and challenging areas of gang scholarship. The process of joining a gang (e.g. James A. Densley 2012; Karine Descormiers and Corrado 2016; Owen Gallupe and Gravel 2018; David C. Pyrooz and Densley 2016), the barriers to re-entry associated with gang membership (e.g. Kevin T. Wolff et al. 2020; David C. Pyrooz, Clark, et al. 2021), and the role gangs play in facilitating access to firearms (e.g. Elizabeth Roberto, Braga, and Papachristos 2018; David M. Hureau and Braga 2018) are all topics that had not received much attention until recent years. We are also seeing new research in prisons and jails that overcome the challenges of doing interviews with gang members in these settings (e.g. Jane L. Wood et al.

2014; David C. Pyrooz, Mitchell, et al. 2021; Meghan M. Mitchell et al. 2017; Daniel W. Scott and Maxson 2016), and assesses the impact of the common practice of restrictive housing and isolation on gang members (e.g. David C. Pyrooz and Mitchell 2020; Ryan T. Motz, Labrecque, and Smith 2021).

On the policy front, focused-deterrence has dominated this most recent period. It is safe to say that at this time, no other policy has received the level of attention and evaluation that focused-deterrence has up to this point. Importantly, many evaluations of focused-deterrence programs have gone beyond simple assessments of effectiveness and have attempted to unpack the mechanisms that make this type of intervention effective. Just a few years ago, my colleagues and I lamented the lack of attention to the theory of change in gang program in general (Gravel et al. 2013), and for group-based intervention such as focused-deterrence specifically (Gravel and Tita 2015). Scholars studying focused-deterrence and group violence interventions have responded to these critiques admirably. Studies have examined the spread of deterrent effects to gangs connected to the targeted gangs (Braga et al. 2019), used social network analysis and simulations to identify the best positions “messengers” to spread deterrence in gangs (Wheeler et al. 2019), have compared community-level and gang-level impacts of the program (Roman et al. 2019), and the role social media plays in mediating the effect of focused-deterrence (Hyatt, Densley, and Roman 2021).

One reason for concern is that police programs still dominate policy discussions in gang research, and evaluations of these programs have been based on law enforcement data (Roman, 2021). For instance, focused-deterrence policing is widely recognized as the best evidence-based programs we have to deal with gangs, but it is also a program that has received considerable financial support for its evaluation, unlike others that do not involve law enforcement (Roman

2021; Gravel, Valasik, and Reid 2021). This is not new: even one of the most celebrated gang prevention programs—GREAT—is typically administered by law enforcement officials. When law enforcement agencies are funding gang research, it may not come as much surprise that gang research focuses on the most serious behaviors of gang members and finds policing to be an acceptable solution to deal with these problems (see Van Hellemont and Densley 2021 for a recent discussion).

There are reasons to be hopeful for a change on that front both from the perspective of the funding preferences of federal agencies and the identification of effective program not involving law enforcement. Recent work on adapting Functional Family Therapy (Thornberry et al. 2018) and Multisystemic Therapy (Boxer et al. 2017) to gang populations have shown promise and both evaluations have been funded at least partially by the OJJDP. The injection of public health perspectives in gang research has also generated new promising ideas to gang programming such as trauma-informed approaches to reduce gang violence (Jennings-Bey et al. 2015). Even evaluations of re-entry programs that were practically non-existent by the early 2010s (Gravel et al. 2013) have begun to emerge (e.g. Spooner et al. 2017).

Finally, an area that has much promise for the future of gang research and has emerged as a relatively important area of gang scholarship in the 2009-2021 period are studies employing social network analysis. This area is promising because it could provide the tools to build on recent advances suggesting a move away from the typical dichotomous label of gang membership toward a more flexible notion of gang embeddedness (David C. Pyrooz, Sweeten, and Piquero 2013). When Decker et al. (2013) reviewed the state of research on group processes in gang scholarship, they held out hope that the increased use of social network analysis would yield new findings, hypotheses, and theories about group processes and the social structure of

these groups. Pyrooz and Mitchell (2015) also held out hope that network studies would help gang research return to group-level analyses. Recent advances in network studies have begun to examine inter-group interactions (e.g. Bichler, Norris, and Ibarra 2020; Lewis and Papachristos 2020; Kiminori Nakamura, Tita, and Krackhardt 2020) and the stability of groups over time (e.g. Ouellet, Bouchard, and Charette 2019). However, most network studies of gang issues are limited by their use of arrest or court records to map the structure of groups and individual networks, which is inherently a flawed enterprise (Faust and Tita 2019). Networks extracted from police data are influenced by changes in organizational focus, staffing, and public policy in ways we simply do not understand clearly (Gravel 2018).

Advancing group-level research on gangs using social network analysis will not happen through data requests or by sitting in front of a computer screen: it will require us to go out in the field and map the social networks of gangs using observational or survey methods. Few scholars have been successful in doing so but when they have, they have produced quite unique contributions to gang scholarship such as Roman et al.'s (2021) multi-wave survey of gang members' personal networks before and after leaving the gang, Descormiers and Morselli's (2011) use of focus groups with gang members to map rivalries and alliances in Montreal, and Grund and Densley's (2012) use of observations and fieldwork to study the role of ethnicity in co-offending among gang members in London. Ethnographers have produced some of most insightful group-level research and network scholars would do well to learn from them and forge collaborations to both gain access to the relevant populations necessary for network surveys, but also provide context for the complex structures that would likely emerge. Furthermore, gang scholars already engage in research in settings such as schools and prisons that provide ideal conditions for the collection of network data (Martin Bouchard 2021).

7. CONCLUSION

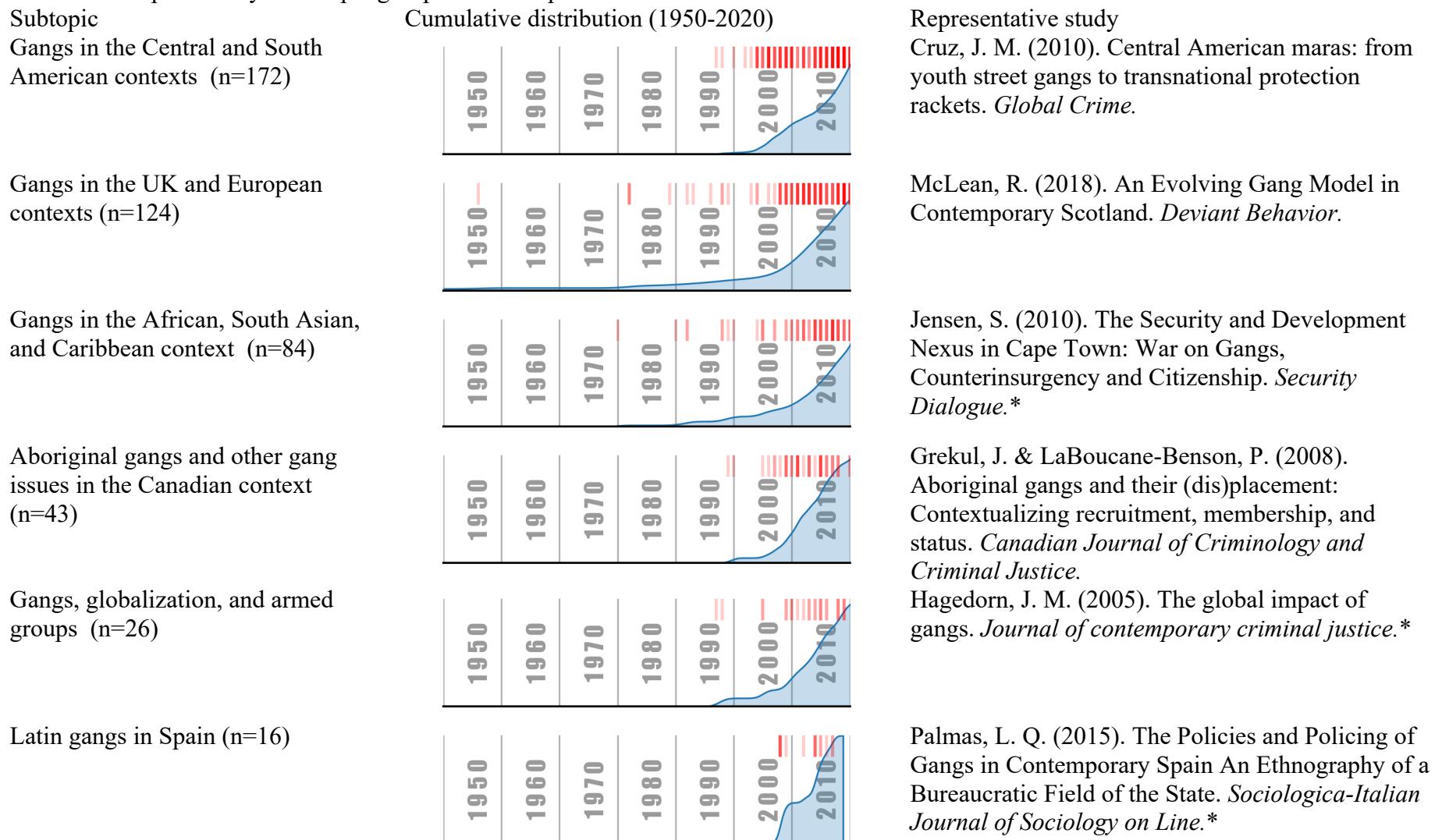
I began this chapter by discussing the first article about gangs written by Stevenson in 1834 and given my findings it is important to briefly revisit the context in which it was written. Many scholars have argued that the discovery of “thugs” by British colonialists in India was either a complete invention or at least greatly exaggerated (Wagner 2007; Macfie 2008; Gordon 1969; Brown 2001). These exaggerations were often published in academic outlets by explorers documenting the atrocities committed by these criminal groups, often arguing that the problem was far more widespread and growing than previously thought (Brown 2001). Eventually, these pseudo-scientific depictions convinced the government to create a department dedicated to the enforcement of newly enacted vague laws targeting these groups. This department commissioned more studies to examine the threat posed by the Phansigar and other similar groups, which legitimized the need for a vicious suppression campaign (Singha 1993; Brown 2001). These studies were uncritically cited by many contemporary scholars who sought to understand crime in India (Macfie 2008), contributing to their legitimacy and the policies and practices they inspired.

Gang scholarship since the 1980s has been heavily influenced by policy preferences of governments who fund our research, as well as the mechanisms of federal funding. As Klein (2007, xiv) reminds us, this is nothing new and not limited to government funding: “Gang research has too often been driven by the interests of government and private foundations. The result has been emphases based too often on politics and ideology, at the expense of theory and knowledge building”. Research and programs of the 1950s, 1960s, and 1960s too were influenced by social reform and liberal ideas of the politicians of the time (Klein, 1997). However, the concerns about gangs that motivated politicians in the 1980s and 1990s were

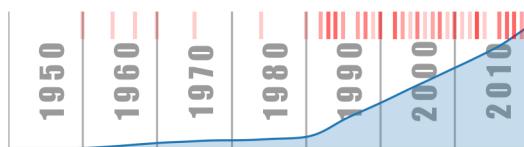
almost certainly misguided (see previously quoted passage from the Anti-Drug Abuse Act of 1988), yet—often with the assistance of gang scholars—they managed to find *some* data or research that fit their narratives and went full steam ahead creating extremely damaging policies.

While gang research has been built by scholars with a strong commitment to producing policy-relevant research, most of them offered policy proposal after being deeply embedded in the communities they studied and proposing (and then testing) theories. An important goal for the latest generation of gang scholars (and the next) will be to confront the role gang scholarship has played in legitimizing policies and practices that have exacerbated and sometimes created the community conditions we have known for a long-time fosters gang formation and violence. An important way to improve gang scholarship is to resist the temptation to use whatever data is available or convenient (e.g. police data, official records), get out in the real world, and generate new, rich data on gangs to produce new theories, insights—and *eventually*—innovative policy solutions. This review shows that our field is already starting to go in that direction, and reaping the rewards in the form of stronger policy and program recommendations. If we keep moving in that directions and continue adapting to an ever-changing world that we and the subjects of our studies live in, our field will yet again, in the words of De Solla Price, rise, phoenixlike from the ashes of the current period of decelerating growth in gang scholarship.

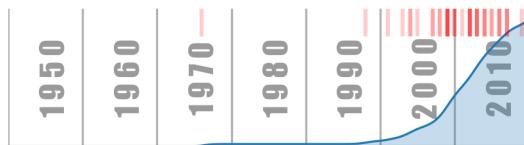
Table 1. Descriptive analysis of topic groups and subtopics.



Peer effects, differential association, and social learning (n=78)



Predictors of offending and violent victimization (n=47)



Predictors of gang membership (n=42)



Exposure to violence, perceptions of safety, bullying, and homophobia (n=26)



Gun carrying, access, and violence (n=17)



Women and girls in gangs (n=111)



Masculinity and street culture (n=50)



Thornberry, T. P. et al. (1993). The Role of Juvenile Gangs in Facilitating Delinquent-Behavior. *Journal of Research in Crime and Delinquency*.*

Taylor, T. J. et al. (2007). Gang membership as a risk factor for adolescent violent victimization. *Journal of Research in Crime and Delinquency*.

Hill, K. G. et al. (1999). Childhood risk factors for adolescent gang membership: Results from the Seattle Social Development Project. *Journal of Research in Crime and Delinquency*.*

Ellis, B. H. et al. (2022). A Qualitative Examination of How Somali Young Adults Think About and Understand Violence in Their Communities. *Journal of Interpersonal Violence*.

Papachristos, A. V. et al. (2012). Why Do Criminals Obey the Law? The Influence of Legitimacy and Social Networks on Active Gun Offenders. *Journal of Criminal Law & Criminology*.*

Joe-Laidler, K. & Chesney-Lind, M. (1995). Just every mothers angel: An analysis of gender and ethnic variations in youth gang membership. *Gender & Society*.*

Sandberg, S. (2009). Gangster, victim or both? The interdiscursive construction of sameness and difference in self-presentations: Gangster, victim or both?. *The British Journal of Sociology*.

Risky sexual behaviors and intimate partner relationships (n=40)



Drug selling and substance use (n=59)



Gang joining, leaving, and embeddedness (n=58)



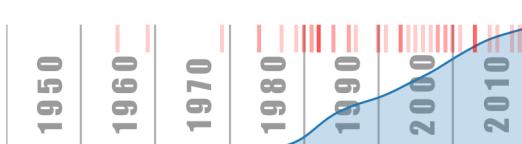
Consequence of gang membership over the life-course (n=47)



Mental health, PTSD, and trauma exposure in gang members (n=27)



Public policy and perceptions of the gang problem (n=47)



Police perspectives on gang migration and the proliferation of gangs (n=35)



Palmer, C. T. & Tilley, C. F. (1995). Sexual Access to Females as a Motivation for Joining Gangs - an Evolutionary Approach. *Journal of Sex Research*.

Fagan, J. (1989). The Social-Organization of Drug-Use and Drug Dealing Among Urban Gangs. *Criminology*.

Pyrooz, D. C. et al. (2014). The Ties That Bind: Desistance From Gangs. *Crime & Delinquency*.

Melde, C. & Esbensen, F. A. (2011). Gang Membership as a Turning Point in the Life Course. *Criminology*.*

Coid, J. W. et al. (2013). Gang Membership, Violence, and Psychiatric Morbidity. *American Journal of Psychiatry*.*

Spergel, I. A. (1990). Youth Gangs - Continuity and Change. *Crime and Justice-a Review of Research*.*

Evans, W. P. et al. (1999). Are rural gang members similar to their urban peers? Implications for rural communities. *Youth & Society*.

Gang units, intelligence, and police perceptions of gangs (n=31)



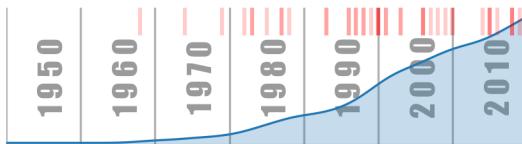
Focused-deterrence and group violence interventions (n=29)



Civil gang injunctions and trust in the police (n=23)



Chicano communities, Latino gangs, and marginalization (n=49)



African-American gangs, social change, politics and community organization (n=45)



Asian gangs and organized crime (n=26)



Gangs and the Asian experience (n=20)



Katz, C. M. (2001). The establishment of a police gang unit: An examination of organizational and environmental factors. *Criminology*.*

Braga, A. A. et al. (2018). Focused Deterrence Strategies and Crime Control: An Updated Systematic Review and Meta-Analysis of the Empirical Evidence. *Criminology & Public Policy*.*

Ridgeway, G. et al. (2019). Effect of Gang Injunctions on Crime: A Study of Los Angeles from 1988-2014. *Journal of Quantitative Criminology*.*

Vigil, J. D. (1988). Group Processes and Street Identity - Adolescent Chicano Gang Members. *Ethos*.

Alonso, A. A. (2004). Racialized, identitites and the formation of Black gangs in Los Angeles. *Urban Geography*.

Joe-Laidler, K. (1994). The New Criminal Conspiracy - Asian Gangs and Organized-Crime in San-Francisco. *Journal of Research in Crime and Delinquency*.

Lam, K. D. (2015). Racism, Schooling, and the Streets: A Critical Analysis of Vietnamese American Youth Gang Formation in Southern California. *Journal of Southeast Asian American Education and Advancement*.

Multiple marginality, immigration, race, and ethnicity (n=19)



Gangs and gang membership in prisons and jails (n=78)



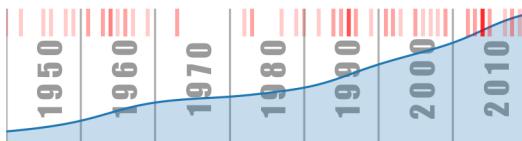
Predictors of recidivism, post-release interventions, and barriers to reentry (n=31)



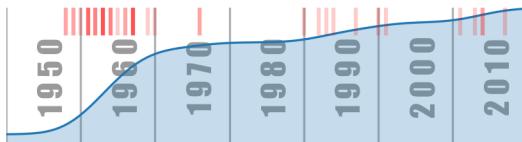
Prison gang organization, governance, and illicit trade (n=20)



Group life, socialization, and street corner groups (n=79)



Delinquent subcultures and gang behavior (n=48)



Place-based, temporal, and network analyses of gang homicides (n=66)



Freng, A. B. & Esbensen, F. A. (2007). Race and gang affiliation: An examination of multiple marginality. *Justice Quarterly*.*

Griffin, M. L. & Hepburn, J. R. (2006). The effect of gang affiliation on violent misconduct among inmates during the early years of confinement. *Criminal Justice and Behavior*.*

Huebner, B. M. et al. (2007). Gangs, Guns, and Drugs: Recidivism Among Serious, Young Offenders. *Criminology & Public Policy*.*

Skarbek, D. B. (2011). Governance and Prison Gangs. *American Political Science Review*.

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Miller, W. B. (1958). Lower-Class Culture as a Generating Milieu of Gang Delinquency. *Journal of Social Issues*.*

Radil, S. M. et al. (2010). Spatializing Social Networks: Using Social Network Analysis to Investigate Geographies of Gang Rivalry, Territoriality, and Violence in Los Angeles. *Annals of the Association of American Geographers*.

Social network perspectives on gang activities, conflicts, and interventions (n=30)



Prevalence and characteristics of gang homicides (n=28)



Prevention, intervention, and gang control (n=84)



Social media and online activities (n=43)



Artistic productions and media representations of the gang problem (n=38)



Gang definitions, self-definitions, and methodological issues in gang research (n=50)



Extremist, terrorist, and hate groups (n=24)



McGloin, J. M. (2005). Policy and intervention considerations of a network analysis of street gangs. *Criminology & Public Policy*.

McCuish, E. C. et al. (2015). The Search for Suitable Homicide Co-Offenders Among Gang Members. *Journal of Contemporary Criminal Justice*.

Fritsch, E. J. et al. (1999). Gang suppression through saturation patrol, aggressive curfew, and truancy enforcement: A quasi-experimental test of the Dallas anti-gang initiative. *Crime & Delinquency*.

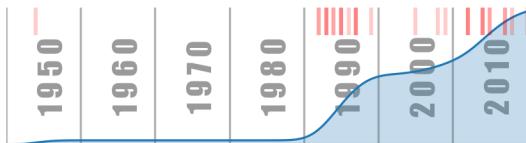
Peterson, J. K. & Densley, J. A. (2017). Cyber violence: What do we know and where do we go from here?. *Aggression and Violent Behavior*.

Esbensen, F. A. & Tusinski, K. E. (2007). Youth gangs in the print media. *Journal of Criminal Justice and Popular Culture*.

Wood, J. L. & Alleyne, E. (2010). Street gang theory and research: Where are we now and where do we go from here?. *Aggression and Violent Behavior*.

Simi, P. et al. (2016). Narratives of Childhood Adversity and Adolescent Misconduct as Precursors to Violent Extremism: A Life-Course Criminological Approach. *Journal of Research in Crime and Delinquency*.*

Emergency care, gunshot injuries,
and gangs (n=31)



Gang presence and violence in
schools (n=26)



Fear of gangs and gang-related crime
(n=15)



Morris, E. J. (2012). Respect, Protection, Faith, and Love: Major Care Constructs Identified Within the Subculture of Selected Urban African American Adolescent Gang Members. *Journal of Transcultural Nursing*.*

Thompkins, D. E. (2000). School violence: Gangs and a culture of fear. *Annals of the American Academy of Political and Social Science*.

Curtis, J. W. et al. (2014). The prospects and problems of integrating sketch maps with geographic information systems to understand environmental perception: A case study of mapping youth fear in Los Angeles gang neighborhoods. *Environment and Planning B: Planning and Design*.*

Table 2. Most cited books and articles published between 1920 and 1956.

Books

Rk	Title (Year)	Author(s)	NC	CPY	ATR
1	Street corner society: The social structure of an Italian slum (1943)	Whyte	9618	120.2	1
2	Delinquent boys; The culture of the gang. (1955)	Cohen	8022	118.0	2
3	The gang: A study of 1,313 gangs in Chicago (1927)	Thrasher	4403	45.9	15
4	Teen-age gangs (1953)	Kramer & Karr	25	0.4	259
5	Street gangs in Toronto: A study of the forgotten boy (1945)	Rogers	24	0.3	266
6	The City Boy and His Problems: A Survey of Boy Life in Los Angeles (1926)	Bogardus	25	0.3	269

Articles

1	Effects of different conditions of acceptance upon conformity to group norms. (1956)	Dittes & Kelley	388	5.8	369
2	The gangster as tragic hero (1948)	Warshow	355	4.7	463
3	Gangs of Mexican-American Youth (1943)	Bogardus	96	1.2	1314
4	The Psychology of Gang Formation and the Treatment of Juvenile Delinquents (1945)	Redl	89	1.1	1349
5	Gangs and Delinquent Groups in London (1956)	Scott	58	0.9	1475
6	Some factors influencing the selection of boys' chums. (1927)	Fursey	74	0.8	1522
7	Gang Membership and Juvenile Misconduct (1950)	Wattenberg & Balistrieri	53	0.7	1549
8	Corner boys: A study of clique behavior (1941)	Whyte	57	0.7	1564
9	How to Study the Boys' Gang in the Open (1928)	Thrasher	38	0.4	1861
10	Outbreak of Gang Destructive Behavior on a Psychiatric Ward (1954)	Boyd et al.	23	0.3	1905

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year; ATR=All-time rank within category (books vs articles)

Table 3. Most cited books and articles published between 1957 and 1987.

Books

Rk	Title (Year)	Author(s)	NC	CPY	ATR
1	Delinquency and opportunity: A study of delinquent gangs (1960)	Cloward & Ohlin	6748	107.1	3
2	The social order of the slum: Ethnicity and territory in the inner city (1968)	Suttles	2601	47.3	14
3	Group process and gang delinquency (1965)	Short Jr & Strodtbeck	1382	23.8	28
4	Street gangs and street workers (1971)	Klein	929	17.9	42
5	Homeboys: Gangs, drugs, and prison in the barrios of Los Angeles (1978)	Moore & Garcia	759	16.9	44
6	The violent gang (1962)	Yablonsky	953	15.6	49
7	The girls in the gang (1984)	Campbell	517	13.3	63
8	Violence by youth gangs and youth groups as a crime problem in major American cities (1975)	Miller	351	7.3	89
9	The vice lords: Warriors of the streets (1969)	Keiser	294	5.4	111
10	The gang: A study in adolescent behavior. (1958)	Bloch & Niederhoffer	282	4.3	121

Articles

1	Lower-Class Culture as a Generating Milieu of Gang Delinquency (1958)	Miller	3272	50.3	1
2	Social disorganization and stake in conformity: Complementary factors in the predatory behavior of hoodlums (1957)	Toby	565	8.6	199
3	The saints and the roughnecks (1973)	Chambliss	405	8.1	218
4	Chicano Youth Gangs and Crime - the Creation of a Moral Panic (1987)	Zatz	254	7.1	277
5	Girls, Guys and Gangs - Changing Social-Context of Female Delinquency (1978)	Giordano	265	5.9	354
6	Self Definition by Rejection - the Case of Gang Girls (1987)	Campbell	191	5.3	412
7	Differences Between Gang and Nongang Homicides (1985)	Maxson et al.	201	5.3	416
8	The Etiology of Female Juvenile-Delinquency and Gang Membership - a Test of Psychological and Social Structural Explanations (1983)	Bowker & Klein	204	5.1	429
9	Research in delinquent subcultures (1958)	Cohen & Short Jr	329	5.1	431
10	Street Gangs Behind Bars (1974)	Jacobs	240	4.9	449

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year; ATR=All-time rank within category (books vs articles)

Table 4. Most cited books and articles published between 1988 and 1991.

Books

Rk	Title (Year)	Author(s)	NC	CPY	ATR
1	Barrio gangs: Street life and identity in Southern California (1988)	Vigil	1603	45.8	16
2	Islands in the Street (1991)	Sanchez-Jankowski	1187	37.1	19
3	People and Folks. Gangs, Crime and the Underclass in a Rustbelt City. (1988)	Hagedorn & Macon	1100	31.4	21
4	Going down to the barrio: Homeboys and homegirls in change (1991)	Moore	915	28.6	23
5	The lobster gangs of Maine (1988)	Acheson	740	21.1	35
6	Dangerous society (1990)	Taylor	476	14.4	57
7	Delinquent gangs: A psychological perspective (1991)	Goldstein	228	7.1	90
8	Chinese subculture and criminality: Non-traditional crime groups in America (1990)	Chin	231	7.0	92
9	Cholas: Latino girls and gangs (1988)	Harris	229	6.5	100
10	Chinese gangs and extortion (1989)	Chin	70	2.1	166

Articles

1	The Social-Organization of Drug-Use and Drug Dealing Among Urban Gangs (1989)	Fagan	533	15.7	63
2	Youth Gangs - Continuity and Change (1990)	Spergel	356	10.8	131
3	Gang Homicide, Delinquency, and Community (1988)	Curry & Spergel	371	10.6	136
4	Group Processes and Street Identity - Adolescent Chicano Gang Members (1988)	Vigil	317	9.1	181
5	Youth Gangs and Public-Policy (1989)	Huff	223	6.6	315
6	Crack, Street Gangs, and Violence (1991)	Klein et al.	205	6.4	325
7	Acute and chronic effects of alcohol use on violence. (1988)	Collins & Schlenger	194	5.5	383
8	The social structure of street drug dealing (1990)	Skolnick et al.	157	4.8	458
9	Gangs, Neighborhoods, and Public-Policy (1991)	Hagedorn	147	4.6	483
10	Constructing Gangs: The Social Definition Of Youth Activities (1991)	Decker & Kempf-Leonard	143	4.5	501

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year; ATR=All-time rank within category (books vs articles)

Table 5. Most cited books and articles published between 1992 and 2008.

Books

Rk	Title (Year)	Author(s)	NC	CPY	ATR
1	Homegirls: Language and cultural practice among Latina youth gangs (2008)	Mendoza-Denton	1014	67.6	4
2	The American street gang: Its nature, prevalence, and control (1997)	Klein	1646	63.3	5
3	Street Gang Patterns and Policies (2006)	Klein & Maxson	1062	62.5	6
4	Gangs and delinquency in developmental perspective (2003)	Thornberry et al.	1196	59.8	7
5	Gang leader for a day: A rogue sociologist takes to the streets (2008)	Venkatesh	825	55.0	10
6	Life in the gang: Family, friends, and violence (1996)	Decker & VanWinkle	1364	50.5	12
7	One of the guys: Girls, gangs, and gender (2001)	Miller	948	43.1	17
8	A world of gangs: Armed young men and gangsta culture (2008)	Hagedorn	598	39.9	18
9	The Youth Gang problem: A community approach (1995)	Spergel	963	34.4	20
10	The gangs of Chicago: An informal history of the Chicago underworld (2003)	Asbury	583	29.1	22

Articles

1	An economic analysis of a drug-selling gang's finances (2000)	Levitt & Venkatesh	955	41.5	3
2	Problem-oriented policing, deterrence, and youth violence: An evaluation of Boston's operation ceasefire (2001)	Braga et al.	755	34.3	7
3	The Role of Juvenile Gangs in Facilitating Delinquent-Behavior (1993)	Thornberry et al.	993	33.1	8
4	Youth gangs and definitional issues: When is a gang a gang, and why does it matter? (2001)	Esbensen et al.	695	31.6	9
5	Gangs, Drugs, and Delinquency in a Survey of Urban Youth (1993)	Esbensen & Huizinga	812	27.1	12
6	Childhood risk factors for adolescent gang membership: Results from the Seattle Social Development Project (1999)	Hill et al.	622	25.9	14
7	Gangstas, thugs, and hustlas: Identity and the code of the street in rap music (2005)	Kubrin	454	25.2	16
8	The contribution of gang membership to delinquency beyond delinquent friends (1998)	Battin-Pearson et al.	586	23.4	21
9	Sweet mothers and gangbangers: Managing crime in a black middle-class neighborhood (1998)	Pattillo	550	22.0	27
10	Antisocial behavior and youth gang membership: Selection and socialization (2004)	Gordon et al.	408	21.5	28

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year; ATR=All-time rank within category (books vs articles)

Table 6. Most cited books and articles published between 2009 and 2021.

Books

Rk	Title (Year)	Author(s)	NC	CPY	ATR
1	Inside Criminal Networks (2009)	Morselli	793	56.6	8
2	Gangs in America's communities (2018)	Howell & Griffiths	277	55.4	9
3	The social order of the underworld: How prison gangs govern the American penal system (2014)	Skarbek	471	52.3	11
4	A rainbow of gangs: Street cultures in the mega-city (2010)	Vigil	621	47.8	13
5	Space of Detention: The Making of a Transnational Gang Crisis between Los Angeles and San Salvador (2011)	Zilberg	310	25.8	24
6	How Gangs Work: An Ethnography of Youth Violence (2013)	Densley	243	24.3	26
7	Guys, gangs, and girlfriend abuse (2019)	Totten	97	24.2	27
8	Mano Dura the Politics of Gang Control in El Salvador (2017)	Wolf	140	23.3	30
9	Homies and hermanos: God and gangs in Central America (2012)	Brenneman II	236	21.5	34
10	The history of street gangs in the United States: Their origins and transformations (2015)	Howell	164	20.5	37

Articles

1	Focused Deterrence Strategies and Crime Control: An Updated Systematic Review and Meta-Analysis of the Empirical Evidence (2018)	Braga et al.	230	46.0	2
2	Murder by Structure: Dominance Relations and the Social Structure of Gang Homicide (2009)	Papachristos	570	40.7	4
3	The Effects of Focused Deterrence Strategies on Crime: A Systematic Review and Meta-Analysis of the Empirical Evidence (2012)	Braga & Weisburd	430	39.1	5
4	The Corner and the Crew: The Influence of Geography and Social Networks on Gang Violence (2013)	Papachristos et al.	384	38.4	6
5	Continuity and Change in Gang Membership and Gang Embeddedness (2013)	Pyrooz et al.	285	28.5	10
6	What Do We Know About Gangs and Gang Members and Where Do We Go From Here? (2013)	Decker et al.	273	27.3	11
7	Legitimacy in Criminal Governance: Managing a Drug Empire from Behind Bars (2019)	Lessing & Willis	106	26.5	13
8	Taking Stock of the Relationship Between Gang Membership and Offending a Meta-Analysis (2016)	Pyrooz et al.	180	25.7	15
9	Governance and Prison Gangs (2011)	Skarbek	298	24.8	17
10	Internet banging: New trends in social media, gang violence, masculinity and hip hop (2013)	Patton et al.	244	24.4	18

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year; ATR=All-time rank within category (books vs articles)

Figure 1. Gang publications by type (1900-2022)

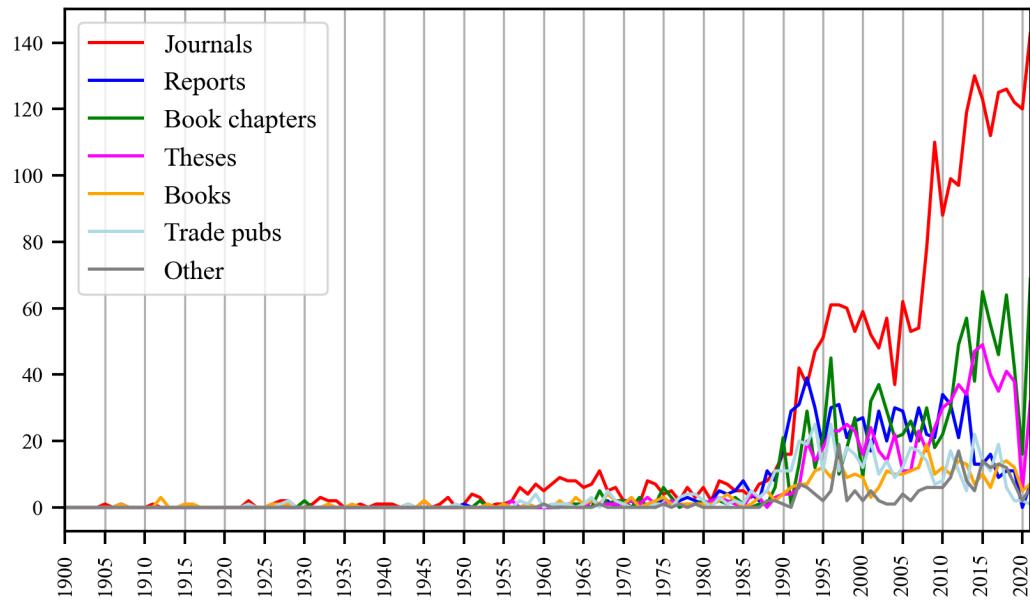


Figure 2. Turning points in gang publications

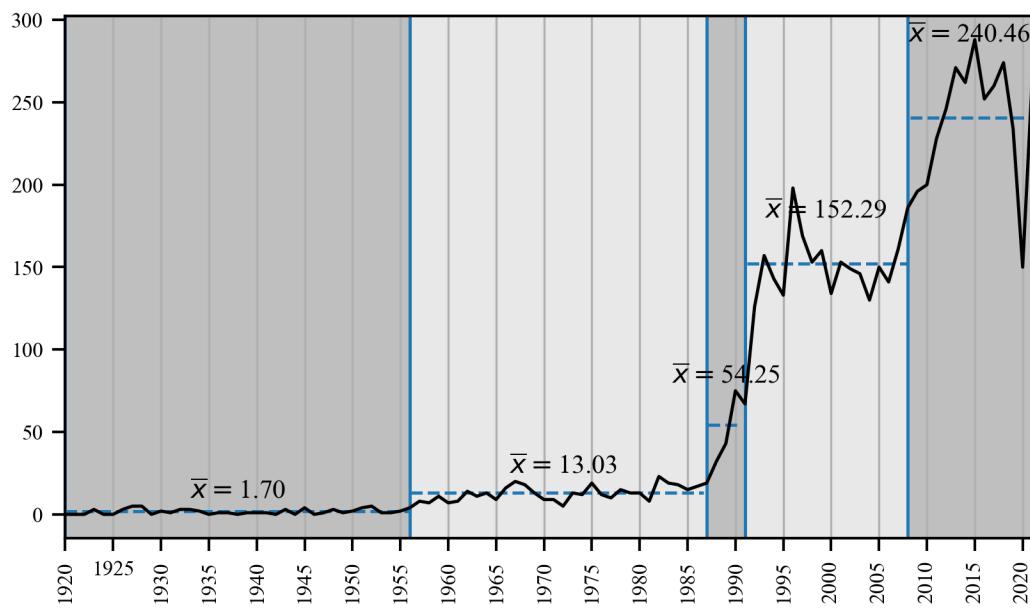


Figure 3. Cumulative counts (in thousands, left axes) and yearly counts of publications (right axes) in gang research, criminology and penology, and sociology.

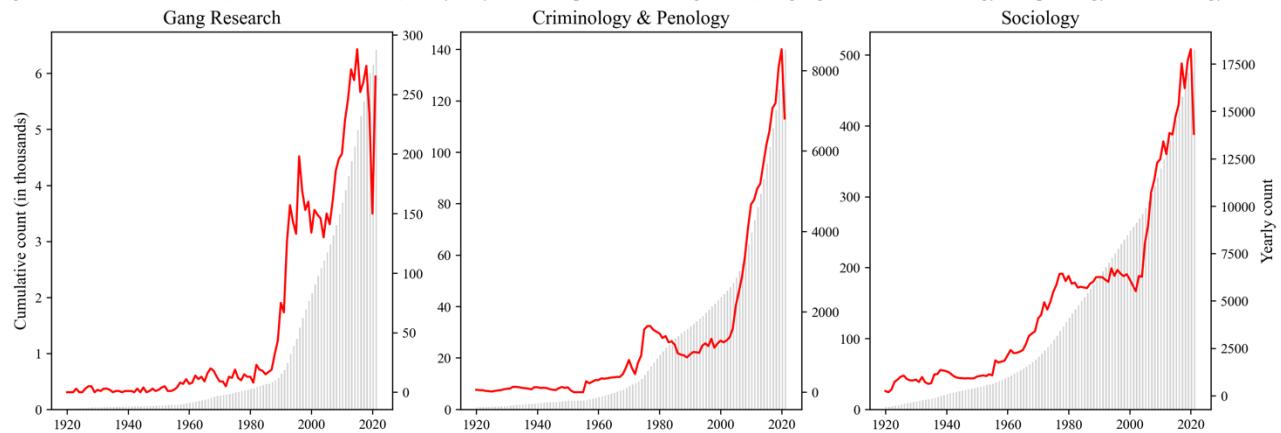


Figure 4. Number of scholars by year of first gang publication (Scholars with 4 or more books/articles [95th percentile] are named)

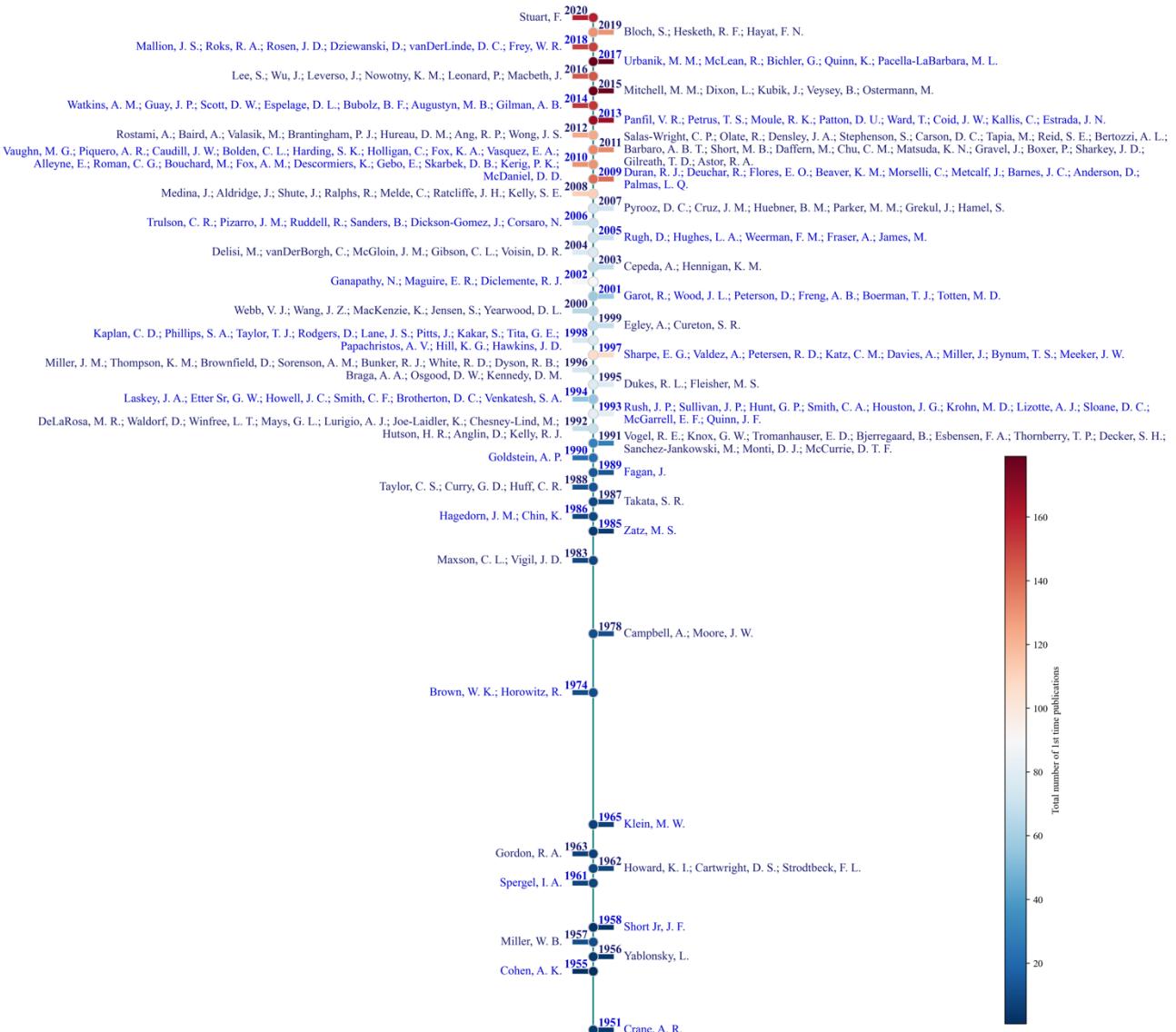


Figure 5. Relative distribution of topic from 1920-2021 (Kernel density)

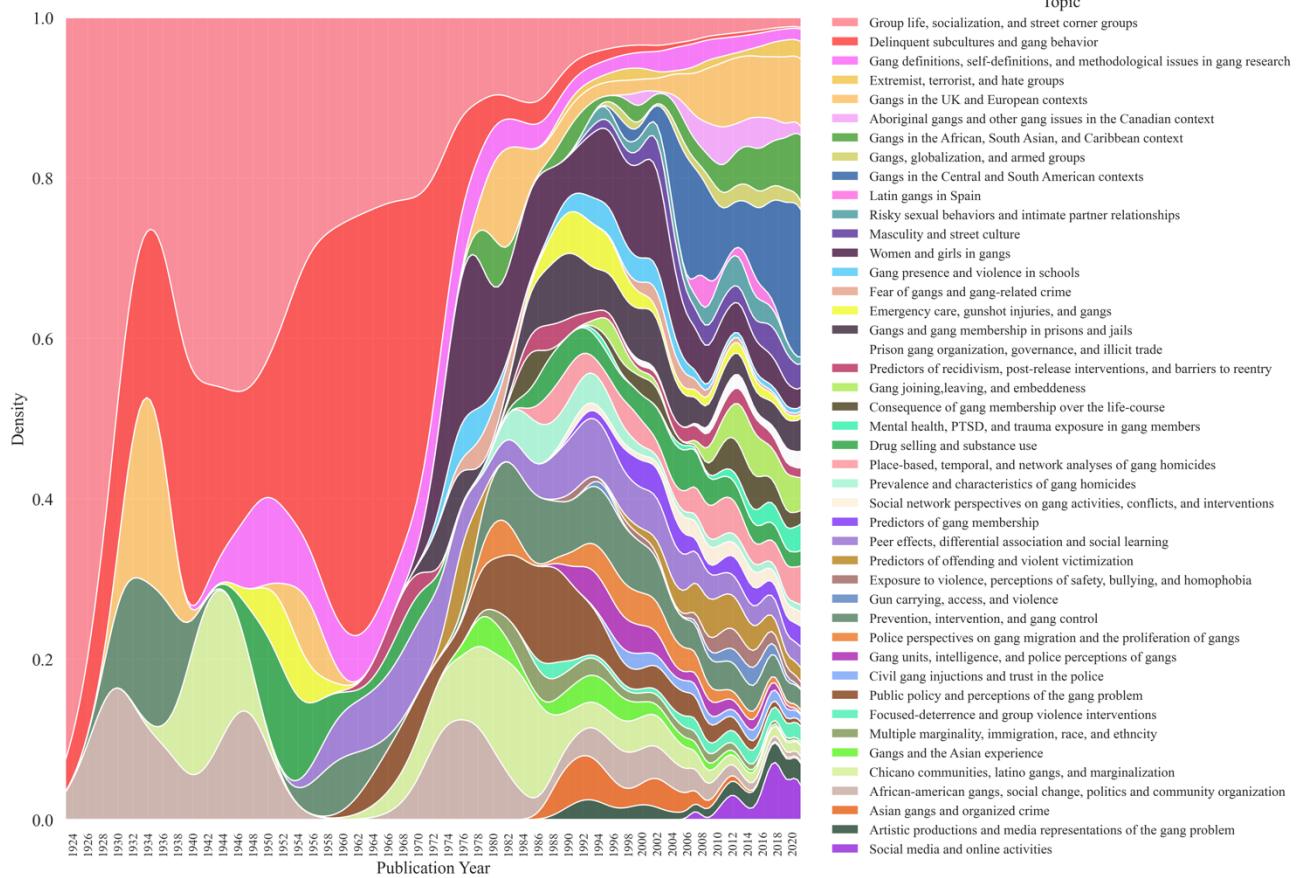
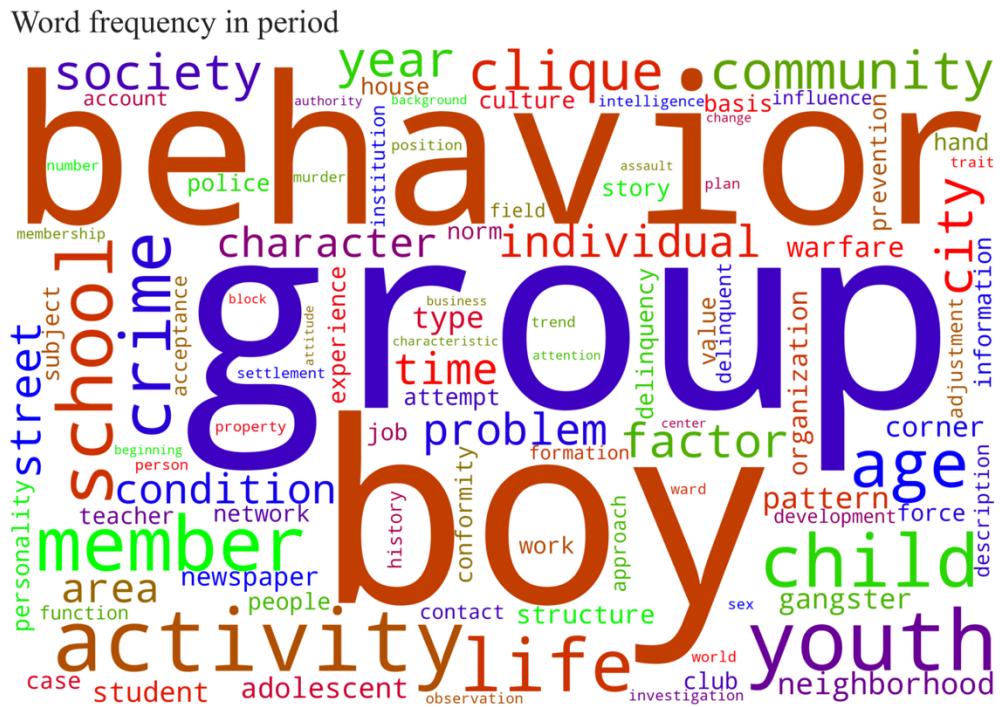


Figure 6. Word cloud representative of publications between 1920 and 1956.



TF-IDF compared to other periods

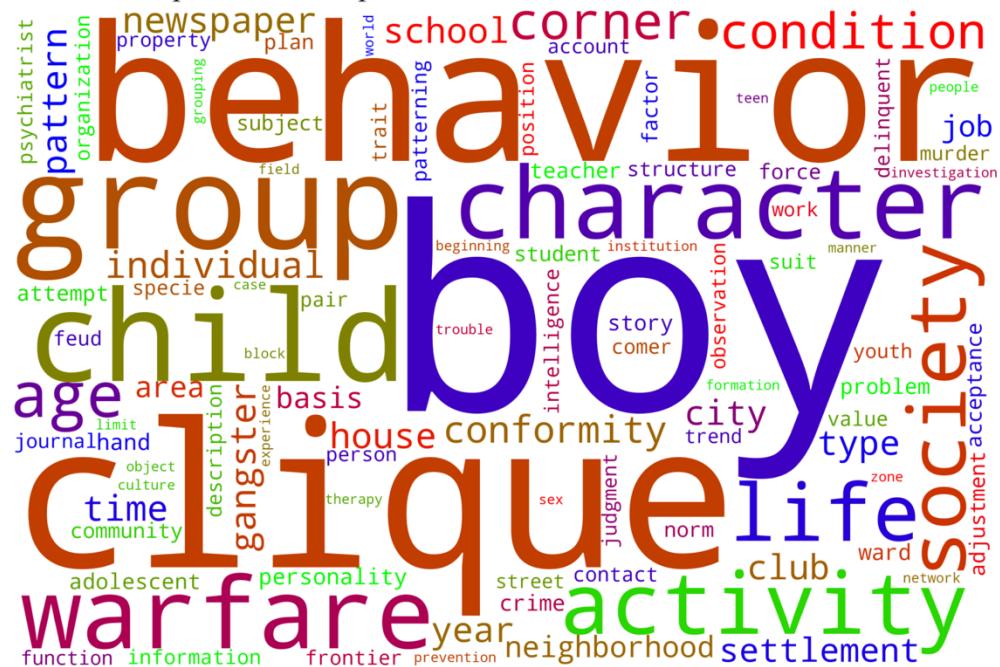


Figure 7. Word clouds representative of publications between 1957 and 1987.

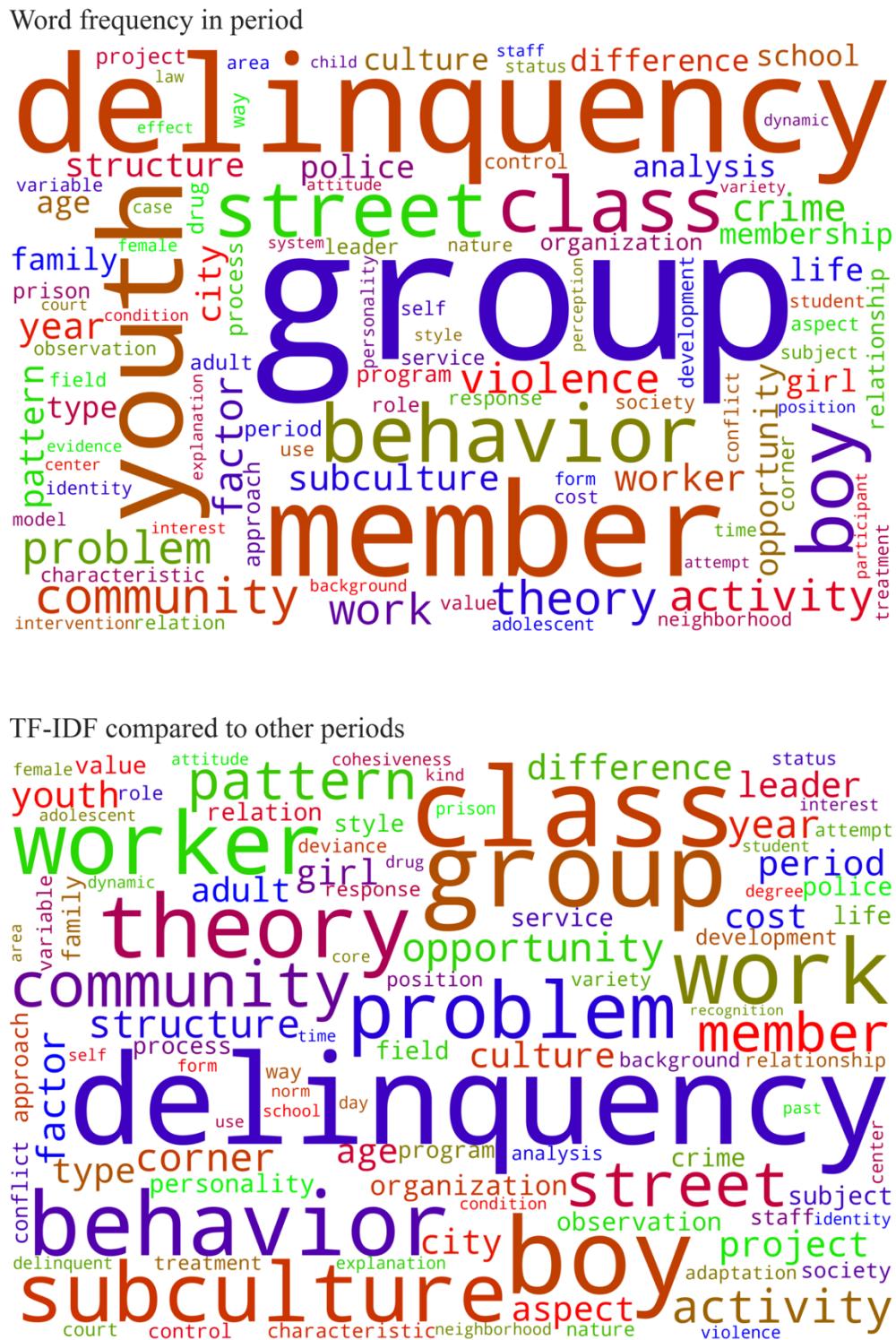
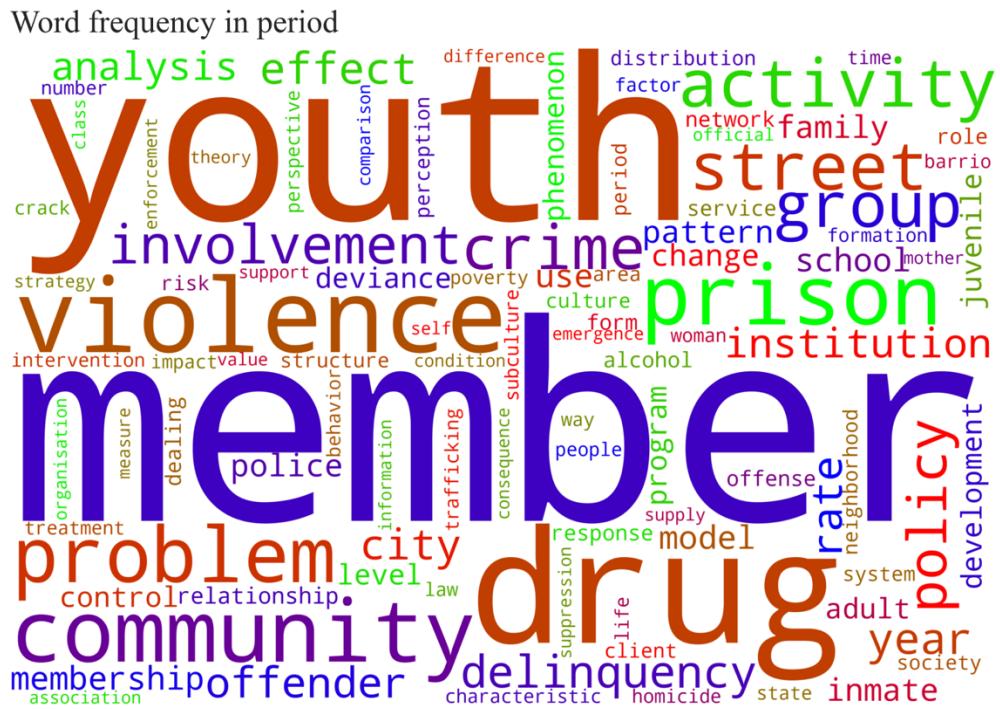


Figure 8. Word clouds representative of publications between 1988 and 1991.



TF-IDF compared to other periods

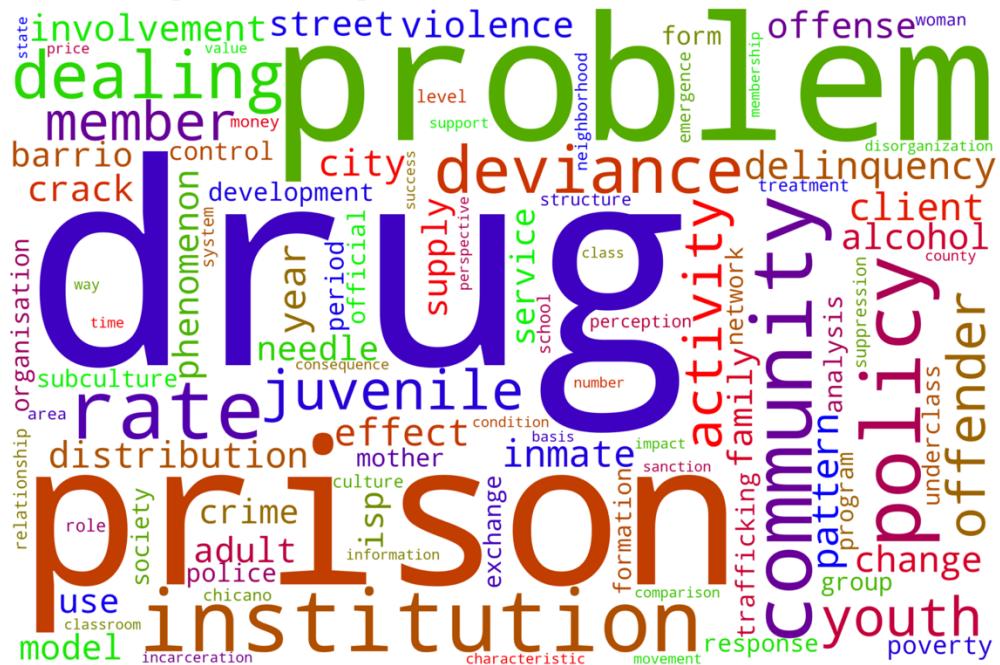
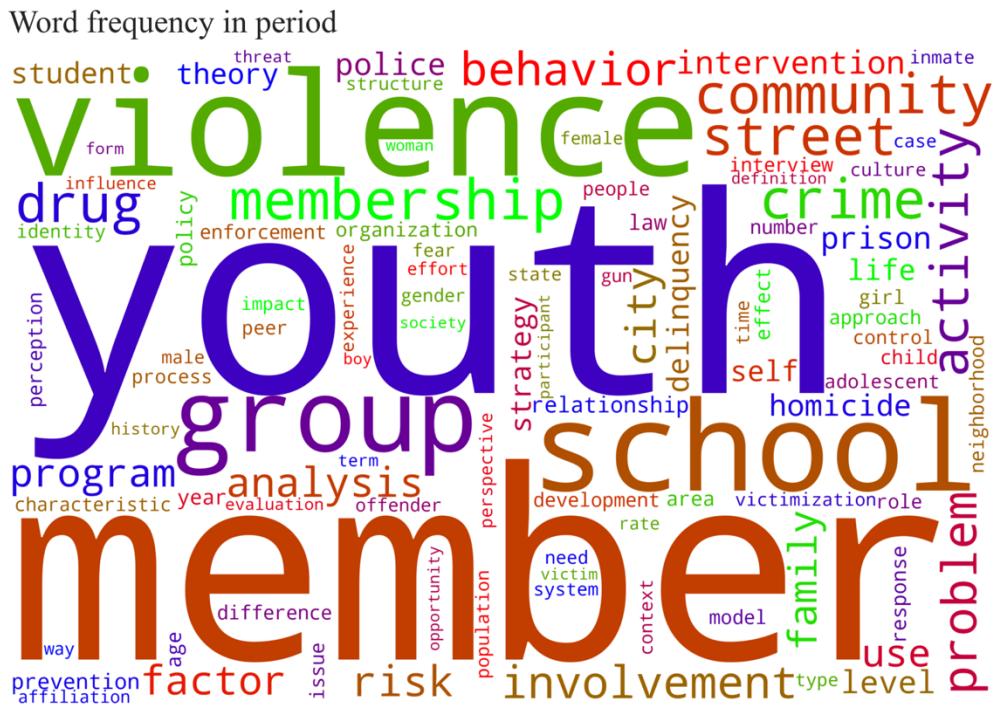


Figure 9. Word cloud representative of publications between 1992 and 2008.



TF-IDF compared to other periods

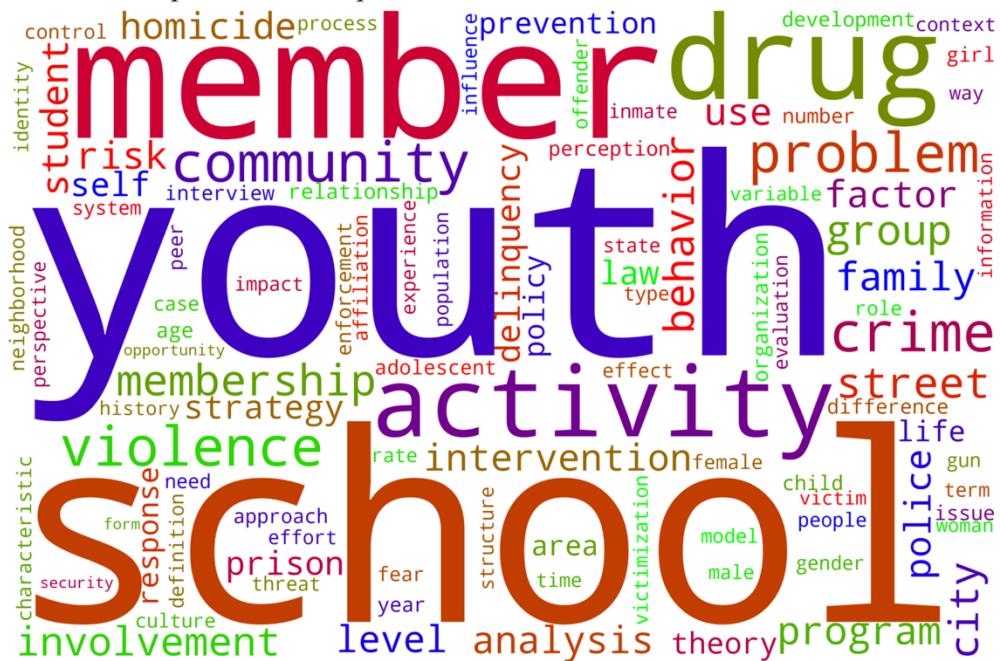
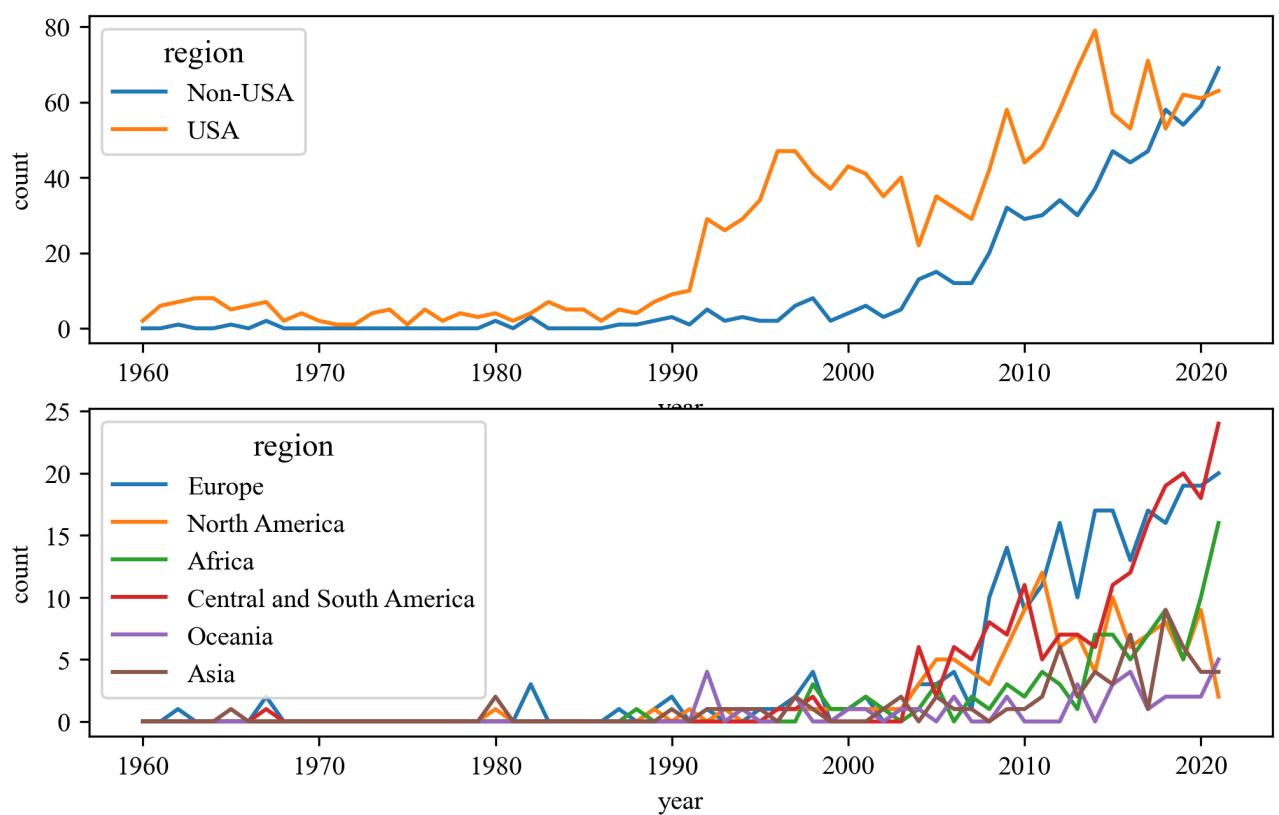


Figure 10. Word cloud representative of publications between 2009 and 2021.



Figure 11. Yearly count of studies by regions of the world



Appendix 1. Top 100 most cited articles.

Rk	Title (Year)	Author(s)	Topic	NC	CPY
1	Lower-Class Culture as a Generating Milieu of Gang Delinquency (1958)	Miller	Delinquent subcultures and gang behavior	3272	50.3
2	Focused Deterrence Strategies and Crime Control: An Updated Systematic Review and Meta-Analysis of the Empirical Evidence (2018)	Braga et al.	Focused-deterrence and group violence interventions	230	46.0
3	An economic analysis of a drug-selling gang's finances (2000)	Levitt & Venkatesh	Drug selling and substance use	955	41.5
4	Murder by Structure: Dominance Relations and the Social Structure of Gang Homicide (2009)	Papachristos	Social network perspectives on gang activities, conflicts, and interventions	570	40.7
5	The Effects of Focused Deterrence Strategies on Crime: A Systematic Review and Meta-Analysis of the Empirical Evidence (2012)	Braga & Weisburd	Focused-deterrence and group violence interventions	430	39.1
6	The Corner and the Crew: The Influence of Geography and Social Networks on Gang Violence (2013)	Papachristos et al.	Place-based, temporal, and network analyses of gang homicides	384	38.4
7	Problem-oriented policing, deterrence, and youth violence: An evaluation of Boston's operation ceasefire (2001)	Braga et al.	Focused-deterrence and group violence interventions	755	34.3
8	The Role of Juvenile Gangs in Facilitating Delinquent-Behavior (1993)	Thornberry et al.	Peer effects, differential association, and social learning	993	33.1
9	Youth gangs and definitional issues: When is a gang a gang, and why does it matter? (2001)	Esbensen et al.	No topic	695	31.6
10	Continuity and Change in Gang Membership and Gang Embeddedness (2013)	Pyrooz et al.	Gang joining, leaving, and embeddedness	285	28.5

11	What Do We Know About Gangs and Gang Members and Where Do We Go From Here? (2013)	Decker et al.	Gang definitions, self-definitions, and methodological issues in gang research	273	27.3
12	Gangs, Drugs, and Delinquency in a Survey of Urban Youth (1993)	Esbensen & Huizinga	Peer effects, differential association and social learning	812	27.1
13	Legitimacy in Criminal Governance: Managing a Drug Empire from Behind Bars (2019)	Lessing & Willis	Prison gang organization, governance, and illicit trade	106	26.5
14	Childhood risk factors for adolescent gang membership: Results from the Seattle Social Development Project (1999)	Hill et al.	Predictors of gang membership	622	25.9
15	Taking Stock of the Relationship Between Gang Membership and Offending a Meta-Analysis (2016)	Pyrooz et al.	Predictors of offending and violent victimization	180	25.7
16	Gangstas, thugs, and hustlas: Identity and the code of the street in rap music (2005)	Kubrin	Masculinity and street culture	454	25.2
17	Governance and Prison Gangs (2011)	Skarbek	Prison gang organization, governance, and illicit trade	298	24.8
18	Internet banging: New trends in social media, gang violence, masculinity and hip hop (2013)	Patton et al.	Social media and online activities	244	24.4
19	Why Do Criminals Obey the Law? The Influence of Legitimacy and Social Networks on Active Gun Offenders (2012)	Papachristos et al.	Gun carrying, access, and violence	268	24.4
20	Criminal and Routine Activities in Online Settings: Gangs, Offenders, and the Internet (2015)	Pyrooz et al.	Social media and online activities	190	23.8
21	The contribution of gang membership to delinquency beyond delinquent friends (1998)	Battin-Pearson et al.	Peer effects, differential association and social learning	586	23.4
22	The Ties That Bind: Desistance From Gangs (2014)	Pyrooz et al.	Gang joining, leaving, and embeddedness	207	23.0
23	Motives and methods for leaving the gang: Understanding the process of gang desistance (2011)	Pyrooz & Decker	Gang joining, leaving, and embeddedness	275	22.9
24	Gangs, Urban Violence, and Security Interventions in Central America (2009)	Jutersonke et al.	Gangs in the Central and South American contexts	319	22.8

25	"Going viral" and "Going country": the expressive and instrumental activities of street gangs on social media (2017)	Storrod & Densley	Social media and online activities	136	22.7
26	Cyber violence: What do we know and where do we go from here? (2017)	Peterson & Densley	Social media and online activities	132	22.0
27	Sweet mothers and gangbangers: Managing crime in a black middle-class neighborhood (1998)	Pattillo	Place-based, temporal, and network analyses of gang homicides	550	22.0
28	Antisocial behavior and youth gang membership: Selection and socialization (2004)	Gordon et al.	Peer effects, differential association and social learning	408	21.5
29	Street gang theory and research: Where are we now and where do we go from here? (2010)	Wood & Alleyne	Gang definitions, self-definitions, and methodological issues in gang research	277	21.3
30	Bullies, Gangs, Drugs, and School: Understanding the Overlap and the Role of Ethnicity and Urbanicity (2013)	Bradshaw et al.	No topic	208	20.8
31	Gang Membership as a Turning Point in the Life Course (2011)	Melde & Esbensen	Consequence of gang membership over the life-course	245	20.4
32	Youth violence in Boston: Gun markets, serious youth offenders, and a use-reduction strategy (1996)	Kennedy et al.	Focused-deterrence and group violence interventions	539	20.0
33	Gangs and Violence: Disentangling the Impact of Gang Membership on the Level and Nature of Offending (2013)	Melde & Esbensen	Predictors of offending and violent victimization	199	19.9
34	Drug Battles and School Achievement: Evidence from Rio de Janeiro's Favelas (2017)	Monteiro & Rocha	Gangs in the Central and South American contexts	119	19.8
35	How the street gangs took central America (2005)	Arana	Gangs in the Central and South American contexts	355	19.7
36	Collective and normative features of gang violence (1996)	Decker	Social network perspectives on gang activities, conflicts, and interventions	527	19.5

37	Gang talk and gang talkers: A critique (2008)	Hallsworth & Young	Gangs in the UK and European contexts	290	19.3
38	Social Networks and the Risk of Gunshot Injury (2012)	Papachristos et al.	Gun carrying, access, and violence	211	19.2
39	Moving risk factors into developmental theories of gang membership (2005)	Howell & Egley	Predictors of gang membership	345	19.2
40	Combining propensity score matching and group-based trajectory analysis in an observational study (2007)	Haviland et al.	Predictors of offending and violent victimization	305	19.1
41	Disengagement From Gangs as Role Transitions (2014)	Decker et al.	Gang joining, leaving, and embeddedness	171	19.0
42	Disengaging From Gangs and Desistance From Crime (2013)	Sweeten et al.	Gang joining, leaving, and embeddedness	190	19.0
43	"From Your First Cigarette to Your Last Dyi' Day": The Patterning of Gang Membership in the Life-Course (2014)	Pyrooz	Consequence of gang membership over the life-course	170	18.9
44	Gang membership as a risk factor for adolescent violent victimization (2007)	Taylor et al.	Predictors of offending and violent victimization	299	18.7
45	Youth gang affiliation, violence, and criminal activities: A review of motivational, risk, and protective factors (2013)	OBrien et al.	Gang joining, leaving, and embeddedness	186	18.6
46	Gang membership and violent victimization (2004)	Peterson et al.	Predictors of offending and violent victimization	353	18.6
47	Central American maras: from youth street gangs to transnational protection rackets (2010)	Cruz	Gangs in the Central and South American contexts	239	18.4
48	Slum Wars of the 21st Century: Gangs, Mano Dura and the New Urban Geography of Conflict in Central America (2009)	Rodgers	Gangs in the Central and South American contexts	256	18.3
49	Working County Lines: Child Criminal Exploitation and Illicit Drug Dealing in Glasgow and Merseyside (2019)	Robinson et al.	Gangs in the UK and European contexts	73	18.2

50	Deterring Gang-Involved Gun Violence: Measuring the Impact of Boston's Operation Ceasefire on Street Gang Behavior (2014)	Braga et al.	Focused-deterrence and group violence interventions	162	18.0
51	The social organization of street gang activity in an urban ghetto (1997)	Venkatesh	African-American gangs, social change, politics and community organization	466	17.9
52	Living in the shadow of death: Gangs, violence and social order in urban Nicaragua, 1996-2002 (2006)	Rodgers	Gangs in the Central and South American contexts	304	17.9
53	Gang Involvement: Psychological and Behavioral Characteristics of Gang Members, Peripheral Youth, and Nongang Youth (2010)	Alleyne & Wood	Peer effects, differential association and social learning	231	17.8
54	The effect of gang affiliation on violent misconduct among inmates during the early years of confinement (2006)	Griffin & Hepburn	Gangs and gang membership in prisons and jails	298	17.5
55	Code of the Tweet: Urban Gang Violence in the Social Media Age (2020)	Stuart	Social media and online activities	52	17.3
56	Youth gangs, delinquency and drug use: a test of the selection, facilitation, and enhancement hypotheses (2005)	Gatti et al.	Peer effects, differential association and social learning	311	17.3
57	Spatializing Social Networks: Using Social Network Analysis to Investigate Geographies of Gang Rivalry, Territoriality, and Violence in Los Angeles (2010)	Radil et al.	Place-based, temporal, and network analyses of gang homicides	221	17.0
58	Narratives of Childhood Adversity and Adolescent Misconduct as Precursors to Violent Extremism: A Life-Course Criminological Approach (2016)	Simi et al.	Extremist, terrorist, and hate groups	119	17.0
59	Understanding the black box of gang organization - Implications for involvement in violent crime, drug sales, and violent victimization (2008)	Decker et al.	Peer effects, differential association and social learning	251	16.7
60	"I Got Your Back": An Examination of the Protective Function of Gang Membership in Adolescence (2009)	Melde et al.	Predictors of offending and violent victimization	231	16.5

61	The Contribution of Gang Membership to the Victim-Offender Overlap (2014)	Pyrooz et al.	Predictors of offending and violent victimization	146	16.2
62	Urban violence and street gangs (2003)	Vigil	Chicano communities, Latino gangs, and marginalization	319	15.9
63	The Social-Organization of Drug-Use and Drug Dealing Among Urban Gangs (1989)	Fagan	Drug selling and substance use	533	15.7
64	It's Gang Life, But Not As We Know It The Evolution of Gang Business (2014)	Densley	Gangs in the UK and European contexts	141	15.7
65	Gang Membership and Adherence to the "Code of the Street" (2013)	Matsuda et al.	Peer effects, differential association and social learning	154	15.4
66	Diffusion in homicide: Exploring a general method for detecting spatial diffusion processes (1999)	Cohen & Tita	Place-based, temporal, and network analyses of gang homicides	367	15.3
67	Reducing Gang Violence Using Focused Deterrence: Evaluating the Cincinnati Initiative to Reduce Violence (CIRV) (2013)	Engel et al.	Focused-deterrence and group violence interventions	152	15.2
68	The influence of prison gang affiliation on violence and other prison misconduct (2002)	Gaes et al.	Gangs and gang membership in prisons and jails	319	15.2
69	Monoamine oxidase A genotype is associated with gang membership and weapon use (2010)	Beaver et al.	Gun carrying, access, and violence	197	15.2
70	Treat a Cop Like They Are God: Exploring the Relevance and Utility of Funds of Gang Knowledge Among Latino Male Students (2021)	Huerta & Rios-Aguilar	Chicano communities, Latino gangs, and marginalization	30	15.0
71	The Company You Keep? The Spillover Effects of Gang Membership on Individual Gunshot Victimization in a Co-Offending Network (2015)	Papachristos et al.	Gun carrying, access, and violence	118	14.8
72	Going to extremes: Social identity and communication processes associated with gang membership (2014)	Goldman et al.	Gang definitions, self-definitions, and methodological issues in gang research	132	14.7

73	Artificial Intelligence and Inclusion: Formerly Gang-Involved Youth as Domain Experts for Analyzing Unstructured Twitter Data (2020)	Frey et al.	Social media and online activities	44	14.7
74	Adverse Childhood Experiences (ACEs) and Gang Involvement Among Juvenile Offenders: Assessing the Mediation Effects of Substance Use and Temperament Deficits (2020)	Wolff et al.	Predictors of offending and violent victimization	44	14.7
75	Street gang violence in Europe (2006)	Klein et al.	No topic	249	14.6
76	Gang Membership, Violence, and Psychiatric Morbidity (2013)	Coid et al.	Mental health, PTSD, and trauma exposure in gang members	146	14.6
77	Changing the Street Dynamic Evaluating Chicago's Group Violence Reduction Strategy (2015)	Papachristos & Kirk	Focused-deterrence and group violence interventions	116	14.5
78	Validating Self-Nomination in Gang Research: Assessing Differences in Gang Embeddedness Across Non-, Current, and Former Gang Members (2014)	Decker et al.	Gang joining, leaving, and embeddedness	129	14.3
79	Just every mothers angel: An analysis of gender and ethnic variations in youth gang membership (1995)	Joe-Laidler & Chesney-Lind	Women and girls in gangs	400	14.3
80	Hiding violence to deal with the state: Criminal pacts in El Salvador and Medellin (2016)	Cruz & Duran-Martinez	Gangs in the Central and South American contexts	100	14.3
81	Policy and intervention considerations of a network analysis of street gangs (2005)	McGloin	Social network perspectives on gang activities, conflicts, and interventions	257	14.3
82	Prison gangs, norms, and organizations (2012)	Skarbek	Prison gang organization, governance, and illicit trade	156	14.2
83	Reducing homicide through a "lever-pulling" strategy (2006)	McGarrell et al.	Focused-deterrence and group violence interventions	237	13.9
84	Delinquency and the structure of adolescent peer groups (2011)	Kreager et al.	Peer effects, differential association and social learning	167	13.9

85	The Cascading Effects of Adolescent Gang Involvement Across the Life Course (2011)	Krohn et al.	Consequence of gang membership over the life-course	167	13.9
86	Gender differences in gang participation, delinquency, and substance use (1993)	Bjerregaard & Smith	Women and girls in gangs	416	13.9
87	The Semiotic Hitchhiker's Guide to Creaky Voice: Circulation and Gendered Hardcore in a Chicana/o Gang Persona: Creaky Voice, Circulation, and Gendered Hardcore in a Chicana/o Gang Persona (2011)	Mendoza-Denton	Artistic productions and media representations of the gang problem	165	13.8
88	The Ecology of Gang Territorial Boundaries (2012)	Brantingham et al.	Place-based, temporal, and network analyses of gang homicides	150	13.6
89	Mara Salvatrucha: The Most Dangerous Street Gang in the Americas? (2012)	Wolf	Gangs in the Central and South American contexts	150	13.6
90	Imagining the Asian gang: ethnicity, masculinity and youth after 'the riots' (2004)	Alexander	Gangs in the UK and European contexts	255	13.4
91	Street habitus: gangs, territorialism and social change in Glasgow (2013)	Fraser	Gangs in the UK and European contexts	134	13.4
92	The global impact of gangs (2005)	Hagedorn	Gangs, globalization, and armed groups	240	13.3
93	Youth gang membership and serious violent victimization - The importance of lifestyles and routine activities (2008)	Taylor et al.	Predictors of offending and violent victimization	199	13.3
94	Cut from the Same Cloth? A Comparative Study of Domestic Extremists and Gang Members in the United States (2018)	Pyrooz et al.	Extremist, terrorist, and hate groups	65	13.0
95	Gang violence on the digital street: Case study of a South Side Chicago gang member's Twitter communication (2017)	Patton et al.	Social media and online activities	78	13.0
96	From Colors and Guns to Caps and Gowns? The Effects of Gang Membership on Educational Attainment (2014)	Pyrooz	Consequence of gang membership over the life-course	116	12.9

97	Counterproductive punishment: How prison gangs undermine state authority (2017)	Lessing	No topic	77	12.8
98	An ecological study of the location of gang "set space" (2005)	Tita et al.	Place-based, temporal, and network analyses of gang homicides	230	12.8
99	Facilitating violence: A comparison of gang-motivated, and nongang youth homicides (1999)	Rosenfeld et al.	Place-based, temporal, and network analyses of gang homicides	301	12.5
100	Dangerous Associations: Joint Enterprise, Gangs and Racism (2016)	Petrillo	Gangs in the UK and European contexts	87	12.4

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year

Appendix 2. Top 50 most cited books.

Rk	Title (Year)	Author(s)	NC	CPY
1	Street corner society: The social structure of an Italian slum (1943)	Whyte	9618	120.2
2	Delinquent boys; The culture of the gang. (1955)	Cohen	8022	118.0
3	Delinquency and opportunity: A study of delinquent gangs (1960)	Cloward & Ohlin	6748	107.1
4	Homegirls: Language and cultural practice among Latina youth gangs (2008)	Mendoza-Denton	1014	67.6
5	The American street gang: Its nature, prevalence, and control (1997)	Klein	1646	63.3
6	Street Gang Patterns and Policies (2006)	Klein & Maxson	1062	62.5
7	Gangs and delinquency in developmental perspective (2003)	Thornberry et al.	1196	59.8
8	Inside Criminal Networks (2009)	Morselli	793	56.6
9	Gangs in America's communities (2018)	Howell & Griffiths	277	55.4
10	Gang leader for a day: A rogue sociologist takes to the streets (2008)	Venkatesh	825	55.0
11	The social order of the underworld: How prison gangs govern the American penal system (2014)	Skarbek	471	52.3
12	Life in the gang: Family, friends, and violence (1996)	Decker & VanWinkle	1364	50.5
13	A rainbow of gangs: Street cultures in the mega-city (2010)	Vigil	621	47.8
14	The social order of the slum: Ethnicity and territory in the inner city (1968)	Suttles	2601	47.3
15	The gang: A study of 1,313 gangs in Chicago (1927)	Thrasher	4403	45.9
16	Barrio gangs: Street life and identity in Southern California (1988)	Vigil	1603	45.8
17	One of the guys: Girls, gangs, and gender (2001)	Miller	948	43.1
18	A world of gangs: Armed young men and gangsta culture (2008)	Hagedorn	598	39.9
19	Islands in the Street (1991)	Sanchez-Jankowski	1187	37.1
20	The Youth Gang problem: A community approach (1995)	Spergel	963	34.4
21	People and Folks. Gangs, Crime and the Underclass in a Rustbelt City. (1988)	Hagedorn & Macon	1100	31.4

22	The gangs of Chicago: An informal history of the Chicago underworld (2003)	Asbury	583	29.1
23	Going down to the barrio: Homeboys and homegirls in change (1991)	Moore	915	28.6
24	Space of Detention: The Making of a Transnational Gang Crisis between Los Angeles and San Salvador (2011)	Zilberg	310	25.8
25	Confronting gangs: Crime and community (2003)	Curry & Decker	498	24.9
26	How Gangs Work: An Ethnography of Youth Violence (2013)	Densley	243	24.3
27	Guys, gangs, and girlfriend abuse (2019)	Totten	97	24.2
28	Group process and gang delinquency (1965)	Short Jr & Strodtbeck	1382	23.8
29	The almighty Latin king and queen nation (2004)	Brotherton & Barrios	446	23.5
30	Mano Dura the Politics of Gang Control in El Salvador (2017)	Wolf	140	23.3
31	The gang as an American enterprise (1992)	Padilla	704	22.7
32	Gangs in America III (2002)	Huff	473	22.5
33	Gangs, politics & dignity in Cape Town (2008)	Jensen	334	22.3
34	Homies and hermanos: God and gangs in Central America (2012)	Brenneman II	236	21.5
35	The lobster gangs of Maine (1988)	Acheson	740	21.1
36	Youth, popular culture and moral panics: Penny gaffs to gangsta-rap, 1830 1996 (1999)	Springhall	496	20.7
37	The history of street gangs in the United States: Their origins and transformations (2015)	Howell	164	20.5
38	Ballad of the Bullet: Gangs, Drill Music, and the Power of Online Infamy (2020)	Stuart	56	18.7
39	An appeal to justice: Litigated reform of Texas prisons (2010)	Crouch & Marquart	240	18.5
40	Bo-tsotsi: The Youth Gangs of Soweto (2000)	Glaser	419	18.2
41	Who you claim (2010)	Garot	234	18.0
42	Street gangs and street workers (1971)	Klein	929	17.9
43	Street Casino: Survival in Violent Street Gangs (2014)	Harding	160	17.8
44	Homeboys: Gangs, drugs, and prison in the barrios of Los Angeles (1978)	Moore & Garcia	759	16.9
45	Always running: La vida loca: Gang days in LA (2005)	Rodriguez	299	16.6

46	The gang and beyond: Interpreting violent street worlds (2013)	Hallsworth	165	16.5
47	Gang life in two cities: An insider's journey (2013)	Duran	160	16.0
48	Adios nino: The Gangs of Guatemala City and the Politics of Death (2013)	Levenson	160	16.0
49	The violent gang (1962)	Yablonsky	953	15.6
50	Gangs of Russia: From the Streets to the Corridors of Power (2015)	Stephenson	121	15.1

Note: Rk=Rank in period; NC=Number of citations; CPY=Citations per year

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