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# research article

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## The current state of criminology in Chile: between amateurism and professionalisation

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This paper explores the criminological scientific community in Chile from 1990 to 2020. We use the sociology of scientific knowledge as a conceptual framework to apply to the Chilean criminology development stage. We analyse the criminological community using social network analysis based on the co-affiliation networks of researchers (N=62) affiliated with research centres, think tanks and universities producing criminological knowledge. We describe the actors involved in the network of researchers and identify the clusters shaping the main areas of the country's production and dissemination of criminological research. The findings reveal a low density between scholars in the network; the existence of central research topics related to citizen security and criminal law; the presence of clusters (for example, juvenile justice and prison studies, among others), and areas that are emerging in the production of criminological knowledge in Chile (cybercrime, crimmigration). We conclude that criminology in Chile is still in the amateur stage. However, there are signs of growing professionalisation in the discipline.

**Key words** sociology of scientific knowledge • criminology • social network analysis • Chile

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### Introduction

In recent decades, scientific communities have been a research object in various disciplines, such as the sociology of science, the history of science and the philosophy of science (Merton, 1985). Diverse topics are studied, for example, the processes of institutionalisation, organisation and professionalisation of science (Yahiel, 1975).

Certainly, the first significant problem these studies encounter is what constitutes a scientific community. We follow the Kuhnian concept of the scientific community since it is a widely used concept in the sociology of science (Casas, 1980; Knorr-Cetina, 1996). According to Kuhn, a scientific community comprises 'professionals from a science' (Kuhn, 2019: 349). The factor that would make a scientific community sustainable is the idea of a paradigm as a constellation of beliefs, values and techniques

shared by the members of a given community (Kuhn, 2019). So, even though it may seem like a circular argument, a paradigm is what the members of a scientific community share, and vice versa, a scientific community is composed of people who share a paradigm (Kuhn, 2019).

Nonetheless, some authors critique this traditional notion of the scientific community (Knorr-Cetina, 1981). A critical example is the idea of the supposed existence of scientific autonomy. Scientific activity has always been interrelated with other social, economic and political areas. These external forces largely configure the activity and production of scientific communities.<sup>1</sup> Knorr-Cetina qualifies this traditional notion of 'naïve internalism' as a model based on the views of orthodox functionalism (Knorr-Cetina, 1996: 137).

Alternatively, studies of scientific activity tend to use other notions, for example, Bourdieu's concept of field. The concept serves as a descriptor of a specific scientific group regarding the system of relationships of competition and conflict between groups who are in different situations and positions. The field's properties directly impact the production of its goods, understood as scientific products. Thus, scientific work cannot be understood if there is no adequate understanding of the position and history of the actors in the field (Bourdieu, 2002). In addition, the scientific activity is also described through the notion of research network, emphasising the formal deployment of scientific research and its various interrelationships (Woolgar, 1976). Other authors point to the idea of a scientific society instead of a community, although there is no significant difference between both concepts (Ben-David, 1991; Torres, 1994).

The notion of the scientific community is still commonly used to describe scientific activity development. Not only because it is a highly institutionalised concept but because it also offers other advantages. To illustrate, a framework within research is set in a specific geographical and temporal context. Moreover, the concept of the scientific community brings together the formal elements of scientific research with the informal elements of personal activity.

The sociology of scientific knowledge contributes to exploring the trajectories of social representations of scientific practices (Shapin, 1995). In that sense, Woolgar (1991) points out a typology to comprehend the evolution of the scientific field in three different stages: amateur, academic and professional. The amateur phase indicates a less formalised community in which there are informal exchanges between members but not necessarily with higher levels of disciplinary specialisation. For the professional stage, it is possible to observe science as an academic occupation and incipient research activities, mainly conducted in universities. For example, academic organisations create disciplinary units, like schools or departments, assembling a faculty with higher academic degrees, research experience and credentials, showing an increase in specialisation.

The professional stage constitutes the ultimate scientific specialisation level in which the scientific community defines the limits and scopes of the discipline and recruits new members providing scientific knowledge, training, and occupational skills. For example, individuals need to hold a doctoral degree as a requirement for the community to validate their membership. In addition, there is a process of articulation between the scientific community and the broader society, for example, in public or private grants to conduct research. In other words, the activity of the scientific community interacts with other social domains, providing applied knowledge and technology that

contributes to society's development (Torres, 2001). We argue that Wooglar's (1991) framework can be applied to criminology as a conceptual framework to describe the trajectories of the social representation and configuration of the scientific community that studies and produces knowledge focusing on the criminal question (Melossi et al, 2011).

Following the framework of the sociology of knowledge, it is very complex to talk about a scientific community as a single and uniform construct (Medina, 1982; Torres, 1994). The notion of scientific community in criminology is challenged by various approaches, subcommunities and orientations on different objectives, units of analysis and audiences (Uggen and Inderbitzen, 2010; Sozzo, 2020). For example, Koehler (2015) analyses the emergence of the school of criminology at the University of California, Berkeley from 1916 to late 1970. The author highlights different traditions coexisting such as law and society, administrative criminology and radical criminology. In addition, the author observes a tension between these competing epistemic approaches and research agenda to gain legitimacy in the American context.

Questions about the dynamics of the scientific community become relevant in the criminological discipline. Empirical studies about scientific communities in criminology shed light on the types of specialisation observed. Some authors characterise the concept of scientific community in terms of patterns of scholarly cooperation, thematic specialisation in the discipline, or co-authorship that engage different topics, fields and groups (Rice et al, 2011; Wheeler, 2020). Other approaches focus on the dynamics of the scientific status of criminology in connection with other disciplines like psychology, sociology, law and others (Triplett and Monk-Turner, 2010), which is particularly challenging in a more globalised context (Messner, 2021).

An additional limitation relates to the institutionalisation of criminological knowledge as the formalisation of scientific research and presence in the academic or public realm. In that sense, the study of criminology as a social representation of knowledge makes it possible to observe the dynamics of power, for example, between the discipline and actors, political power, and criminal justice system and penal policies. We thus see criminology as a scientific community intrinsically shaped by social dynamics and political placement (Loader and Sparks, 2010). In contrast to other disciplines that essentially produce basic science, criminology does not only exist in a scientific context. Criminological knowledge is produced by and in dialogue with the practical field, though obviously with varying degrees of influence in the decision-making process (Mayhew, 2016).

The third limitation centres on the context in which social science research is performed. For example, whether they are located in the core, the semi-periphery or the periphery shapes components to a certain type of criminology and epistemology (Medina, 2011). In our case, the more extensive debate would be whether a Latin-American scientific community exists and whether a criminology scientific community exists in our region (del Olmo, 1999). The debate is usually linked to the issue of whether scientific knowledge is colonised or not. It is usually argued that we receive hegemonic theoretical frameworks from the so-called global north, mainly Western Europe and the United States (Sánchez-Tarragó et al, 2015). Nowadays, the debate focuses on the tension between northern criminology versus the global south perspectives (Carrington et al, 2016; 2018; Fishwick and Marmo, 2017). Southern criminology is a promising analytical standpoint. However, it also presents a series of problems and precautions, such as the risk of re-Westernisation

of certain theoretical frameworks, how well this outlook would fit in a globalised world, or the existing asymmetries within the regional contexts of the global south, among others (Moosavi, 2019).

We argue that the idea of the scientific community is relevant for observing the development of the criminological field in a specific context and time. In that sense, our framework relies on two previously mentioned notions. The idea of scientific community and, more importantly, the relationship between the actors that are part of the community. We consider that these two elements make it possible to understand better the evolution and current state of criminology in Chile. In that sense, the case of Chilean criminology is interesting to explore because the discipline arose from 1990 to 2020 in a country located in the periphery of the traditional centres of criminological knowledge. The research questions guiding this work are as follows: To what extent is it possible to observe criminology as a scientific community in Chile? What are the characteristics of institutional actors and scholars in the discipline? What are the groups that constitute subcommunities based on their research topics? Furthermore, most importantly, what is the current stage of criminology development in the country from a scientific community standpoint?

### **The Chilean criminology scientific community: context, objects and research centres**

We argue that the scientific criminological community has faced the emergence of a more consolidated field during the last few years. At least three factors would corroborate this claim. A growing group of researchers in the area is driven mainly by the emergence of think tanks doing applied research in connection with crime and justice topics. Also there is a generation of Chilean researchers educated in universities abroad pursuing criminology graduate degrees with the support of a national scholarship programme.<sup>2</sup> Additionally, the rise of empirical work in this field is supported by public grants for research projects that lead to scientific production and publications in connection with crime, justice and public safety policies. Finally, the Chilean Society of Criminology (SOCHICRIM) was created in 2019, as a scientific organisation devoted to connecting researchers that were spread out in this field. SOCHICRIM organised two virtual conferences held in 2020 and 2021, bringing scholars interested in disseminating their work. These elements make us hypothesise that Chile may be transitioning from an underdeveloped criminology stage to a gradual professionalisation of this field.

In general, criminology is a discipline that has been little explored as an object of study in the country. In that sense, studies involving the idea of a scientific community in criminology in Chile are limited. One of the major issues is the visibility of criminology as a distinct discipline. For example, some literature has assumed criminology is part of law studies, specifically within the scope of criminal law research (Matus and Carnevali, 2007). Additionally, law scholars acknowledge the greater sense of community for researchers in the criminal law field. Matus (2021) calls the generation of criminal lawyers that emerged post-dictatorship as the ‘generation of democratic restoration’ (1990–2020), replacing the previous generation, called the ‘new criminal dogma’. This self-appointed identity is partly due to criminal law being a more defined discipline with well-known influence and public recognition. There is no doubt that it has been reinforced by the multiple, traceable sources of influence

that criminal law has benefited from and which come from other contexts, especially the European and, more recently, the Anglo-American perspective (Matus, 2008). It is evident that the development of Chilean criminology has grown under the wings of the evolution of criminal law.

Another group of studies relates criminology to a historical approach to understanding crime narratives over time (Estay-Sepúlveda and Monteverde-Sánchez, 2017; Palma, 2019). For example, the consolidation of the public image of crime during the 20th century has been analysed with particular emphasis by León (2008). The author highlights the strong influence of positivism on the configuration of Chilean criminology. In addition to the historical approach, some studies have tried to systematise criminology and crime in fields such as forensic medicine and psychology (Palacios and Leyton, 2014) and, more recently, a review of the role of forensic science in Chile (Nino-Moris, 2019).

Therefore, it is possible to state that the concept of criminology itself has never completely settled in the Chilean context, either as a discipline, a teaching topic or a profession. In addition, we argue that there is a lack of scholarly work exploring the contemporary criminological discipline itself. In particular, the paper aims to explore the trajectory of the scientific development in the field, the production of criminological knowledge or the characteristics of the groups that constitute the larger criminological community.

This section briefly describes the characteristics of the trajectory of criminology in Chile from 1990 to 2020. The time frame is set based on two important milestones: as a starting point, the return to democracy with the first administration run by the Concertación de Partidos por la Democracia,<sup>3</sup> and, as an end point, the organisation of the first conference of the Chilean Society of Criminology in 2020.

It is essential to describe the unusual way in which the development of criminological knowledge in Chile structured itself from 1990 to 2020. We refer to the prominent role that many academic institutions and think tanks have played in the production of knowledge and practices in the area of criminology, criminal justice and citizen security within the country (Heskia, 2011), as well as to their influence in the broader context of Latin America in the 2010s (Lazreg, 2018). In this sense, a series of academic organisations and groups of researchers have emerged in the national context with different orientations, research agendas and emphases over the past 30 years.

For example, Fundación Paz Ciudadana, a conservative-leaning think tank founded in 1992, has been one of the most sustainable institutions, influential in generating applied knowledge and policy change in public safety policies in Chile. Its research agenda emphasises studies related to criminal justice reform, rehabilitation, policing and crime prevention, particularly from an evidence-based approach, becoming one of the most influential entities for policy and public opinion debate.

In the first decade of the 21st century, a series of institutions emerged originally linked to public safety and crime prevention research. For example, the Center for Citizen Security Studies (CESC) in the Institute of Public Affairs<sup>4</sup> or the Center for Security Analysis and Modeling (CEAMOS) in the Engineering School in the University of Chile. Similarly, other centres emerged, such as the Center for Urban Safety in Universidad Alberto Hurtado – a private university – and the Program of Safety and Citizenship in FLACSO-Chile – a progressive think tank associated with the Concertación's administration – also in the early 2000s. These centres have contributed by generating applied research in public safety, supporting public policy

and evaluations at a national level, and providing technical support for municipal governments. Currently, CESC and Center for Urban Safety are still conducting applied research with different degrees of impact. On the other hand, CEAMOS and the FLACSO-Chile programme ended their work at the end of 2010.

Likewise, in the early 1990s, organisations such as the Center for Judicial Studies of Universidad Diego Portales emerged to carry out preliminary studies for criminal justice reform in Chile. However, these initiatives were not consolidated in the form of criminological research centres, but rather identified criminology as one of their many topics. Similarly, the Center for Judicial Studies of the Americas (CEJA) was created in 1999 as a member organisation of the Interamerican System. CEJA has contributed to the outreach and expansion of reforms to the adversarial criminal justice system in Latin America (Langer, 2007), generating research on the reform processes and providing technical assistance for governments and agencies in the criminal justice system to develop criminal procedure reforms.

The Center for Criminal Law Studies of the Universidad de Talca was also founded during this period. While it is aligned with the area of criminal law, it is an important actor in the field of criminology in the country since it is the home of *Política Criminal*, a journal established in 2006. This journal has become the leading academic outlet in this area at a national level and for Spanish speaking scholars in the last decade. In 2010, the Center for Criminological Research and Criminal Justice of the Universidad Central was created. Similarly, in 2011, the specialised journal *Nova Criminis* started to be published. This publication tries to emphasise the forensic perspective in the study of criminal justice. Unfortunately, this centre was closed in 2017, and the journal's last issue was published in 2018, leaving less room for the diffusion of criminological academic work in the country.

Towards the end of the 2010s, two new centres emerged, bringing together several groups of researchers in criminology. In 2017, the Research Cluster of Criminological Studies of the Border (NECfron) was created, being associated with the Universidad Arturo Prat. This group was one of the first centres specialised in topics linked to crimmigration and to criminal policies associated with immigration. However, the centre ended its work in 2021 due to university financial constraints. This situation is an example of the sustainability problems some centres have also faced during the last 20 years.

In 2018, the creation of the Center for Justice and Society Studies of the Catholic University was formalised. It is a centre oriented towards research on crime and justice from an interdisciplinary perspective. This entity brings together the experience of researchers and scholars affiliated mainly with the department of sociology of this university, but also those coming from other academic units such as government, social work or law schools.

## Methods and data

We provide an exploratory and empirical approach to expand the study of the development of criminology in Chile using social networks analysis. Similarly, we describe the criminological field in the country based on the co-affiliation of researchers, the characteristics of groups within the network, and the patterns of this exchange in the researchers' network.

To do so, between March 2019 and September 2020, we collected secondary information from open sources. In that sense, we created a list of universities, research centres and think tanks operating in Chile, starting with the centres mentioned in the previous sections of this paper. The initial selection criterion was to identify researchers from academic units or think tanks researching criminological issues, criminal law or public safety. Additionally, we expanded the search to include Chilean researchers doing postgraduate studies in the criminological field at universities overseas, mainly in the US, UK and Europe. We identified overseas researchers based on their affiliations reported in the participation in the first conference of SOCHICRIM as well as informal key informants that know about them due to research projects and collaborations.

We understand the *Chilean criminology* community in a broader sense. It is a system of relationships between scholars – or professionals from the discipline – producing knowledge related to crime, justice and public safety performed in academic institutions and think tanks in the country. Furthermore, this definition of Chilean criminology also includes scholars pursuing graduate studies or doing research overseas concerning crime and justice issues in Chile. This working definition acknowledges the complexity of the notion of scientific community expanding the group of individuals to reflect their variety in terms of objectives, approaches, orientations or relationships.

We systematised information about the group of researchers to describe the field of criminology in Chile. Subsequently, we expanded a preliminary list to supplement the information available from consultation with experts and the search for information on academic social media platforms. The consolidated convenience sample for the present analysis has a total of 62 researchers (N=62).

The data collection on researchers includes three dimensions and their respective variables for each of them. The demographic characterisation includes information on the identification of the researcher and gender (Male=0, Female=1). Additionally, we collect data about professional development, which considers aspects such as institutional affiliation, academic degrees earned, undergraduate and graduate educational institutions, and country of graduate education (see [Table 1](#)).

The third dimension of analysis corresponds to scholars' research topics. We gathered data from the public information stated in the respective academic profiles on the websites of academic centres. These records were supplemented with information from academic and social network profiles, such as academia.edu, Google Scholar or researchgate.org. The data coding was performed based on the expert judgement of the researchers following the guidelines of flexible coding ([Deterding and Waters, 2018](#)) to generate three categories: main research topic; secondary research topic; and tertiary research topic. The coding process of the thematic areas defined a total of 38 categories reflecting the main key areas of systemised research in the Chilean criminological community.

For this study, the unit of analysis corresponds to the co-affiliation links existing in this network of researchers based on shared thematic areas as an indicator of knowledge production in the field. It allows us to map the connections among them to explore the exchange patterns and the conformation of thematic subcommunities.

The data analysis contemplates the elaboration of matrixes based on co-affiliation attributes ([Rice et al, 2011](#); [Borgatti et al, 2013](#); [Luke, 2015](#)), where links are generated from a key variable. In this case, it corresponds to shared research topics among the network scholars coded in a binary way. For instance, if two researchers share research

**Table 1: Table of frequency for main dimensions of characterisation of researchers**

Dimension	Categories	N (total N=62)	%
Sex	Men	38	61.3%
	Women	24	38.7%
Undergraduate education	Law	35	56.5%
	Sociology	11	17.7%
	Psychology	9	14.5%
	BA in social sciences	3	4.8%
	Economy	1	1.6%
	Public administration	1	1.6%
	Social worker	1	1.6%
	No data	1	1.6%
Master's	Yes	44	72.1%
	No	17	27.9%
Location of the master's programme	Chile	14	32.6%
	Overseas	30	67.4%
PhD	Yes	37	59.7%
	No	25	40.3%
Location of doctorate programme	Chile	1	2.7%
	Overseas	36	97.3%

interests in juvenile justice, this is coded in the matrix with a value of 1 (Affiliation=1). If there is no thematic convergence, the code is 0 (No Affiliation=0). This process is carried out with all the sample researchers identified in the data collection according to the systematised themes.

We perform the analysis using R software, specifically social network analysis packages such as Statnet, Igraph, Intergraph and SNA. From this, a series of two-mode networks and bi-partite projections are performed (Luke, 2015) to reflect the co-affiliation ties between researchers, represented as nodes in the network, in association with the respective research topics. Similarly, some of the structural properties of the network are estimated to reflect its level of cohesion or dispersion, and community detection analysis seeks to empirically describe the subcommunities or clusters (Borgatti et al, 2013) applied to the criminology research network in Chile.

In sum, we argue that this methodological approach allows us to explore the social production of criminological knowledge in the Chilean context from an empirical perspective. In the following section, we highlight the descriptive components and the ties between the sample of scholars in the study.

## Results

The data collection on researchers working in Chilean criminology helps to describe its composition based on the cases analysed (N=62) (see Table 1). In descriptive terms, the results show a higher percentage of male (61.3 per cent) than female researchers (38.7 per cent). However, this data should be interpreted with caution due to limitations in the number of observations in the study.<sup>5</sup>



The undergraduate background is also an important characteristic for the scholars included in the study. More than half of the researchers analysed have a law degree (56.5 per cent), highlighting the relevance of legal background for individuals in the criminological field. This is aligned with the pre-eminence of the legal profession in the criminal justice system in the country and the strong connections of criminology with penal law and criminal procedure in Latin America. Additionally, we observe another group holding undergraduate degrees in sociology (17.7 per cent) or psychology (14.5 per cent), pointing to the expansion of the field to individuals from social science backgrounds compared to a more traditional legal perspective.

According to the literature, postgraduate training suggests a pathway towards specialisation in producing criminological knowledge. In that sense, 72 per cent of the scholars in the study held master's degrees in disciplines like law, social sciences or public policy, and 67.4 per cent of this group completed their master's degree abroad. The situation is similar in the case of doctoral studies, where most of the individuals analysed have doctoral training (59.7 per cent, mainly from universities in Europe, the UK or the US). The main disciplines of doctoral studies observed in the sample are criminal law (N=20), social sciences (N=8), criminology (N=6) and sociology (N=3).

During the period analysed, researchers with formal postgraduate criminology education pursued their degrees overseas. This characteristic is explained by the limited number of specialised academic programmes offered by universities in Chile. For example, there are two master-level programmes<sup>6</sup> and no doctoral programmes in criminology at the national level. The emerging formalisation of academic programmes highlights Chilean criminology's current development status.

We observed two catalysing factors to understand the current development of the criminology research community in Chile. First, a large group of new researchers trained in criminology and other social science disciplines studying crime and justice issues. It is an essential factor related to the connection between Chilean researchers doing doctoral training overseas and research about the country facilitating academic collaboration with other scholars in the global north. Second, the foundation of the Chilean Society of Criminology (SOCHICRIM) in 2019 as a scientific society aiming to advance the discipline in the country. The emerging organisation has brought together researchers from various fields, promoting opportunities for collaboration and exchange and seeking the process to be officially recognised by the state of Chile as a scientific association.

In addition, we explore the status of criminology in Chile from a network perspective analysing researchers' co-affiliation in the field. The co-affiliation reflects the community of scholars producing criminological knowledge. In descriptive terms, this network is composed of three elements. Nodes represent the researchers identified in our sample (N=62). We coded 38 thematic areas that constitute the different research topics of this sample of researchers. Finally, the links or edges connect them based on the same research topics identified (N=204), creating a two-mode network representation (Borgatti and Everett, 1997) of the criminological community (see Figure 2). This analysis allows us to visualise the existing ties between researchers and the respective shared research topic.

The network visualisation using two-mode networks (see Figure 2) describes the relations between researchers based on the thematic co-affiliation links between the systematised research topics (red squares) and the researchers analysed represented in nodes (light blue circles). On the one hand, three relevant areas are the most central

Figure 1: In-context timeline of criminological research in Chile, 1990–2020, research centres or programmes

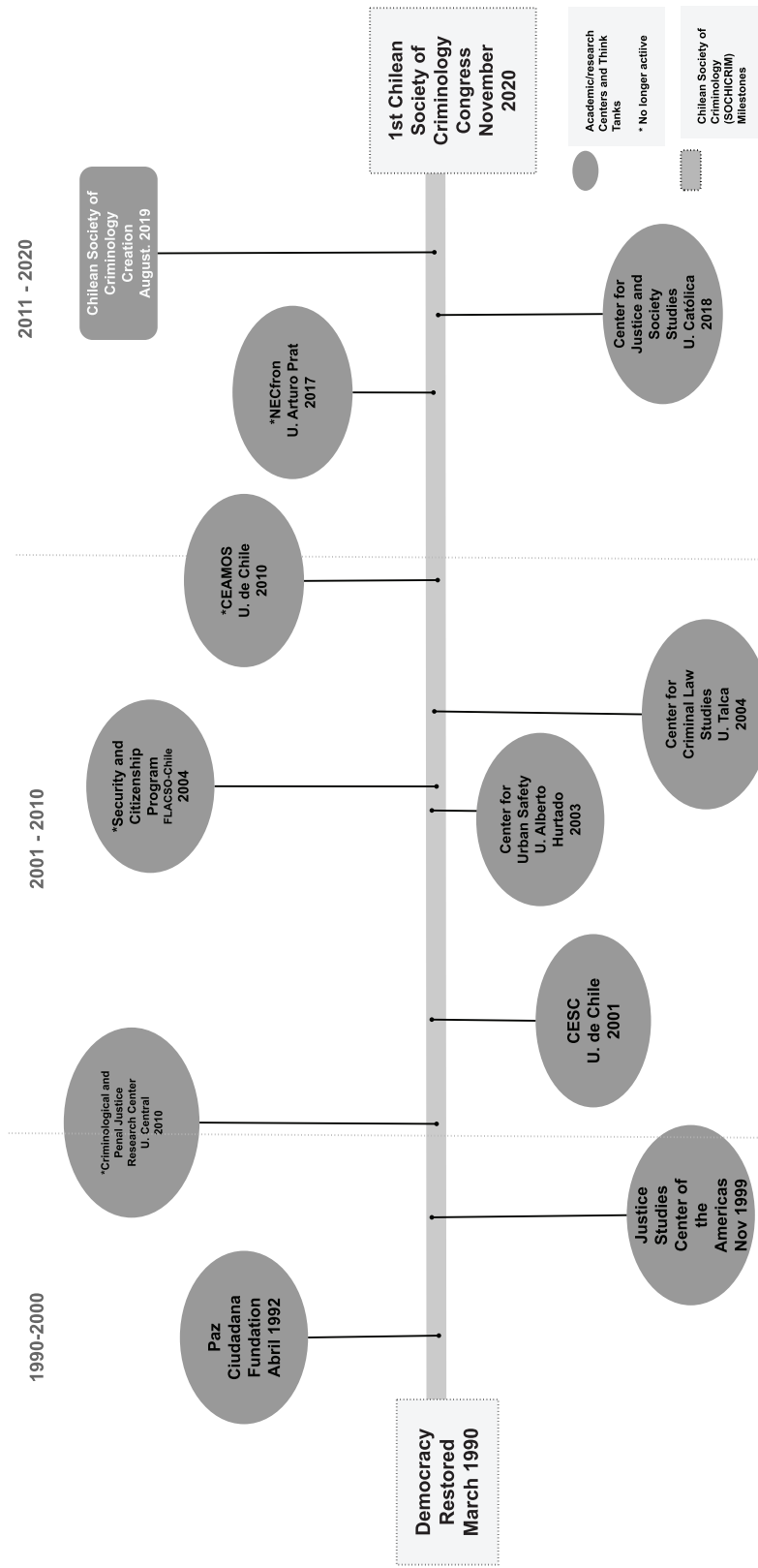
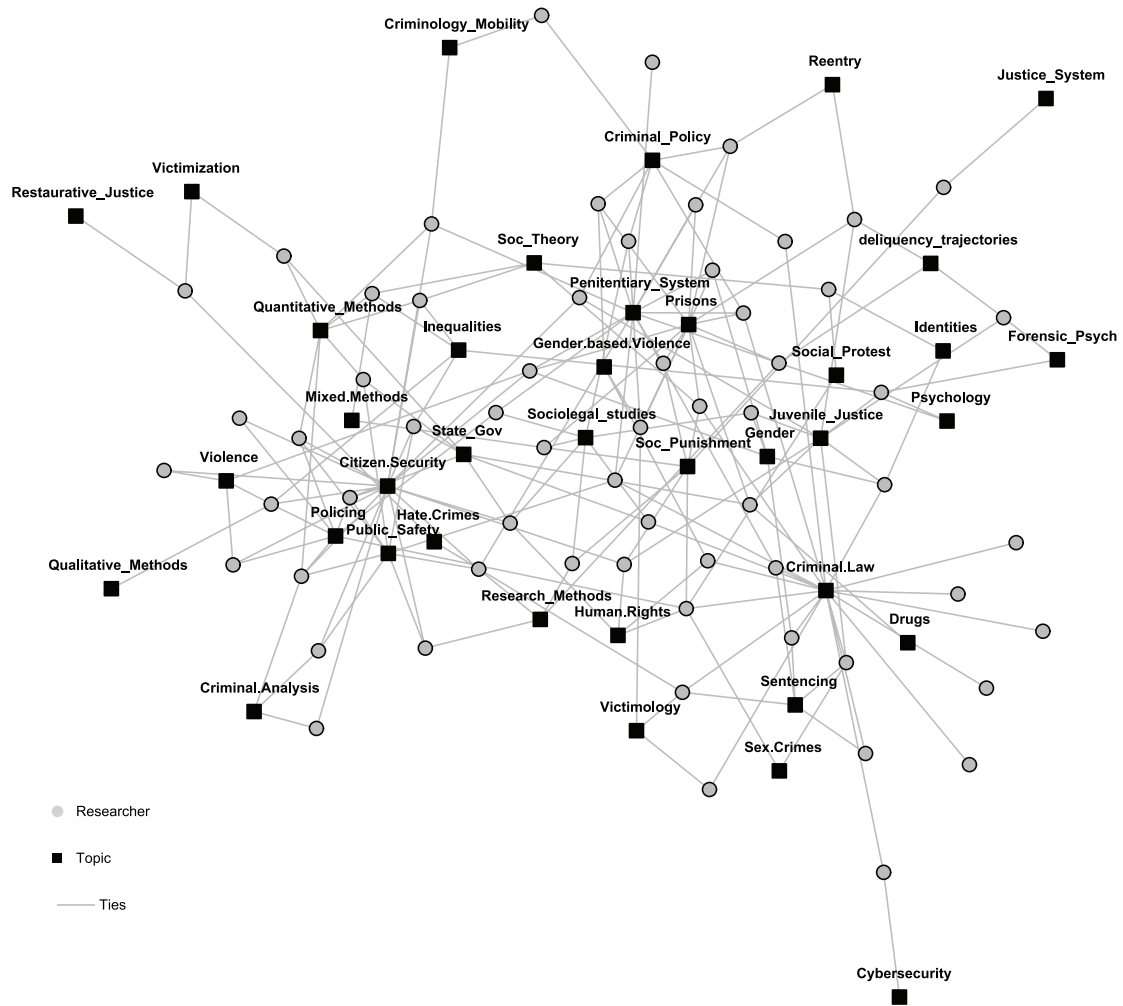


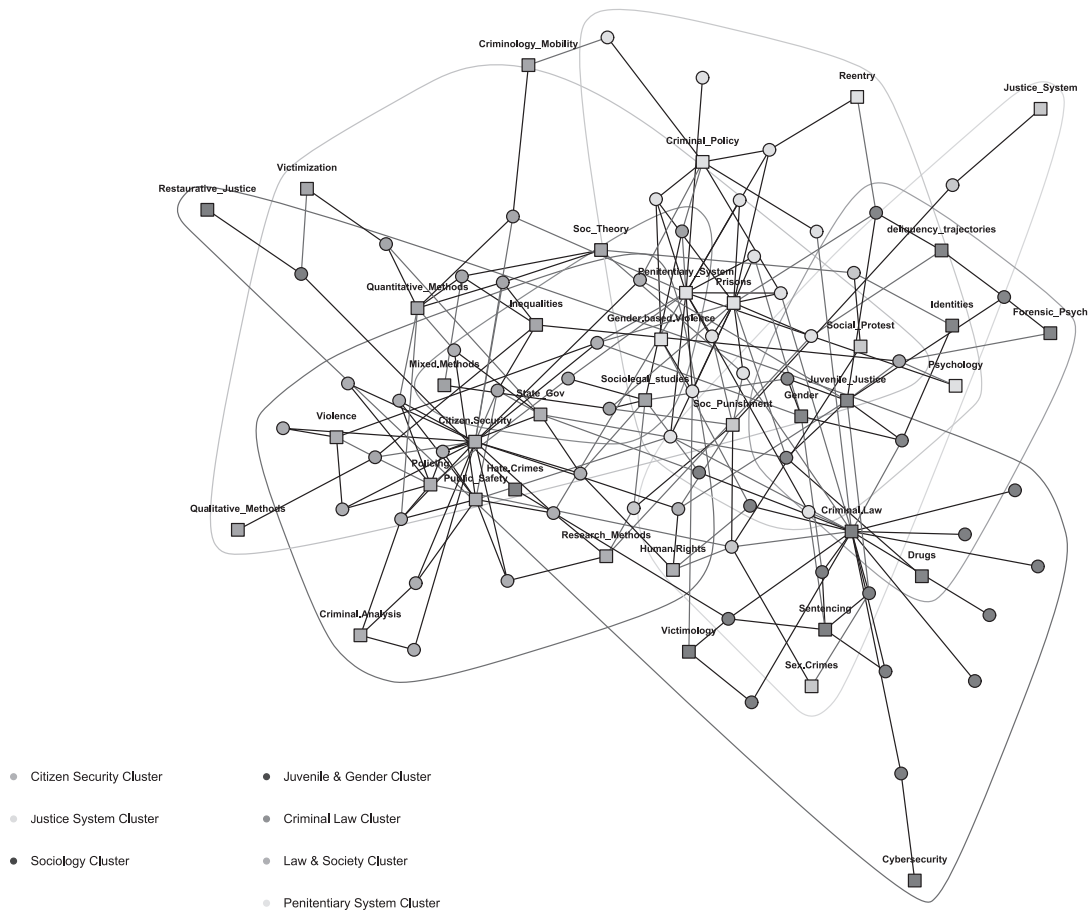
Figure 2: Co-affiliation network of researchers and scholars in the field of criminology in Chile (two-mode network)



research topics in the network: criminal law, penitentiary system and citizen security. The mentioned topics show more connections between researchers due to their coincidence in research, making these areas the core of the current picture of Chilean criminology. This finding aligns with the contextual characteristic reviewed earlier. For example, the pre-eminent role of research centres on producing knowledge that focuses on citizen security as a form of administrative criminology. Additionally, the historical relevance of criminal law influences criminological thinking in the Chilean context. The central position of prison studies is probably the area that better expresses Chilean criminology as a topic that interconnects researchers with law backgrounds and social science training.

On the other hand, some research topics are in more peripheral positions in the network. For example, restorative justice, criminology of mobility, victimisation, criminal analysis and cybersecurity are some emerging topics in the current development of criminology. In descriptive terms, fewer scholars are researching these lines of work. However, we would infer that they usually have more settled research agendas in central topics. As an illustration, the criminology of mobility or crimimigration is one of the most relevant research topics in the global north in recent years, particularly from a critical standpoint. Nonetheless, it is still a very narrow area

**Figure 3: Community detection of Chilean criminology network (N=62)**



despite the importance of immigration as a social, policy and criminological issue in Chile in the last few years.

In addition, we provide structural characteristics of the researcher's network to understand the composition of the community observed empirically using the following properties: density and closeness centrality. Density measures the cohesion level within the network, ranging between 0 and 1. It describes the possible patterns of ties existing in the Chilean criminological community. In that sense, we observed a low density (density=0.04) measured as thematic co-affiliation between members of the scholarly community. In other words, the low density reflects high dispersion among scholars within the criminological network. We would explain the weak connections between researchers due to the lack of formalised criminology academic units. Besides the centres already mentioned in this paper, researchers are usually affiliated with academic units like law schools, sociology or government departments and it is difficult to see criminology as an institutionalised discipline in Chile.

Another property of the network is closeness centrality. It reflects how the information content travels from an initial node to the rest of the network. In this case, the value is low (closeness centrality=0.17), ranging from 0 to 1. In that sense, the low closeness centrality reflects the group's dispersion because researchers are far away from the most central actors in the network. For example, we identify researchers as nodes with central positions in the network that would facilitate potential collaborations. However, the low centrality indicates a sparse scholarly community regarding knowledge production in the field.

Another fundamental aspect of describing Chilean criminology is how scholars create groups reflecting the thematic orientations of their research. In this case, social network analysis estimates clusters to identify the level of cohesion and interdependence between groups to determine community structure (Newman, 2006). The first mechanism for clusterisation grouped nodes with a very high density. The clusters reflect the more robust links between researchers working on the same topics creating a highly connected subcommunity. The second mechanism to identify communities and the connectivity structure is based on how these internally dense groups have fewer connections among the various groups.

We performed community structure analysis to observe the composition of the subcommunities in the network of researchers.<sup>7</sup> Following the analysis results, we identify seven groups that bring together more ties between researchers who share research topics but also are disconnected from other topics and groups. As shown in Figure 3, the more central research topics in the Chilean criminological network are criminal law, citizen security and the penitentiary system. Each central research node has more ties between researchers and is also associated with other research topics.

For instance, citizen security is a cluster that accounts for scholars with more links related to thematic areas such as state and government, police studies, criminal analysis, violence, and research methods. Some of them have navigated across academic careers and government positions at various times in the last 30 years and this is a common characteristic for several researchers in this community. As an illustration, some hold a current academic position in the research centres mentioned above or universities. Besides that, they usually have worked as government officials and practitioners managing citizen security policies regularly at the national level.

We identify a greater specificity in the criminal law cluster, where the density among thematic links of researchers generates a specific group that conducts research in criminal issues. Certainly, it reflects the historical importance of criminal law as part of the development of criminology in the country (Table 2). Within the criminal law cluster, researchers also converge with other research topics, such as sentencing or restorative justice, and some issues related to criminal procedure for cybersecurity or hate crimes. This group is an example of how some scholars are settled in more central nodes as a leading research area, and from that starting point, they explore less formalised research topics.

A third interesting cluster corresponds to the subcommunity of researchers studying the penitentiary system. In this group, we observe stronger thematic co-affiliation related to criminal policy, the penal system, prison studies, re-entry and rehabilitation. The cluster also considers disciplinary perspectives from psychology and gender violence.

In summary, the findings based on the thematic co-affiliation among scholars allow us to emphasise the criminological community in Chile as a low-density network. It is important to note that thematic communities emerge from actors and groups strongly connected through the same research topics. On the one hand, some clusters had more remarkable development over time, bringing together a more significant number of researchers and knowledge production. On the other hand, some clusters reflect the emergence of more recent topics in Chilean criminology. So far, socio-legal studies or the sociology of punishment are some examples of these less consolidated areas.

The exploration of the Chilean criminological community has some methodological limitations. One of them is the operational definition of co-affiliation. Considering the

**Table 2: Cluster analysis and their respective research areas**

<b>Subcommunity</b>	<b>Research areas</b>
<b>Citizen security</b> (cluster 1)	Citizen security State and government Policing Public safety policies Criminal analysis Violence Research methods
<b>Justice system</b> (cluster 2)	Justice system Sociology of punishment Sex crimes Social protest
<b>Sociology</b> (cluster 3)	Victimisation Inequality Sociological theory Crimmigration/criminology of mobility Qualitative methods Quantitative methods
<b>Penitentiary system</b> (cluster 4)	Prisons Criminal policy Rehabilitation Criminal system Prison system Psychology Gender-based violence
<b>Juvenile justice and gender</b> (cluster 5)	Juvenile justice Delinquency trajectories Gender Drugs Identities Forensic psychology
<b>Criminal law</b> (cluster 6)	Criminal law Sentencing Restorative justice Hate crime Cybersecurity Victimology
<b>Law and society</b> (cluster 7)	Sociolegal studies Mixed methods

literature on co-authorship networks (Rice et al, 2011; Wheeler, 2020), co-affiliation is measured between authors that have published in academic journals or produced working papers using a sample of formal academic production. However, in the Chilean context, it is more challenging to do so due to the low number of academic journals specialising in criminology and the limited access to publishing in indexed journals overseas. In this way, the observation of the field of criminology pointed towards research areas reported in open sources to create non-formal linkage with other academics. The methodological decision to use social network analysis to explore the Chilean criminological community empirically is rooted in the definition of this field as a system of relationship between scholars exchanging the social production of knowledge about crime and justice.

Researchers' data collection started with individuals affiliated with the centres mentioned in the contextual section of this paper. After that, we used a convenience

sample strategy to increase the number of scholars doing research considering open data sources available until 2020. We are probably missing some scholars not affiliated with some of the institutions reviewed, who have joined the field recently, or whose work has been less visible in the last two years. Therefore, it is an initial exploration that does not pretend to be an exhaustive review of all the scholars in the field.

An additional limitation regards the coding process to produce data. We rely on research topics included in scholars' open profiles and coded by the authors using their expert judgement. In order to reduce potential bias in our coding process, we exchanged the preliminary themes and recoded them in many iterations until we refined the main themes.

### Discussion and conclusion

The characteristics of the criminological community highlight the low density in the network measured as co-affiliation in research topics among scholars. In other words, there are weak ties between researchers in the larger community. One possible factor in explaining it concerns the excessive geographic concentration of research centres or groups in Santiago, the country's capital. This factor responds to more contextual characteristics due to the high institutional centralism of the academic and policy work. Conversely, individual researchers – who are not part of centres but do research in other regions of the country – have more representation affiliated with law or social sciences schools.

Additionally, the disciplinary community mainly comprises individuals from criminal law and criminology. We observe a predominance of researchers with initial training in law, which reflects a long-established tradition of professionals with legal backgrounds who are equally interested in both arenas. Similarly, other clusters are more established in the development of criminology in the country. For example, the penitentiary system or citizen security studies gather more connections between researchers conducting work on these topics.

In contrast, a few more emergent clusters are also aligned with the development of the field in the global north. In that sense, research topics like crimmigration are an interesting example of the interconnection with a specialised topic in a more critical criminology tradition. However, we observe no clear paradigm or defined research lines encompassing emergent clusters. In general, the research topics are very dispersed, with a reduced number of scholars but with a greater level of linkage between them.

As previously stated, the concept of the scientific community is highly problematic, not only in the sociology of social knowledge but also in criminology. A relevant attribute to consider when studying this field is the variety of scholarly approaches to the criminal question. Therefore, it is essential to highlight the role of scientific communities and how they interrelate with the subjects and different groups. In addition, criminological research must be situated and configured in a place, time and with specific objects of study. Although at the same time, the crime and justice phenomena and the criminological community are increasingly global. For that reason, it is essential to reduce the boundaries between the core and the periphery or between the global north and the global south (Karstedt, 2001; Aas Franko, 2019), especially if we are talking about the social production of criminological knowledge.

Lastly, we point out that criminology is intimately related to society and its institutions wherever it is developed. Following Knorr-Centina (1981; 1996), it is important to avoid

idealisations or *naïve internalisms* as an autonomous construct. In that sense, there is no country of criminologists unrelated to the context from which the field has emerged. The contextual elements, such as emphasis on research objects and centres, are relevant to describe the situated framework and conditions of the trajectory of Chilean criminology.

This paper aims to explore criminology trajectory as a scientific discipline in Chile. Following Woolgar (1991), we state that the development of the criminological scientific community in Chile would be described as amateur because it has not yet met the elements to identify it in a professional stage. In terms of the criminological network, we point out a low-density and highly clustered scholarly community to support our argument. In the broader context, many factors are still underdeveloped, for example, an increase in the number of quality academic journals edited in the country or the consolidation of criminology programmes. Despite the presence of think tanks and research centres producing knowledge about crime and justice, there is no formal criminology department in an academic institution in Chile.

While this is an exploratory effort to observe a fragmented and developing field, it provides an opportunity to advance this line of research further. The future research agenda aims to expand the study of Chilean criminology associated with the clusters' dynamics and characteristics. In addition, we would like to explore how scholars define criminology, the type of social knowledge produced, their narratives, and the academic or public policy-oriented focus. In that sense, we consider the public criminology framework (Loader and Sparks, 2010; Uggen and Inderbitzin, 2010; Sozzo, 2020) a proper approach to developing this future endeavour.

Even so, there are some signs that criminology in Chile is slowly progressing. We recently note more formalisation in the field, for instance, a self-identification of researchers with criminology, a growing number of empirical articles published, an increase in the allocation of public research funds, and the creation of graduate programmes in two Chilean universities. Moreover, we think that the creation of the SOCHICRIM as a novel epistemic community organisation could be an opportunity to shift gears to reach the next step into the stage of the development of criminology as a more professional scientific community.

## Notes

<sup>1</sup> An example of this is the existence of government research agencies, which guide scientific research in certain directions, excluding others. In the Chilean context, we observe this in the National Research and Development Agency (ANID), which finances certain currents of scientific research through various funds (Fondecyt). Hard sciences tend to be prioritised at the expense of other areas like social sciences or humanities.

<sup>2</sup> With regards to this, the support from ANID has played a leading role through the Becas Chile programme of scholarships. It has allowed many Chilean researchers to study in important universities abroad so that they may then contribute to the development of research and teaching in Chile.

<sup>3</sup> A government coalition composed of Democracia Cristiana (DC), the Socialist Party (PS), Partido por la Democracia (PPD), and the Radical Social-Democrat Party. For more information see: <http://www.memoriachilena.gob.cl/602/w3-article-31414.html>.

<sup>4</sup> Currently the School of Government of the University of Chile.

<sup>5</sup> Preliminary analyses elaborated by the authors using data from the participation in the first Chilean Society of Criminology conference (2020) shows a more balanced gender



distribution and more favourable towards women (men 45.3 per cent and women 54.7 per cent) (N=95). More research is necessary to analyse more accurately gender and the implications for researchers in Chilean criminology.

<sup>6</sup> There are two master-level programmes offering an academic graduate degree in criminology in Chilean universities: the master's in criminology and citizen security management offered by the Government Faculty of University of Chile created in 2020; and the master's in crime prevention, urban safety and criminal policies created in 2016 attached to the Center of Urban Safety in the Law School of Alberto Hurtado University.

<sup>7</sup> Using a social network package, the leading eigenvector is one of the statistical methods used to detect the natural structure of each subcommunity or cluster present in the network (Luke, 2015). For more details about the array of methods to explore community structure in networks see Newman (2006). For further explanation contact the corresponding author.

### Conflict of interest

The authors declare that there is no conflict of interest.

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