Reference to this paper in APA (6th):

Bjelland, H. F. & Dahl, J. Y. (2017). Exploring criminal investigation practices: The benefits of analysing police-generated investigation data. *European Journal of Policing Studies.* Hentet fra http://www.maklu-online.eu/en/tijdschrift/ejps/online-first/online-first/exploring-criminal-investigation-practices/pdf/

This is the final text version of the article, it may contain minor differences from the publisher's pdf version.

Exploring Criminal Investigation Practices

The Benefits of Analysing Police-Generated Investigation Data

Heidi Fischer Bjelland and Johanne Yttri Dahl
The Norwegian Police University College

Current police practices, such as criminal investigations, generate a variety of data that are potentially available to social science researchers. Despite the vital importance of criminal investigations in police operations, there has been limited research on criminal investigation practices. Here, we explore how research analysing police-generated investigation data would contribute to criminal justice and police research, and police organizations. We provide examples from Norwegian police registry data such as national criminal registers, police case files and data from forensic DNA databases. Police registry data may contribute to opening the 'black box' surrounding criminal investigation practices, thereby providing important insights into practices that are crucial for the development of organizational learning and knowledge creation. The original contribution of this paper is that it explores the untapped potential of analysing police-generated investigation data for research purposes, an issue that has not been sufficiently addressed in the literature on police performance and organizations.

1. Introduction

Since the advent of police studies in the 1960s, there has been a dramatic growth in the volume of research focusing on the police and their practices. The major part of this research effort has been restricted to ethnographic and observational studies (Reiner, 2000). Studies have focused on topics such as police work and organization (Manning, 1997), police occupational culture (Loftus, 2009), the exercise of police discretion (Finstad, 2013; Lipsky, 1980), and police patrol practices (Stol, Gundhus, Runhovde, & Rønning, 2011; Wilson, 1968).

Criminal investigations play a key role in effective police work (Stelfox, 2011). Nevertheless, little recent systematic research has explored police investigation practices (Newburn, 2011). One possible reason is that it is more challenging to observe police investigators and their practices during investigations than it is to observe police officials in the public sphere (Holmberg, 2014a). Much investigation work is cognitive (for example, evaluation and interpreting of information) and is based on individual police officers' tacit knowledge and skills (Stelfox, 2011). This kind of police work can be very difficult to observe.

Still, some previous studies have examined the investigation of particularly serious crimes (e.g. Fahsing & Ask, 2013; Innes, 2002; Innes, 2003; Williams & Weetman, 2013). For instance, examining police responses to homicides, Innes (2002, 2003) has provided some insights into how and why police investigators do what they do, and has argued that criminal

investigation is a process concerned with the 'social construction of meaning'. However, evidence drawn from studies of such infrequent crimes cannot necessarily be transferred to the investigation of more common crimes such as burglaries, sexual offences or violent crimes. Much current research evidence is also based upon empirical analyses of survey data or qualitative interviews with police or prosecutors (Dean, Fahsing, & Gottschalk, 2007; Myhrer, 2015), or on very limited numbers of criminal investigations (Jokinen, Ollus, & Aromaa, 2011). Obviously, such studies provide important knowledge about police investigation practices. However, qualitative interviews or self-report surveys are generally not suited to demonstrate broader, systematic patterns in investigation practices, or for larger sets of crimes.

Therefore, we argue that researchers seeking to explore systematic patterns in police investigation practices should make better use of police-generated investigation data such as police case files. These are files that get constructed during investigations, and that contain a vast range of information about actual criminal investigation practices and about the stages of criminal investigations—information that is not commonly known to the public. This includes information about how criminal cases are discovered, what kinds of investigative steps that are taken after detection, information about all interviews that are undertaken (including transcripts), what kind of evidence is collected (and potentially, whether particular types of evidence contribute to solving cases), as well as demographic data on all individuals involved.

Nowadays, a range of police-generated data can be made available to social science researchers. Data gathered from internal police databases may provide new and comprehensive knowledge concerning authentic police work that is not otherwise accessible through traditional observational or ethnographic studies, surveys or aggregated national registers of crimes and penalties. Nonetheless, very few academic studies have exploited the potential for statistical analysis of the empirical data available in the police registers.

This article demonstrates how researchers may make better use of the data generated by criminal investigations. It considers how analyses of police investigation data may contribute to criminal justice and police research, and yields practical implications for police organizations. As a case example, we use criminal investigation data recorded by Norwegian police officers. Drawing on experiences with analyses of such data from our own research, we discuss the potential for criminal investigation data to reveal specific patterns in police criminal investigative practices.

2. Background and context

In recent years, there has been increasing interest in the topic of criminal investigations (Newburn, 2011), with a growing literature on subjects such as police interviews and interrogation techniques (Vrij, Granhag, & Porter, 2010; Williamson, Milne, & Savage, 2009), personal investigative skills (Westera, Kebbell, Milne, & Green, 2016), the use of police discretion in criminal investigations (Runhovde, 2016), eyewitness identification (Wells et al., 1998), forensics (Williams & Johnson, 2013), and offender profiling (Canter, 2000).

Some studies have also explored aspects of police criminal investigations by analysing data from national criminal registers (Hirschfield, Newton, & Rogerson, 2010). Such registers typically hold information about all offences reported to the police in an administrative area, and provide data about typical *inputs* (such as the volume of specific types of crimes within specific time periods or geographical areas), and *outputs* (such as final case outcomes) of criminal investigations (cf. Latour, 1999). However, such national registers most often contain aggregated, descriptive data about reported crimes, and more limited information about the actual performance of police practices. Nevertheless, analyses of such data provide important

information about the volume and characteristics of reported crimes within specific geographical areas or certain time periods.

Information on inputs and outputs gathered from criminal registers has long been used to measure the success or efficiency of police work (Bottomley & Coleman, 1981). For instance, measures such as clearance or prosecution rates, or the duration of police criminal investigations, are common metrics (Tilley, Robinson, & Burrows, 2011). However, caution is required in using simple input and output variables as measures of success without including additional data in the analyses. In his classic study of detective work, Ericson (1981) demonstrated how police investigators 'make' crime through discretionary decision-making of what constitutes a crime. Similar points are made by Cicourel (1968), McConville et al. (1991) and Greenwood et al.(2005), where the last-mentioned argue that "arrests and clearance rates […] reflect activities of patrol officers and members of the public more than they reflect activities of investigators" (Greenwood et al., 2005, p. 250). Many researchers have argued that typical input or output variables alone should not be used as measures of good or bad policing (Ahlberg & Knutsson, 1994; Bottomley & Coleman, 1981; Ericson, 1981; Greenwood et al., 2005; Olaussen, 2010). Also, several studies have demonstrated that typical output measures such as clearance rates can be manipulated by police investigators through administrative practices. In a study of the use of DNA traces by the Norwegian police, Dahl and Lomell (2013) discovered considerable inconsistencies in recording the duration of the investigation work; while some police districts tended to drop criminal cases immediately after requesting DNA analysis, others usually let the cases remain ongoing and open while they awaited the DNA results. As the waiting time for DNA analysis can be several months, such differences have an enormous influence on the registered duration of an investigation and lead to very different measures of efficiency.

Accordingly, in analyses of aggregate data from national crime registers, which lack details about actual police investigation practices, vital pieces of information concerning police work remain invisible or 'black boxed' (cf. Latour, 1999). Typically, what remains black boxed is reliable and valid information on decision-making processes, on how the criminal offences came to the attention of the police, and on the use of specific investigation techniques. This information may be used to answer questions regarding the duration of investigations, the use and effect of specific types of evidence or criminal investigation methods, and may call attention to specific organizational strategies. Therefore, to understand patterns in the investigation practices and for the progress of professional criminal investigation as well as general police and criminal justice research, researchers should expand their research data material and include factual information generated by police officers throughout their investigations. Statistical analyses of internal organizational data, such as criminal investigation data, would open the black box and improve the link between the causes and effects of police work, in addition to allowing studies of larger samples. The use of such internal organizational data to examine organizational practices has been successful in other research fields. For instance, organizational sociologists have analysed internal organizational data, such as personnel records on applicants and hires, in studies of wage discrimination and discrimination in employment practices (Petersen & Saporta, 2004; Petersen, Saporta, & Seidel, 2000), and in explorations of specific aspects of organizations' hiring processes (Fernandez, Castilla, & Moore, 2000).

Previous studies of criminal investigation practices have not sufficiently exploited the potential of police-generated investigation data to reveal systematic patterns in investigation practices. Recently, however, the breadth of methodological approaches used in the police research field has increased somewhat to also encompass use of police registry data. For instance, some studies have included analyses of detailed police-generated investigation data on police practices (Brodeur, 2010; Cockbain, 2013; Cockbain, Brayley, & Laycock, 2011;

Farrell, Owens, & McDevitt, 2014; Innes, 2003; Jokinen et al., 2011). However, despite the opportunities to include larger samples of criminal investigations in research, there is still a tendency to incorporate only a limited number of cases.

Using criminal investigation data for research purposes enables an additional benefit in the police research or criminal justice field, namely it is possible to link police-generated investigation data to other sources of data. Although most information on police investigation practices is accessible through ordinary police case files, some specific practices or details of investigative practices may not be registered in such files. For instance, additional information about criminal investigations may be found in databases of forensic DNA, fingerprints or national intelligence. It is possible to extract quite specific information on actual criminal investigations from these registers, even for large sets of cases, and link these data to police case files. The benefit of linking information from different sources of data and obtaining rich, factual information is that these compounded data facilitate analyses of the deeper processes of police investigations and criminal prosecutions. By exploiting the potential of these data, and combining them with other types of data, researchers may address new questions that traditional police studies have not yet been able to answer.

In the Norwegian context, few academic studies have explored such police investigation data in depth. The most comprehensive Norwegian study of criminal investigations contains no analyses of any police case files (Knutsson, 2013; Myhrer, 2015 and Myklebust and Bjørkli, forthcoming). Although some analyses of police-generated investigation data have been carried out by the Norwegian police (Sætre & Grytdal, 2011, 2012), only Bjelland (2016) and Dahl and Lomell (2013, 2016) have analysed large sets of criminal investigation data with the aim of demonstrating patterns of practice. Analysing police case file data from the total set of human trafficking cases reported to the Norwegian police between 2003 and 2013, Bjelland (2016) was able to answer new questions about the role of the police in the identification of such cases, as well as to examine how variations in identification processes were associated with different criminal case outcomes. By analysing previously unexplored data, the study demonstrated that despite growing numbers of human trafficking complaints during the relevant time period, the police played a constantly decreasing part in the identification of these crimes.

In the study of the Norwegian police's use of DNA traces, Dahl and Lomell (2013, 2016) linked a large set of criminal investigation data gathered from different police registries. Their study analysed the total number of reported sexual assaults (N = 456), burglaries from villas and apartments, and vehicle thefts (N = 1246) in nine Norwegian police districts between 2009 and 2011. Dahl and Lomell followed each case from the initial report until its conclusion, using three Norwegian police registers: the national criminal register, the database of police case files and the DNA database. Because none of these data sources alone contained sufficient information to examine the role of DNA evidence in police investigations, relevant data from all three databases were linked to form a common dataset. The linked data contained general information about each case, information about the use of DNA and other specific aspects of the criminal investigation (see Dahl & Lomell, 2013 for a thorough discussion of the data). This richness permitted a thorough examination of how DNA evidence shaped the subsequent investigation of the cases, such as whether DNA evidence had contributed to identifying perpetrators, or whether DNA traces strengthened or weakened the case against suspects.

3. Police registry data

There are a number of police registry data that may be available to researchers. The universe of such data includes, but is not limited to, national criminal registers, databases of police case files, national forensic DNA databases and intelligence databases.

Data on crime and police practices are recorded and organized in different ways in different countries. In Norway, the national criminal register is organized by case numbers (of reported criminal cases) and is generally suitable for analysis using standard quantitative analysis techniques. Databases of police investigation data such as case files or DNA records, on the other hand, contain large sets of unsystematic, textual data that may be difficult to extract quickly and analyse statistically. Below, we describe three sources of Norwegian police registry data that contain information about reported criminal cases and investigations. We elaborate the use of data from these sources for research purposes and in answering new questions about police criminal investigation practices.

3.1. National criminal registers

National criminal registers are frequently used for research purposes: they are relatively easy to access, they require limited preparation for analysis and are usually provided by official national statistics organizations, such as Statistics Norway, Statistics Netherlands or the UK Office for National Statistics.

In Norway, as in most other European countries, criminal registers consist of police administrative records of reported criminal offences, in which each offence is a separate statistical unit. Criminal registers provide aggregated data at the case and individual levels, such as data about the type and location of crimes, records of the duration of the investigations, as well as information about the case outcome, such as clearance rates or number of cases dropped. In addition, the registers contain statistics about suspects and victims, as well as various punishments, including incarceration (Lyngstad & Skardhamar, 2011).

However, as noted, because national criminal registers mainly provide descriptive statistics, they offer limited insight into operations between the *inputs* and *outputs* of criminal cases. Therefore, there are several questions regarding police criminal investigation practices that cannot be answered by analysing data from such registers. For instance, national criminal registers lack information about what the police actually do to solve a criminal case, as well as details regarding how and why a criminal case come to their attention. Furthermore, it is impossible to deduce the time taken for the police to initiate an investigation after receiving a criminal complaint or whether any interviews took place. Moreover, information about decision-making—such as the grounds for dropping a case, the type of evidence that was decisive for a particular case to be solved or the content of interviews—is missing from national criminal registers.

3.2. Criminal investigation data

Owing to the limitations of the data available from national criminal registers, researchers should preferably seek other, additional data sources for research into police investigation processes. We next describe two sources that provide detailed data about actual criminal investigation practices.

3.2.1. Police case files

Police case files contain a range of documents that describe the progress of criminal investigations in a given criminal case. As noted, police case files contain unsystematic but rich, detailed textual data. In general, access to police case files is obtained in two ways: researchers may be provided with specific case files from the police, or they may be allowed to access police case files through a police internal database (although this latter option requires extensive research proposals to be submitted to several legal authorities). The ways in which researchers are given access to the case files depend on their affiliation and closeness to the police, as well as on the country's research regulations and privacy protections.

Police case files typically contain textual data describing how criminal cases are 'discovered', information indicating whether there was an identified suspect when the case was reported to the police, transcripts of police investigative interviews with victims and offenders, correspondence between police investigators and other parties, reports on crime scene investigations, as well as information about potential seizures made during the investigations.

Accordingly, police case files provide very detailed information about specific police investigation practices, which makes it possible to perform complex analyses, even for larger datasets. Using these data, we can consider questions that are otherwise impossible to answer from national criminal registers alone. One example concerns questions regarding the duration of police criminal investigations. As noted, although estimates of the actual time spent on investigations are potentially unreliable, this variable is commonly used to evaluate the effectiveness of police work. Whereas criminal registers lack information about actual progress on cases and accordingly do not record *why* certain investigations require a particular length of time, police case files provide data about the steps initiated at each stage of the investigation. Thus, data from police case files may demonstrate the extent of criminal investigations into particular types of crimes or conducted by particular police units.

Furthermore, data gathered from police case files facilitate the examination of specific criminal investigation methods. For instance, with data from police case files, researchers may examine the importance and effect of specific types of evidence, or the contribution of DNA to solving specific types of crimes. Data from police case files also allow researchers to examine police responses to reports of certain kinds of crimes, and how long it takes to initiate the first steps of an investigation. This information is only accessible through police case files.

Case file data not only raise new research questions, but also potentially provide better and more accurate answers to old questions. For instance, whereas data from national criminal registers may indicate that a certain number of human trafficking cases are dropped because of lack of evidence, police case file data may explain whether this lack of evidence was the result of factors such as limited investigation, victims that fled the country or failed to provide necessary evidence, or because the trafficking took place in a foreign country a long time ago.

A specific drawback of the Norwegian database of police case files is that it does not possess a search function. Consequently, researchers who wish to derive large datasets on criminal investigation practices or on specific types of crime must begin by selecting cases from national criminal registers, before accessing the selected cases in the police case file database. In addition, because the information in police case files is mostly unsystematic, textual data, researchers who wish to explore the mechanisms and processes of police investigation practices must be prepared to go through relevant cases and read the case documents. This may be a time-consuming process. For analyses of larger datasets, data from the case files should be converted into a more systematic form that facilitates systematic statistical analyses.

3.2.2. DNA databases

National forensic DNA databases contain a range of information that is relevant to researchers interested in criminal investigation practices. In Norway, the National Forensic DNA Database consists of three registers: the Register of Convicts, the Register of Suspects and the Register of Traces. The Register of Convicts consists of profiles of people convicted of serious crimes, as well as profiles of individuals convicted of a criminal offence leading to imprisonment. The Register of Suspects contains profiles of suspects and defendants. However, if a suspect or defendant is acquitted, or if the criminal case is dropped, the profile is removed. The Register of Traces contains all unidentified DNA traces from crime scenes that are assumed to have a connection with unsolved criminal cases.

Furthermore, the Norwegian DNA database contains information about the type of crime and type of object from which a DNA trace is taken, whether a specific DNA analysis yielded a profile, whether a profile resulted in a hit on a crime scene profile, and criminal case outcome data. The DNA database does not contain information about the details of the police investigation process. Thus, to allow analysis of the use of DNA in larger sets of police investigations, or examinations of the impact of DNA traces on police investigations and criminal case outcomes, researchers must link information from the DNA database to other police-generated data such as police case files. Linking data across registers may make it possible to answer additional questions such as what the police do with specific types of DNA traces, how DNA traces are used in interviews, whether DNA traces strengthen or weaken cases against suspects, and—if a case has been dropped—to what extent new DNA hits lead to cases being reopened.

4. Data access

While we demonstrate the importance of closely examining the mechanisms that occur between the inputs and outputs of criminal investigation practices, we are aware that researchers' opportunities to access restricted police data will depend on affiliation, connection to a police organization, privacy protections and the political climate among the police elite (Reiner, 2000). In addition, the willingness of law enforcement institutions to co-operate in empirical research may vary across countries. For instance, while the police and public prosecutors in the Netherlands are claimed to be particularly co-operative (Kleemans, 2015), researchers in the U.K. and the U.S. must be prepared for a long wait to receive formal permissions to study the police (Demarée, Verwee, & Enhus, 2013). Receiving such permissions may also take a long time in Norway.

In her classic presentation of *insider* (that is, police officers) and *outsider* (that is, civilian) researchers, Brown (1996) differentiates between four groups of researchers. Depending on their proximity to the police organization, these groups typically experience different levels of access to and support from the police. *Inside insiders,* such as police officers conducting 'in-house' research, for instance, have an advantage in overcoming at least the initial barriers to access because of their closeness to the police organization (Reiner, 2000, p. 220). However, even when researchers have access to restricted data in their daily work, they may still be declined access to the material for research purposes (Laycock, 2015). Furthermore, *outside insiders* such as former police officers may benefit from familiarity and personal trust gained prior to their research. Although as former officers they may no longer have the privileges of a true insider, they retain personal ties and particular knowledge about the police organization and culture, which may facilitate access to restricted data.

Outsider researchers, on the other hand, may experience greater obstacles in accessing restricted data. However, the position of an outsider takes many forms, and different types of

outsiders are likely to experience different sets of barriers when gathering restricted research material. *Inside outsiders*, who are typically academic researchers working at research units within the police organization, will usually experience fewer difficulties compared with *outside outsiders*, who as external researchers have no link to the police organization at all. For instance, Punch (1979) describes how he as a so-called outside outsider faced a number of closed doors in his research, despite having a formal permission to follow the police.

Although researchers with no formal link to the police organization may have some difficulties in gaining access, access is not impossible. Davies (2016, p. 160) argues that improved dialogue between outside researchers and the police will remove potential barriers to data access. As such, outside outsiders may obtain access easier through entering into cooperation with police affiliated institutions. Further, because the aim of the research and its relevance to the police may influence researchers' access to such data, Cockbain (2015) also emphasizes the particular need for outsiders to present and demonstrate the practical value of their studies clearly to the police. For instance, addressing research questions that are also of interest and use to the police organization may potentially contribute to easier access for outsider researchers. Promising to present research findings to the police may also potentially ease access to restricted data. However, Cockbain (2015) points out that researchers without any formal connection to the police must be prepared to enter into extensive negotiations with different levels of the organization when seeking restricted research material. Because of outsiders' lack of professional ties to the police, they need certain interpersonal or 'soft' skills in networking and establishing face-to-face contacts.

Last, experiences from own research illustrates the importance of having solid declaration of confidentialities. Despite being inside outsiders, both authors have had to sign project specific declarations of confidentiality before gaining access to restricted data. Establishing such project specific declarations provides opportunities for the police organization to release data *and* to safeguard privacy concerns, both for police officers and for other involved parties in a criminal case.

4.1. Analytical distance to research data

Researchers' connections to the police organization are also claimed to influence the research evidence drawn from the research data (see e.g. Brown, 1996; Reiner, 2000). With the growing quantity of research conducted by police officers, insider researchers have been criticized for their inability to reflect on the research topic and research data sufficiently because they are too close to their subjects (Holmberg, 2014b). Outsider researchers, on the other hand, do not usually have any specific interests to protect, nor do they have close relationships with their subjects. Sheptycki (1994, p. 127) contends that outsiders may be better equipped to shed light on the complexities of the organizational structures of the institution than 'close' inside researchers. According to Bayley (2015), the most important innovations in research on policing have come from observers and researchers outside the police establishment. However, as highlighted, outsider researchers may experience difficulties in gaining access to restricted police data. Therefore, our belief is that *inside outsider* researchers such as academics working at research institutes within the police organization are in the most favourable position to conduct research on criminal investigation data. Such researchers potentially have the best aspects of both the insider and the outsider positions: the trust of and closeness to the police, (relatively) easy access to restricted police data, and with that the ability to provide new insights into organizational challenges and strategic planning to the organization, thereby improving future practice.

4.2.   Data availability

Police researchers seeking to make use of criminal investigation data to open the black box in their studies learn that this process is both complex and time-consuming. In our own research, we have encountered a number of challenges in reviewing police investigation data and linking these to data from other sources. Typical challenges centred on the lack of important documents in the case files, such as lack of transcripts from police interviews or attachments containing correspondence with counsellors or other people involved. One of the reasons for the absence of documents seems to be that correspondence primarily takes place via letters. The paper documents must be manually scanned before they can be added to the digital case files, something which is not always done (Dahl & Lomell, 2013). We have also found some inconsistencies with regard to names and data describing the individuals involved in criminal cases. Overall, considerable time has been invested in gaining control over the reported criminal case data and potential sources of errors.

5.   Discussion

We now discuss how research analysing police investigation data may contribute to developing and improving research as well as law enforcement organizations.

5.1.   Contribution of investigation data: police research

Because criminal investigation data such as police case files offer researchers detailed information about all reported crimes, analyses enable researchers to explore small but important differences in criminal investigation practices, as well as broader, systematic patterns. However, although arguably the most valid source of information regarding investigative processes, it is important to recognize that police case files are not neutral, objective records of police activity, rather they are intended to perform particular functions that are framed and shaped by the pressures and exigencies of the nature of the criminal justice process (Giacomantonio, 2015; Innes, 2002). Also, there may be both individual as well as departmental differences in how systematically officers record information about a given case. Case files are not constructed with research logic in mind, and data from police case files are therefore only as good as the individual recording it.

Still, detailed criminal investigation data may be used to confirm or undermine previous evaluations of specific police initiatives. Moreover, analyses of factual investigation data will increase our understanding of police investigation practices and the implications of specific methods or strategies. By analysing investigation data from the total set of reported cases between 2003 and 2013, Bjelland (2016) was able to demonstrate variations in police identification practices over time and show how such variations were associated with different criminal case outcomes.

In the police literature, qualitative interviews and observations have largely been used as data material. However, it is well known that informants may change their behaviour or embellish their statements to provide more 'desirable' responses, resulting in data bias. Because police case files are not registered for research purposes, case file data are less likely to be affected by incorrect information recorded by police officers. Consequently, the use of these case file data may reduce the probability of bias and improve the validity of the research study. Dahl and Lomell's (2013) study of DNA evidence in criminal investigations demonstrates the benefit of including data not initially registered for research purposes. Comparing data from in-depth interviews with police officers with those from police case

files, they found that police officers greatly overestimated how often their police district actually required DNA analysis in its criminal investigations.

While the growing body of research on the police and police practices in recent decades has elucidated a number of previously unexplored areas of the police, the expansion of police studies may well create fatigue within the police service. This may result in potential difficulties in recruiting informants for surveys and interviews, which in turn may lead to data bias and reduced data quality. Therefore, in studies where respondents are reluctant to respond or participate, researchers should seek additional or alternative data sources that are not affected by such fatigue, such as register data (Lyngstad & Skardhamar, 2011). Analysing existing data also reduces dependence on the police, as researchers usually only need technical assistance to access the information. Because researchers may gain access to police case files through the police internal database, they can avoid potentially skewed data as they can extract the cases themselves, instead of relying on a set of cases carefully chosen and thus potentially biased by the police. Thus, better exploitation of existing data sources will increase data validity and limit fatigue within the police service.

We have suggested that researchers who wish to open the black box surrounding criminal investigation practices need to organize the unsystematic, textual data from the police case files for systematic analysis and link the investigation data to other relevant sources where possible. However, such systematization will inevitably be influenced by researchers' individual judgements. An example from our own research may illustrate this point. In the study of human trafficking law enforcement (Bjelland, 2016), one variable indicated the willingness of victims to co-operate with the police. Although this was usually not made explicit in the police case file data, it was still considered a significant variable for the study. However, assessing victim co-operativeness was not always easy, and other researchers may have interpreted the same case file data differently. Depending on the type and importance of the information in the case files, systematization of data may greatly affect data validity.

Some ethical questions arise concerning the use of sensitive police data for research. First, researchers are unable to obtain informed consent from the individuals involved in criminal cases. Although this applies to analyses of most registry data, police case files contain particularly sensitive information such as full transcripts from police investigative interviews, which means that analysis of such data entails particularly serious privacy and research ethical considerations. Furthermore, because research evidence from analyses of sensitive data may have negative impacts on specific individuals or groups of people, researchers should thoroughly clarify the utility of the research and demonstrate its significance to the general public. Researchers analysing sensitive police data should be explicit about the contribution of their research to improvements in police methods and strategies, and ensure that the advantages of using restricted data exceed the ethical disadvantages.

5.2.   Contribution of investigation data: police organizations

The police service is one of the most controversial bodies in the public sector (Palm & Skogersson, 2008; Reiner, 2010). Criticism is directed at different levels of the police, from their handling of specific crimes or events or use of specific investigation techniques to broader organizational aspects such as its priorities or management (Fahsing & Rachlew, 2009; Korsell & Larsson, 2011; NOU 2012:14). The police are also commonly criticized by the media for their criminal investigation work, such as for low clearance rates or for dropping cases. Although we may question the validity of such measures of 'success' (see e.g. Nelken, 2010), the police organization is generally expected to respond to such criticisms. However, despite their practical investigative experience and knowledge, police officers may lack exact knowledge about how to do so. As Stelfox (2011) noted, because of the often

invisible character of criminal investigations, there is a particular need for police managers to have a good understanding of investigation processes to shape the service's capacity for effective criminal investigations.

In recent years, there have been discussions about the future of crime statistics, some of which have concerned the need for reliable data that are relevant to both policymakers and practitioners (Maguire, 2012). According to Bayley (2015), police research faces great challenges in convincing police organizations to value not only operational experience but also scientific research. We believe that a more extensive use of research data from criminal investigations, such as those presented in this paper, provides information about police practices that are usually hidden from the public that would inform both practitioners and policymakers.

Innes (2010) argues that an explicit aim of police research is to change police practices. In this way, research may function as an engine of change and improvement within the police organization. For instance, knowledge about the importance and specific effects of certain investigation practices, such as e.g. conducting investigative interviews with all involved parties during the early days of a criminal investigation, would enable police investigators to improve their own work and strategies, and thereby enable organizational learning. Research evidence on specific practices may also reveal needs for changes or improvements in organizational strategies or priorities. Dahl and Lomell's (2013) study of DNA highlighted that the police did not know which crime scenes they had visited, nor how many crime scene investigations they had actually conducted. Consequently, the police may be unable to evaluate the effectiveness of new crime scene techniques such as DNA analysis. Reiner (2010, p. 158) notes that without reliable and valid measures of police performance, it is difficult to evaluate innovations. In order to evaluate and improve practices, Dahl and Lomell (2016) recommended that the police organization should implement systematic recording of whether a crime scene has been visited or a crime scene investigation conducted.

However, research on police practices is not always performed with the aim of developing new methods and strategies. According to Innes (2010), research may also 'mirror' police practices by illuminating aspects of how and why the police act, such as how they approach victims of specific crimes for questioning. Knowledge about such practices may facilitate capture of the complexities of police practices (Innes, 2010). Stelfox (2011) points out that the police can never be in total control of all the complex factors that may arise during a criminal investigation. However, insights into potentially complex factors will make the police more conscious of the implications of their practices and strategies and how they should work to obtain the best possible results. Because investigation data provide factual information about police work, research evidence from such data will also elucidate and elaborate the so-called 'tacit knowledge' that is typically possessed by police investigators (Dean et al., 2007). Because the police are increasingly required to enter into collaborative projects with external partners from other governmental agencies (Meyer & Mazerolle, 2014), clarification of such tacit knowledge is important for overall organizational learning and knowledge creation (Nonaka, 1994), and more specifically for developing the criminal investigation profession and improving and facilitating potential collaborations (Fahsing, 2013).

As national law enforcement agents with a great deal of discretionary judgement, even among rank and file officers, the police have a great social responsibility and are given substantial power over members of society. Better utilization of data generated by criminal investigations will provide researchers with insights into mechanisms that are normally hidden from society. Research evidence drawn from studies of such data may thus function as a control on police practices (Innes, 2010). For instance, researchers will be able to examine police responses to criminal complaints of certain kinds of crimes, crimes directed at specific groups or those perpetrated within specific geographical areas. Researchers may also

generally explore police progress on cases, considering questions such as whether they actually conduct a criminal investigation, and more carefully examine the bases of decisions to drop cases.

6. Conclusion

In this paper, we have explored how analyses of internal police investigation data will develop and improve law enforcement research and organizations. Making use of such data for research purposes has several potential benefits. These data facilitate more complex analyses of police strategies and methods, enable detailed examination of complete sets of criminal cases and make it possible to establish statistical patterns in criminal investigation practices.

Research findings from analyses of internal organizational data may have implications for how organizational practices are carried out. Data gathered from criminal investigation files provide information about police practices or research areas that are otherwise difficult to access. Factual up-to-date data about police work may influence different parts of police organizations; while evidence from such data may contribute to organizational learning by increasing knowledge and reflectivity among police officers, findings may also identify productive strategies to achieve organizational goals, and consequently promote structural and organizational change.

New and practical knowledge about the performance of criminal investigations will contribute to opening the black box commonly surrounding such practices, both within police organizations and in much of the police literature. Research evidence describing mechanisms and processes that have traditionally been hidden may also offer new perspectives on broader official debates, contribute to more constructive discussions about the quality of police practices, as well as improve justice and the rule of law. Without knowledge about such generally inaccessible parts of police work, it is difficult for policymakers and the public to maintain an informed and critical view of police methods and practices.

Biographical Details:
Heidi Fischer Bjelland is a PhD Candidate at The Norwegian Police University College in Oslo, Norway. Her doctoral research is exploring the policing of human trafficking in Norway.

Johanne Yttri Dahl is an associate professor at The Norwegian Police University College in Oslo, Norway. Her research interests revolve around the policing of mobile property offenders, surveillance, and the use of DNA evidence in investigations and criminal proceedings. She is currently engaged in a project financed by Norwegian Research Council, entitled 'New Trends in Modern Policing'.

Bibliography

Ahlberg, J., & Knutsson, J. (1994). More Crimes While Police Resources Remain Constant–What Will Happen with the Clearance Rate in the Future. *Studies on Crime and Crime Prevention, 3*, 132-145.

Bayley, D. H. (2015). Police Research: Trends and Prospects. In R. Granér & O. Kronkvist (Eds.), *The Past, the Present and the Future of Police Research* (pp. 8-15). Linnéuniversitetet: Linnæus University.

Bjelland, H. F. (2016). Identifying human trafficking in Norway: A register-based study of cases, outcomes and police practices. *European Journal of Criminology.* doi:10.1177/1477370816677619

Bottomley, A. K., & Coleman, C. (1981). *Understanding crime rates: Police and public roles in the production of official statistics*. Farnborough: Gower.

Brodeur, J.-P. (2010). *The policing web*. Oxford: Oxford University Press.

Brown, J. (1996). Police research: some critical issues. In F. Leishman, B. Loveday, & S. P. Savage (Eds.), *Core Issues in Policing*. London: Longman.

Canter, D. (2000). Offender profiling and criminal differentiation. *Legal and Criminological Psychology, 5*(1), 23-46.

Cicourel, A. V. (1968). *The Social Organization of Juvenile Justice*. Wiley: New York.

Cockbain, E. (2013). *The trafficking of British children within the UK for sexual exploitation: a situational analysis.* (PhD Thesis), University College London, University of London.

Cockbain, E. (2015). Getting a Foot in the Closed Door: Practical advice for starting out in research into crime and policing issues. In E. Cockbain & J. Knutsson (Eds.), *Applied Police Research* (pp. 21-33). New York: Routledge.

Cockbain, E., Brayley, H., & Laycock, G. (2011). Exploring Internal Child Sex Trafficking Networks Using Social Network Analysis. *Policing, 5*(2), 144-157. doi:10.1093/police/par025

Dahl, J. Y., & Lomell, H. M. (2013). *Fra spor til dom. En evaluering av DNA-reformen.* Oslo: Politihøgskolen.

Dahl, J. Y., & Lomell, H. M. (2016). En god nyhet og en dårlig nyhet - om DNAs effekt på oppklaringsprosenten i vinningssaker. *Nordisk tidsskrift for politiforskning, 3*(1), 9-28.

Davies, M. (2016). To What Extent Can We Trust Police Research? - Examining Trends in Research 'on', 'with', 'by' and 'for' the Police. *Nordisk politiforskning, 3*(02), 154-164. doi:10.18261/issn.1894-8693-2016-02-06

Dean, G., Fahsing, I. A., & Gottschalk, P. (2007). Creativity as a determinant of thinking style in police investigations. *International Journal of Police Science and Management, 9*(2).

Demarée, C., Verwee, I., & Enhus, E. (2013). Observing the Observers. Participant Observation in Police Settings. In K. Beyens, J. Christiaens, B. Claes, S. De Ridder, H. Tournel, & H. Tubex (Eds.), *The Pains of Doing Criminological Research* (pp. 105-123): ASP.

Ericson, R. V. (1981). *Making crime: A study of detective work*. Toronto: Butterworths.

Fahsing, I. (2013). Tænkestile - effektivitet, dyder og krydspres i etterforskninger. In C. Hald & K. V. Rønn (Eds.), *Om at Opdage. Metodiske refleksioner over politiets undersøgelsespraksis* (pp. 115-147). Danmark: Samfundslitteratur.

Fahsing, I., & Ask, K. (2013). Decision making and decisional tipping points in homicide investigations: An interview study of British and Norwegian detectives. *Journal of Investigative Psychology and Offender Profiling, 10*(2), 155-165.

Fahsing, I., & Rachlew, A. (2009). Investigative interviewing in the Nordic region. In T. Williamson, B. Milne, & S. P. Savage (Eds.), *International developments in investigative interviewing* (pp. 39-65). London: Routhlegde.

Farrell, A., Owens, C., & McDevitt, J. (2014). New laws but few cases: understanding the challenges to the investigation and prosecution of human trafficking cases. *Crime, Law and Social Change, 61*, 139-168.

Fernandez, R. M., Castilla, E. J., & Moore, P. (2000). Social capital at work: Networks and employment at a phone center. *American Journal of Sociology*, 1288-1356.

Finstad, L. (2013). *Politiblikket* (3 ed.). Oslo: Pax Forlag.

Giacomantonio, C. (2015). *Policing Integration. The Sociology of Police Coordination Work.* UK: Palgrave Macmillan UK.

Greenwood, P., Chaiken, J. M., & Petersilia, J. (2005). The investigative function. In T. Newburn (Ed.), *Policing: Key Readings* (pp. 247-259). New York: Routledge.

Hirschfield, A., Newton, A. D., & Rogerson, M. (2010). Linking Burglary and Target Hardening at the Property Level: New Insights Into Victimization and Burglary Protection. *Criminal Justice Policy Review, 21*(3), 319-337.

Holmberg, L. (2014a). Hva gjør politiet? In P. Larsson, H. O. I. Gundhus, & R. Granér (Eds.), *Innføring i politivitenskap*. Oslo: Cappelen Damm Akademisk.

Holmberg, L. (2014b). Nordisk politiforskning – udfordringer og muligheder. *Nordisk politiforskning, 1*(1), 24-40.

Innes, M. (2002). The 'process structures' of police homicide investigations. *British Journal of Criminology, 42*(4), 669-688.

Innes, M. (2003). *Investigating murder: Detective work and the police response to criminal homicide*: Oxford University Press.

Innes, M. (2010). A 'Mirror' and a 'Motor': Researching and Reforming Policing in an Age of Austerity. *Policing, 4*(2), 127-134.

Jokinen, A., Ollus, N., & Aromaa, K. (2011). *Trafficking for Forced Labour and Labour Exploitation in Finland, Poland and Estonia*. Helsinki: HEUNI.

Kleemans, E. R. (2015). Organized crime research: Challenging assumptions and informing policy. In E. Cockbain & J. Knutsson (Eds.), *Applied Police Research* (pp. 57-67). New York: Routledge.

Knutsson, J. (2013). *Måling av effektivitet i etterforskningen*. Oslo: Politihøgskolen.

Korsell, L., & Larsson, P. (2011). Organized crime the Nordic way. *Crime and Justice, 40*(1), 519-554.

Latour, B. (1999). *Pandora's Hope: Essays on the reality of science studies* Harvard: Harvard University Press.

Laycock, G. (2015). Trust Me, I'm a Researcher. In E. Cockbain & J. Knutsson (Eds.), *Applied Police Research* (pp. 45-56). New York: Routledge.

Lipsky, M. (1980). *Street-level bureaucracy: Dilemmas of the individual in public services*. New York: Russell Sage Foundation.

Loftus, B. (2009). Police occupational culture: classic themes, altered times. *Policing and Society, 20*(1), 1-20.

Lyngstad, T. H., & Skardhamar, T. (2011). Nordic register data and their untapped potential for criminological knowledge. *Crime and Justice, 40*(1), 613-645.

Maguire, M. (2012). Criminal statistics and the construction of crime. In M. Maguire, R. Morgan, & R. Reiner (Eds.), *The Oxford Handbook of Criminology* (5 ed., pp. 206-244). Oxford: Oxford University Press.

Manning, P. K. (1997). *Police Work. The Social Organization of Policing* (2 ed.). Illinois: Waveland Press Inc.

McConville, M., Sanders, A., & Leng, R. (1991). *The case for the prosecution*. London: Routledge.

Meyer, S., & Mazerolle, L. (2014). Police-led partnership responses to high risk youths and their families: challenges associated with forming successful and sustainable partnerships. *Policing and Society, 24*(2), 242-260.

Myhrer, T.-G. (2015). *Kvalitet i etterforskningen* (Vol. 2015:1). Oslo: Politihøgskolen.

Nelken, D. (2010). Human trafficking and Legal Culture. *Israel Law Review, 43*(03), 479-513.

Newburn, T. (2011). Understanding Investigation. In T. Newburn, T. Williamson, & A. Wright (Eds.), *Handbook of criminal investigation* (pp. 1-10). New York: Routlegde.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization science, 5*(1), 14-37.

NOU 2012:14. *Rapport fra 22. juli-kommisjonen*. Oslo: Departementets servicesenter.

Olaussen, L. P. (2010). Clearance Rates: Indicators of Certainty of Punishment or Marginal Utility of Police Investigation? In E. Røsæg, H.-B. Schäfer, & E. Stavangs (Eds.), *Law and Economics. Essays in Honour of Erling Eide* (pp. 185-203). Oslo: Cappelen Damm AS.

Palm, G., & Skogersson, R. (2008). *Hjältar, blåljus och säkerhet: konstruktionen av polisen i nyhetsmedierna*. Växjö universitet: Växjö universitet.

Petersen, T., & Saporta, I. (2004). The Opportunity Structure for Discrimination. *American Journal of Sociology, 109*(4), 852-901.

Petersen, T., Saporta, I., & Seidel, M. D. L. (2000). Offering a Job: Meritocracy and Social Networks1. *American Journal of Sociology, 106*(3), 763-816.

Punch, M. (1979). *Policing the inner city: A study of Amsterdam's Warmoesstraat*: Macmillan.

Reiner, R. (2000). Police Research. In R. D. King & E. Wincup (Eds.), *Doing Research on Crime and Justice*. New York: Oxford University Press.

Reiner, R. (2010). *The Politics of the Police*. Oxford: Oxford University Press.

Runhovde, S. R. (2016). Taking the Path of Least Resistance? Decision-Making in Police Investigations of Illegal Wildlife Trade. *Policing*, 1-16. doi:10.1093/police/paw026

Sheptycki, J. (1994). It Looks Different From the Outside. *Policing, 10*(2), 125-133.

Stelfox, P. (2011). Criminal Investigation: Filling the Skills Gap in Leadership, Management, and Supervision. *Policing*. doi:10.1093/police/paq055

Stol, W., Gundhus, H. I., Runhovde, S. R., & Rønning, K. (2011). Manageability of police patrol work in Norway: the problem of implementing community policing. *SIAK Journal - Zeitschrift für Polizeiwissenschaften und Polizeiliche Praxis, 3*, 78-89.

Sætre, M., & Grytdal, V. (2011). *Voldtekt i den globale byen. Endringer i anmeldte voldtekter og seksualkultur i Oslo*. Oslo politidistrikt: Strategisk stab.

Sætre, M., & Grytdal, V. (2012). *Voldtekt i den globale byen 2011: Anmeldelser og medieoppslag*. Oslo politidistrikt: Strategisk stab.

Tilley, N., Robinson, A., & Burrows, J. (2011). The investigation of high volume crime. In T. Newburn, T. Williamson, & A. Wright (Eds.), *Handbook of criminal investigation* (pp. 226-254). New York: Routledge.

Vrij, A., Granhag, P. A., & Porter, S. (2010). Pitfalls and opportunities in nonverbal and verbal lie detection. *Psychological Science in the Public Interest, 11*(3), 89-121.

Wells, G. L., Small, M., Penrod, S., Malpass, R. S., Fulero, S. M., & Brimacombe, C. E. (1998). Eyewitness identification procedures: Recommendations for lineups and photospreads. *Law and Human behavior, 22*(6), 603.

Westera, N. J., Kebbell, M. R., Milne, B., & Green, T. (2016). Towards a more effective detective. *Policing and Society, 26*(1), 1-17.

Williams, R., & Johnson, P. (2013). *Genetic Policing: The Uses of DNA in Police Investigations*. Cullompton: Willan.

Williams, R., & Weetman, J. (2013). Enacting forensics in homicide investigations. *Policing and Society, 23*(3), 376-389.

Williamson, T., Milne, B., & Savage, S. (2009). *International developments in investigative interviewing*. London: Routledge.

Wilson, J. Q. (1968). *Varieties of Police Behavior. The management of law and order in eight communities*. London: Harvard University Press.