Chapter 2
Methodology

2.1 Selecting a Source of Citation Data

In their early research, Cohn and Farrington (1994a, 1994b) decided to obtain citation data from a small number of prestigious journals in criminology and criminal justice (CCJ) rather than using data from larger sources such as the Social Science Citation Index (SSCI). At that time (1986–1990), SSCI was only available in print format, although today it is part of Thomson Reuters’ online Web of Science (WoS). While this resource provides access to citations in a large number of social science journals in a variety of disciplines, it also has some significant disadvantages. Some of the problems in the print version of SSCI have been corrected by the conversion to electronic format, but a number remain. WoS includes self-citations, which need to be excluded if the purpose of the research is to examine 1 scholar’s influence on others in the field. Additionally, any errors present in journal reference lists, such as spelling mistakes or incorrect initials, are carried over and reproduced in the WoS. If the journal permits the use of the generic “et al.” in the reference list, those additional authors will not be included in the WoS.

The list of journals used by the WoS is not fixed; new journals are constantly being added and older ones removed from the master journal list. The WoS website includes a list of “Journal Coverage Changes,” listing all journal changes over the past 12 months. In March 2013, this list ran to 26 single-spaced pages, with over 40 journals per page (Thomson Reuters, 2013). This clearly makes longitudinal research extremely difficult, if not impossible. The database is primarily limited to journals and a very small number of book series; in general, citations from books and book chapters are not included. This may result in a significant bias, especially in fields like criminology and criminal justice, where books appear to be highly significant (Cohn & Farrington, 1994b).

As many journal reference lists only include the last names and first initials of the authors, the WoS listings also may merge the citations of multiple scholars with the same surname and first initials; for example, a search for “J. Cohen” brings up not only citations to works by Jacqueline Cohen but also citations of Joseph and Jacob
Cohen. Similarly, “P. Brantingham” produces works by both Patricia and Paul Brantingham. The problem is compounded by scholars who have the same first name as well (e.g., the multiple Richard Berks or David Smiths) or who use middle initials that may be omitted in the reference lists (e.g., Ellen G. and Ellen S. Cohn).

Other current sources of citation data are online scientific archives such as Google Scholar and Elsevier’s Scopus, both of which began operations in 2004. Google Scholar (GS) is a free online scientific archive that trawls full-text journals and bibliographic databases and includes citations from not only journal articles and books but also technical reports, court opinions, theses, and a number of “scholarly” web pages. In general, GS tends to produce more citations than WoS (Bauer & Bakkalbasi, 2005; Meho & Yang, 2007). However, there are a number of concerns regarding the software used by GS (see, e.g., Jascó, 2008a, 2008b, 2009a, 2009b). It is also impossible to obtain information on the coverage of the database, such as which journals are included, which databases are trawled, which time periods are covered, or how often GS is updated (Cohn & Farrington, 2012b). Additionally, self-citations are included in GS.

Scopus is a fee-based abstract and citation database operated by Elsevier. As of November 2012, it contained over 20,500 active titles from over 5,000 international publishers, including about 18,500 peer-reviewed journals, 400 trade publications, 360 book series, and 5.3 million conference papers from journals and proceedings, as well as articles in press from over 3,850 journals. This totaled approximately 49 million records. Scopus also includes approximately 376 million scientific-indexed web pages and almost 25 million patent records (Scopus, 2013). While it is very user friendly and fast, there are a number of limitations of Scopus (see, e.g., Dess, 2006). Over 40% of the records (21 million) are from before 1996 and do not include references; only those records from 1996 onwards (28 million) include cited references (Scopus, 2013). This greatly limits citation tracking and longitudinal research. Additionally, the number of records identified by a search varies depending on the order in which search terms are entered, especially if the “search within” function is used (Dess, 2006).

The third option open to citation analysis researchers is to directly examine the reference lists of journals and books in a given field and to count the number of citations of a given scholar, work, or journals. While this method is significantly more time consuming than using online databases, it avoids many of the problems inherent in their use. Cohn and Farrington developed and used this method successfully in their early research (e.g., Cohn & Farrington, 1990, 1994a, 1994b, 1996; Wright & Cohn, 1996). This method is objective, quantitative, transparent, and replicable, as the raw data are available to any researcher with access to the chosen journals and their reference lists.

### 2.2 Journal Selection

Selecting the specific journals to be studied was the first step in the research process. Cohn and Farrington began this line of research in the late 1980s, so, while both American and international journals were considered, the journals were chosen...
based on the needs of the specific research projects that they were conducting at that
time. Additionally, because of language limitations, they limited themselves to jour-
nals published primarily (although not necessarily completely) in English.

Journal selection was, of course, limited to journals being published in 1986, so
newer journals such as *Criminology and Public Policy*, the *European Journal of
Criminology*, and the *Journal of Experimental Criminology* which were not then in
print were not possible sources of citation data at that time. As this is a longitudinal
study, it is not possible to add or remove journals from the study and still have
results that may be compared to those obtained in earlier waves.

There are a wide variety of journals that publish articles in CCJ but which focus
predominantly on other fields, such as sociology (e.g., *Social Forces, American
Sociological Review*, and *Social Problems*), child and adolescent psychology and
psychopathology (e.g., *Development and Psychopathology, Journal of Adolescence,
and the Journal of Youth and Adolescence*), legal/social issues (e.g., *Law and Human
Behavior, Law and Social Inquiry, Behavioral Sciences and the Law*, and *Law and
Society Review*), and so on (see Vaughn, del Carmen, Perfecto, & Charand, 2004, for
an extremely useful annotated list of 326 journals relating to CCJ). While it is pos-
sible that scholars who were initially trained in a cognate discipline and who con-
duct research in CCJ may prefer to publish some or all of their research in the
mainstream journals of their original discipline, we chose to focus on journals that
are centrally concerned with CCJ.

There are also many specialized journals within criminal justice that publish on
very specific topics within the field. These include journals such as *Homicide
Studies, Journal of Threat Assessment, Juvenile and Family Court Journal, Policing:
An International Journal of Police Strategies and Management, Child Maltreatment,*
and the *American Journal of Drug and Alcohol Abuse*. While these and other spe-
cialist journals publish many extremely important works, we chose not to include
them in our analyses because their focus is very narrow and they do not encompass
the entire field of CCJ. Our research is focused on mainstream CCJ journals.

### 2.3 Selecting Four International Journals

The original research (Cohn & Farrington, 1990) used citations to examine differ-
ences between criminology in the United States and the United Kingdom by com-
paring citations in 2 key criminology journals, *Criminology* (CRIM) and the *British
Journal of Criminology* (BJC). CRIM is the official journal of the American Society
of Criminology (ASC) and is sent to all members, giving it an extremely wide cir-
culation and increasing the likelihood that articles in this journal will be noticed and
read by American criminologists more than articles in other American criminology
journals. BJC, published by Oxford University Press, is unambiguously the leading
criminological journal in the United Kingdom.

Their analysis was later expanded to include the leading peer-reviewed criminol-
ogy journals in other English-speaking countries—specifically Canada, Australia,
and New Zealand (Cohn & Farrington, 1994a). The leading criminological journal
in Canada is the *Canadian Journal of Criminology and Criminal Justice* (CJC), formerly the *Canadian Journal of Criminology*, which is published by the Canadian Criminal Justice Association. While this journal is published partly in French, many articles are in English and those that are not in English include an English abstract. The primary journal in Australia and New Zealand is the *Australian and New Zealand Journal of Criminology* (ANZ), which is published by the Australian and New Zealand Society of Criminology and sent to all members of the society.

**2.4 Selecting Six American Journals**

Cohn and Farrington’s next study involved an examination of citations in major American CCJ journals (Cohn & Farrington, 1994b), which they limited to CCJ journals with American editors and publishers. Journals with significant international content and journals published and edited outside the United States were excluded from this analysis. Three of the journals they selected were centrally concerned with criminology—CRIM, the *Journal of Quantitative Criminology* (JQC), and the *Journal of Research in Crime and Delinquency* (JRCD). The other three were centrally concerned with criminal justice—*Justice Quarterly* (JQ), the *Journal of Criminal Justice* (JCJ), and *Criminal Justice and Behavior* (CJB).

A review of the literature available at the time provided considerable empirical evidence to support the claim that these were among the most prestigious American journals in CCJ. Shichor, O’Brien, and Decker (1981) asked American criminologists to rank American and international journals containing articles on CCJ and found that the *Journal of Criminal Law and Criminology* (JCLC) had the highest average rating, followed by CRIM and JRCD. JCJ was ranked fifth in the survey, after *Crime and Delinquency* (CD). The next most highly-ranked American CCJ journals were *Criminal Justice Review* (CJR), *Federal Probation* (FP), and CJB. A similar but much larger survey conducted by Regoli, Poole, and Miracle (1982) found that the most highly-ranked and prestigious CCJ journals were CRIM, JRCD, JCLC, CD, JCJ, and CJB. A survey of criminal justice professionals (rather than academic criminologists) conducted by Fabianic (1980) obtained similar results, finding that the most highly-ranked journals were JCLC, JCJ, CRIM, and JRCD. Parker and Goldfeder’s (1979) survey of heads of graduate programs found that the most highly-ranked CCJ journals were JCLC, CRIM, CD, JCJ, FP, JRCD, and CJB.

Citation analysis also supports the selection of these journals as among the most prestigious American CCJ journals. Poole and Regoli’s (1981) study of journal citations in CRIM between 1975 and 1979 found that citation-based rankings of journals were highly correlated (rank correlation = 0.75) with the subjective rankings obtained by Shichor et al. (1981); based on citations, the most highly-ranked journals were JCLC, CRIM, CD, JRCD, and FP. After controlling for the number of articles available to be cited, Cohn and Farrington (1990) found that the most-cited journals in CRIM between 1984 and 1988 were CRIM, JCLC, JRCD, CD, JCJ, and CJB. Stack’s (1987) research using SSCI also controlled for the number of articles
that could be cited and found that the most-cited American CCJ journals were CRIM, JRCD, CD, JCLC, CJB, and JCJ.

Although these studies found that CD, FP, and JCLC were considered to be among the most important American CCJ journals, Cohn and Farrington did not use these journals in their research. Almost half of the issues in CD were special issues that include solicited articles on specific topics rather than unsolicited articles on general topics in CCJ. FP is a specialist journal focusing specifically on probation, rather than a general journal presenting topics spanning the field of CCJ. The legal style of footnoting used by JCLC in the 1980s used only the last names of the authors cited, omitting initials and therefore making it nearly impossible to determine the identity of authors who shared the same surname. Although JCLC now includes the first name or initials of authors, the footnote style of citation still makes it extremely difficult to obtain citation information. Because footnotes appear throughout an article (as opposed to collecting references at the end of the article), Cohn and Farrington would have had to search through each article for those footnotes that contained references, identify and delete any extraneous material in the footnote, and then copy each reference to a new file. As JCLC begins references with first names, each reference would have to be individually edited to reverse the first and last names so that references could be sorted by last name. Additionally, Sorensen (2009) found that a large percentage of articles in JCLC deal with topics relating to criminal law rather than criminal justice and/or criminology.

Both JQ and JQC were not listed among the most prestigious journals in many of these early studies because they did not begin publishing until 1984 and 1985, respectively. However, by the time Cohn and Farrington began their research, they believed them to be more prestigious than several of the other journals identified by the earlier research (e.g., Criminal Justice Review, Journal of Crime and Justice). JCJ was, and JQ is, the house journal of the Academy of Criminal Justice Sciences (ACJS).

2.5 Selecting 20 American and International Journals

The selection process described above resulted in a total of 9 CCJ journals: 3 American criminology journals (CRIM, JQC, and JRCD), 3 American criminal justice journals (JQ, JCJ, and CJB), and 3 international journals (ANZ, BJC, and CJC). In a separate study, Cohn and Farrington also examined citations in Crime and Justice: A Review of Research (CAJ) (Cohn & Farrington, 1996), bringing the total number of publications studied to ten. While these are all well-known, high-quality, peer-reviewed publications, Cohn and Farrington were concerned that the limited number of journals studied could potentially create a bias against scholars who publish in less mainstream or slightly lower-tier journals as it could be argued that the results might vary depending on the particular journals being analyzed.

They therefore decided to investigate the most-cited scholars in a much larger number of American and international CCJ journals (Cohn, Farrington, & Wright
1998), doubling the number of journals studied from 10 to 20. As they had already been assessing American and international journals and comparing criminology and criminal justice journals, Cohn and Farrington decided to examine 5 journals in each of four possible groupings: American criminology journals, American criminal justice journals, international criminology journals, and international criminal justice journals. Selecting the additional 10 journals was a difficult undertaking.

Cohn and Farrington first eliminated nonacademic publications such as *The Police Chief* and *Corrections Today*, as well as mainstream academic journals in cognate disciplines (e.g., psychology, psychiatry, sociology, economics, drug and alcohol studies), and then considered a wide variety of academic journals. Some prestigious journals such as the *Journal of Crime and Justice* and the *Howard Journal of Criminal Justice* had too few citations to be reasonably analyzed. In 1990, the most-cited scholar in the *Journal of Crime and Justice* had only four citations, and only 3 scholars had 4 or more citations in the *Howard Journal of Criminal Justice* in 1990. Others were on specific topics within CCJ (e.g., *Victimology, Policing, The Prison Journal, Criminal Justice History, Police Studies*) or focused primarily on related disciplines such as legal psychology, socio-legal studies, and the sociology of deviance.

They eventually selected 10 additional CCJ journals: CD, *Criminal Justice Review* (CJR), FP, *Criminologie* (CRGE), *Contemporary Crises* (now renamed *Crime, Law and Social Change: CLSC*), the *International Journal of Comparative and Applied Criminal Justice* (IICA), the *International Journal of Offender Therapy and Comparative Criminology* (IJOT), *Journal of Interpersonal Violence* (JIV), *Social Justice* (SJ), and *Violence and Victims* (VAV). As the original research using these 20 journals was conducted in 1990, they used data from that year to classify journals as American or international. Of the 5 journals we identified as international criminology journals, 4 (ANZ, BJC, CJC, and CRGE) were published outside the United States and contained very few American authors, while the fifth, CLSC, was at that time subtitled “An International Journal” and was published in the Netherlands. In 2005, only 18% of the authors in CLSC were American, and the journal included 14 non-Americans out of 27 editors, senior editors, and associate editors.

One of the 5 international criminal justice journals, IJCA, is the official journal of the American Society of Criminology’s Division of International Criminology and is explicitly international in its focus. The second, IJOT, “a journal of international cooperation,” is also explicitly international in its focus and included 29 non-Americans out of 56 consulting and associate editors in 2005. SJ, a project of “Global Options,” included an international editorial advisory board drawn from 13 countries in addition to the United States in 2005. CJB, the official publication of the International Association for Correctional and Forensic Psychology, is subtitled “An International Journal,” and the journal information clearly states that “articles… are welcomed from throughout the world.” CAJ, according to its promotional material, has, “since 1979 […] presented a review of the latest international research.” Its editor, Michael H. Tonry, was located in the United Kingdom in 1999–2004, and currently has an affiliation in the Netherlands.
For the original 9 journals, Cohn and Farrington obtained citations for each year of publication and studied them in 5-year periods (beginning with the earliest study that examined citations in 1986–1990). However, the extensive amount of work involved in the process of data collection was too great to permit annual data collection for all 20 journals; therefore, they only analyzed 1 year of data out of each 5-year period (beginning with 1990).

2.6 Obtaining the Citation Data

The citation data were obtained from the reference lists in each article in each of the journals. We defined articles as including not only research articles but research notes, comments, and rejoinders. We excluded book reviews, book review articles, editorials, introductions to special issues, letters, and obituaries. The reference pages for each article had to be entered into the computer. Originally, Cohn and Farrington did this by photocopying the reference lists, scanning them into the computer with an optical scanner and OCR software, and editing the resulting text to correct the large number of typographical errors created by the scanning process. Today, however, the increasing prevalence of full-text online journals allows us the ability to download references from most journals directly into a word processing program for editing, significantly streamlining the data entry process by not only reducing the time and cost of the process but also greatly decreasing errors in the reference lists. In addition to downloading journal reference lists, we also print out the title page and reference pages of each article, as well as the table of contents for each journal issue. Using this material for cross-checking helps to ensure that no articles or references have been omitted.

After downloading the reference lists, the citations had to be converted into a format that was suitable for analysis. For references with multiple authors, this involved making duplicate listings of the reference with each individual coauthor listed first in one of the listings. This was extremely labor-intensive but was essential as it ensured that all coauthors received equal credit for being cited, rather than only acknowledging the first author (this was a serious problem with SSCI until recently). Self-citations were identified and marked for later exclusion, and institutional authors (e.g., Home Office, National Institute of Justice, New York Times) were removed from the data set. In journals such as CJB that permit the use of “et al.” in the reference list, the names of the additional coauthors were, when possible, obtained and included in the data. All cited authors received equal credit; citation counts were not inversely weighted according to the number of coauthors (this is more common in publication productivity studies such as Rice, Cohn, & Farrington 2005; Steiner & Schwartz, 2006; Shutt & Barnes, 2008). Restricting the study to published works was not feasible so all works cited were included (e.g., unpublished papers, theses and dissertations, conference presentations). Self-citations were excluded from analysis, although coauthor citations were noted but included (Cohn & Farrington, 1996). These occur when the author of an article cites
one of his or her own multiauthored works. For example, if Robert J. Sampson publishes an article in CRIM in which he cites a work he coauthored with John H. Laub, Laub is a coauthor citation. In that situation, Laub would be credited with a citation but Sampson would not.

We carried out an extensive amount of checking to ensure that no references were omitted, that all self-citations were identified and excluded, that typographical errors were minimized, and to detect and if possible correct mistakes in the original reference lists (which were unfortunately extremely common). This process involved careful cross-checking using the photocopied pages of the reference lists. For each article, we counted the number of cited authors in the reference list and identified self-citations and coauthor citations. This information was compared with the corresponding information in the computer file and any discrepancies were identified and corrected. We also compiled information on the total number of authors cited in each article, the number of self-citations, and the number of coauthor citations. This permitted us to compute the number of “eligible” citations by subtracting the number of self-citations in an article from the total number of authors cited in that article. We also recorded the number of authors of each article and the nationality of each author. Nationality was defined by the country of the institution with which an author was affiliated; when an author listed multiple affiliations in different countries, the first-listed institution was used. For those authors with no institutional affiliation, their geographic location was used.

2.7 Counting Citations

After completing the editing process for an individual journal, the list of citations was sorted into alphabetical order and put into a spreadsheet. This was then examined to determine the number of times each scholar was cited; the previously identified self-citations were noted but not included in a scholar’s total citation count.

This process was often very difficult because, in many journals, the reference lists include only last names and initials rather than full names, creating confusion when there are multiple scholars with the same last name and initials; this problem was compounded even further in situations where middle initials were omitted. In those cases, references were cross-checked against the original source publications to distinguish between, for example, the various D. Smiths (David A., David E., David J., Douglas A., etc.), the various J. Cohens (Jacqueline, Jacob, Joseph, etc.), and the 2 P. Brantinghams (Paul J. and Patricia L.). In addition, there are several cases where 2 scholars share the same name (e.g., David Brown, Richard Sparks, Richard Wright, Patrick O’Malley); in those situations it was necessary to examine the complete citation listings carefully to distinguish between them. Citations to scholars with multiple names (e.g., Kimberly Kempf/Leonard) also had to be amalgamated, when they were known.

We also had to check and correct a distressingly large number and variety of errors made in the original reference lists. Authors’ names were often misspelled (e.g., T. Hirsch or T. Hirshi instead of T. Hirschi, D.P. Farringdon instead of D.P.
2.8 Limitations of This Methodology

There are a number of limitations of this type of citation analysis research, many of which are attributable to the longitudinal design being employed. First, it is based on citations in a relatively small number of mainstream CCJ journals. Scholars who publish in journals that focus on cognate disciplines, such as sociology or...
psychology, or who publish in more specialized CCJ journals that focus on a narrow area within the field may not be highly cited in the journals studied, and their influence may be underestimated.

Second, because this is a longitudinal study, only those journals that existed at the time the research began could be used (1986 for the 9 major international and American CCJ journals and 1990 for the expanded 20 journal study). Journals that were not then being published, such as *Criminology and Public Policy*, the *European Journal of Criminology*, or the *Journal of Experimental Criminology*, cannot be incorporated into the study.

Third, because of the longitudinal design, the research cannot be revised to take advantage of the many new sources of citation data such as the Web of Science, Scopus, and Google Scholar. Similarly, the methods of analyzing the citation data cannot be changed. For example, while our method has eliminated self-citations, coauthor citations are included in the data. While it would be interesting and possibly instructive to look at the impact of coauthor citations on rankings, it is not possible at this point to remove those citations.

### 2.9 Strengths of This Methodology

Although the longitudinal design of this research does result in a number of limitations, it is also one of the primary strengths of this research methodology. This study is based on citation data collected from major CCJ journals over a period of 25 years. Because electronic sources of citation data did not exist when this research began, it would not be possible to carry out such a long-term study based on those data sources. Secondly, this research used the same set of journals throughout. Electronic sources of citation data are constantly changing the source journals from which they obtain citation data, making it almost impossible to obtain comparable longitudinal data.

Another important strength of this research is the careful and extensive checking of the data that was carried out in an effort to locate and correct the many errors that appear in the original reference lists, such as misspelled authors’ names, incorrect or omitted initials, and incorrect reference dates. When online sources of citation data are used, these errors remain because citations are not checked for accuracy. We conducted a detailed examination, informed by an extensive and in-depth knowledge of the literature and the individual scholars in CCJ, that, while it may not have corrected every error, clearly corrected many that would otherwise have been missed.

Fourth, this research excludes self-citations, which do not indicate a scholar’s influence on others in the field. Online sources of citation data do not do this; nor do they clearly identify self-citations so that they can be extracted manually.

Finally, while it may be argued that the limited number of journals examined under our method is a limitation, it is also a strength of this research. All the journals being studied are well-regarded, prestigious, and widely read mainstream journals.
in CCJ. More general sources of citation data, such as Web of Science or Scopus, would collect citations from a wider variety of journals but would include trade publications as well as journals that are less prestigious or that are only peripherally associated with CCJ, thus significantly diluting the validity of the conclusions.

2.10 The Current Research

The original analysis developing the Cohn and Farrington methodology was a study of citations in 4 major international criminology journals during the years 1986–1990 (Cohn & Farrington, 1994a). This was then extended over the next three 5-year periods: 1991–1995 (Cohn et al., 1998; Cohn & Farrington, 1998a), 1996–2000 (Cohn & Farrington, 2007a), and 2001–2005 (Cohn, 2011a; see also Cohn & Farrington, 2012b). The analysis of 6 major American CCJ journals also originally examined citations during the period 1986–1990 (Cohn & Farrington, 1994b) and continued through the next 3 time periods: 1991–1995 (Cohn & Farrington, 1998b; see also Cohn et al., 1998), 1996–2000 (Cohn & Farrington, 2007b), and 2001–2005 (Cohn, 2011b; see also Cohn & Farrington, 2012b). This research extends these analyses through 2006–2010 and analyzes longitudinal trends in scholarly influence over the 25-year period. Cohn and Farrington’s analysis of 20 major journals originally covered the year 1990 (Cohn et al., 1998) and was later extended to cover the years 1995 (Cohn & Farrington, 1999), 2000 (Cohn & Farrington, 2008), and 2005 (Cohn & Farrington, 2012a). This work extends this to the year 2010 and also examines changes in scholarly influence over time.
Most-Cited Scholars in Criminology and Criminal Justice, 1986-2010
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