

Understanding And Quantifying The Impact Of Freeman And Medoff's “What Do Unions Do?” A Quarter Of A Century Later

Feruzan Irani Williams, Georgia Southern University, USA

Robert C. Hoell, Georgia Southern University, USA

ABSTRACT

We examine the impact of Freeman and Medoff's seminal book “What Do Unions Do?” on the field of Industrial and Labor Relations, in the 25 years since its publication. While it is widely accepted that this book has had a major impact on its field, we attempt to quantify this by using various bibliometric indicators (e.g., h-index) and descriptive statistics; via a combination of manual literature review and specialized citation software using multiple databases. As expected, our findings quantifiably indicate that “What Do Unions Do?” has had and continues to have an above average impact on in its field.

Keywords: What do unions do?; Freeman and Medoff; Industrial and Labor Relations; Citation Analysis; Bibliometrics; Citation Software; Publish or Perish

INTRODUCTION

In their seminal book “What Do Unions Do?” Freeman and Medoff (1984) tried to answer that much debated question by aggregating data in a systematic way. Their general conclusions were that, if viewed through the “monopoly” lens, unions were harmful to society; but, if viewed through the “voice/response” lens, unions were beneficial, both economically and socially. Freeman and Medoff (1984) suggested that the negative monopoly effects of unions do exist, but are counter-balanced by the positive effects of the voice/response face of unions. However, these positive benefits will only materialize when both union and management take a constructive approach to collective bargaining. In answering the question “What Do Unions Do?,” Freeman and Medoff focused on these two “faces” as most relevant to understanding the role of unions in society. Overall, according to them, unions provide a useful mechanism for workers and the society.

This seminal work in 1984 has led to a long string of academic studies of labor unions and their impacts. The authors have been praised for their comprehensive approach which has “...brought to the subject new theory, an impressive collection of data sets, and sophisticated statistical tools” (Bennet & Kaufman, 2004, p. 339). “What Do Unions Do?” has stimulated renewed and extensive interest in trade unions and their economic and noneconomic dimensions and effects (Bennet & Kaufman, 2004; Turnbull, 2003). It has been widely acclaimed as “the most influential book on the subject (of trade unions) written in several decades” (Kaufman, 2005, p. 555). In fact, the book was of such importance that it was reviewed within a year by *Industrial and Labor Relations Review* (1985). Burton, in his introduction to the review, notes that the influence of the work had such impact that it was noticed by the popular business press (Burton, 1985).

With that 1984 work as a starting point, the impact of Freeman and Medoff's views on various research fields can be examined. It is obvious to see that their work and their conclusions about unions have generated interest among fellow researchers. Many other works have cited their 1984 book, and it is likely that this book has influenced innumerable other studies as well. Gauging that impact and how it has shaped research in the field of

Industrial and Labor Relations for the last quarter of a century needs to be addressed.

Since their work was produced in 1984, a variety of citation analysis techniques and software packages have become available. Using such bibliometric indicators allows a more precise view of the impact of scholars and their work. Such measures allow for the quantification of that impact. While debate still continues as to the usefulness or appropriateness of these measures, they are the standard that is currently available.

The research question at hand for this paper is “What has been the impact on studies of unions and labor relations as a direct result of Freeman and Medoff’s 1984 book?” Our goal is to quantitatively assess their impact through various bibliometric indicators and descriptive statistics. We look at their contributions as authors through various indices to gauge their impact on the field. Next, we turn our attention to the impact of their book itself. Finally, we discuss the limitations of this attempt to quantify the impact of a single research work and offer suggestions for future research.

BIBLIOMETRICS AND CITATION ANALYSIS

The growth of bibliometrics and citation analysis has been accelerated by readily accessible databases and easily used software tools. The 1960s saw the initial growth of bibliometrics and citation analysis as a way to quantify and measure scholarly output (De Bellis, 2009). Studies have been done examining the output of various groups of researchers (Razzaque & Wilkinson, 2007), as well as specific journals (Fernandez-Alles & Ramos-Rodríguez, 2009). Citation analysis has even been adopted as an administrative tool in academia in the United Kingdom and Australia, and has been used to determine the distribution of funding (Adams, 2009; Butler, 2008). Although initially used extensively in the scientific fields, this methodology has also extended itself into the humanities and social sciences fields, especially within the past ten years (Kosmopoulos & Pumain, 2007).

While these types of analyses had their start in the scientific fields, they moved to social sciences as a natural extension of the methodology. Fernandez-Alles and Ramos-Rodríguez (2009) noted that bibliometric studies have been recently conducted in business research fields¹. The studies they identified performed quantification of such areas as Management, Organizational Behavior, and Advertising. They did not identify any studies in Industrial and Labor Relations that applied such bibliometric methods.

Citation analysis is typically used to study the links between scholarly works. As noted by Palmquist (1999), counting the number of times a work has been cited by others is the most common method used. She also notes that this is usually done to establish the significance of the work or the author on a field of research. However, as others note, citation analysis is only a partial way to judge the worth and value of a scholarly work and care must be taken when using and presenting such statistics (Adler, Ewing, & Taylor, 2009).

As mentioned earlier, one method to understand the importance of a given work is to identify the number of times it has been cited by later studies. At the most basic level, a simple count of the number of times a research work has been cited generates a number. This base measure, or frequency, while descriptive, is anything but simple to generate or to interpret. Osareh (1996) notes that citing an author in a negative context can artificially inflate the citation count. For instance, a flawed study may be cited numerous times as a cautionary tale, thereby inflating its citation count. Similarly, another study may answer a major research question, closing off a field of study and receiving few future citations. With an abundance of available online databases, citation indices, and easy to use software, citation analysis has become commonplace. But how those citations are generated is of great concern and has led to ongoing debate (see, for example, Jacso, 2006a).

Of particular concern is the inaccessibility of some research and how bibliometrics can be skewed as a result. Work that is not published in a fashion that makes it discoverable affects its citation count. Where some journals may be indexed by multiple sources, other lesser known journals may only be available in more obscure indexes or databases, thus, making their studies harder to obtain. Operating budgets at various libraries and the

¹ See Fernandez-Alles and Ramos-Rodríguez (2009), Table 1, pg. 163, for a list of bibliometric studies conducted in business research fields.

decisions made by collection librarians obviously impacts this as well, since not all scholars have every resource available when conducting literature searches and reviews (Todd & Ladle, 2008). Moreover, it has been noted that when comparing the largest citation databases available, some are better at certain topics and cover more journals than others (Harzing & van der Wal, 2008).

However, citation analysis methodology has not been universally accepted by all researchers. There has been a stream of literature that questions the value of citation analysis. As noted by Browman and Stergiou (2008), such methods cannot arrive at the true value of scholarly work. They note that bibliometric indices cannot capture the “novelty, solidity and magnitude” of research and are, at best, of limited utility. Many of the criticisms are geared towards methods that attempt to analyze an overall body of work, such as the impact of a specific journal, or the entire work of a researcher, and use that in comparison to others. Of further concern is that a reliance on citation analysis will lead to poor science, or at least a lack of focus (Lawrence, 2008). There is also a fear that such reliance will lead to ‘citation fishing’ and ‘citation bartering’ in which authors will spend too much time crafting their reference lists and less time on the research itself (Lawrence, 2007).

While some are concerned about what the measurement of scholarly work through citation analysis or other bibliometrics indices will yield (van Raan likened it to a Pandora’s Box in 2000), others are cautionary. It is, certainly, an evolving field: the h-index was not even proposed until 2005 by Hirsch and ongoing innovations offer new possibilities for understanding the impact of authors and their research.

This paper intends to use the current available tools to examine the impact of Freeman and Medoff, without commenting on the quality of the work or the following research, or comparing the work to other works in an attempt to judge it. Giske (2008) notes that bibliometrics, even if skewed due to citation analysis issues, are valuable as a starting point. We agree and will use the methodology afforded us, but without establishing value judgments. Thus, the intent of this research is not comparison to other authors but simple measurement. In doing so, we hope to avoid many of the criticisms and shortcomings of bibliometrics and citation analysis.

METHODS

Using various citation databases, we hope to develop a complete picture of the impact of Freeman and Medoff’s 1984 book on the field of Industrial and Labor Relations. There will be limitations due to the fact that not all published research is indexed in citation indices. Similarly, not all research is correctly identified by keyword or other database qualifiers and may go uncounted as a result. Finally, our data collection was conducted May through July 2010: work after this date will not be included, nor will work that was “in publication” at that time. Wherever possible we will cite the citation databases used and direct readers to those databases, as well as the search or inclusion criteria utilized. Even with the inherent limitations of online reference and citation sources (discussed below in further detail), a thorough understanding of the impact of their work can be established.

A range of measures have been developed that work from the base citation count, but are themselves limited or constrained in various ways. In a nutshell, each of the indices attempts to normalize the citation count using various methods, whether it be controlling for age or accounting for multiple authors. While there are known limitations in each, they are the current “state of the art” concerning such analyses.

The first step was to individually analyze the two authors and their scholarly contributions. Publish or Perish, which accesses Google Scholar, was used for this purpose. This software, by Anne-Wil Harzing (2010), generates 12 bibliographic indices, as well as basic statistics². In addition to analyzing Freeman and Medoff individually, an analysis of their co-authored work was also conducted. As mentioned earlier, quality is not addressed, as we simply attempt to gauge the numerical impact of their work by looking at their publication and citation numbers.

² Refer to Harzing’s website, <http://www.harzing.com/pop.htm>, for a discussion of the various indices and statistics that her software generates. The two most likely to be discussed, however, are the h-index by Hirsch (2005) and the g-index by Egghe (2006). Additionally, a quick definition of four of the major bibliometric indicators (the h-index, the g-index, the hc index, and the hI_{norm}) is provided in the paper published by Razzaque and Wilkinson (2007).

The paper then turns to the main work: their 1984 book “What Do Unions Do?” This is more problematic as books themselves are often not included in journal citation databases. Consequently, we use three methods to quantify the impact of the book. The first uses the Publish or Perish software as an access point to Google Scholar. The second explores the Cited Reference Search at ISI World of Science. The final method is a more traditional manual literature review. Great differences between the three methods exist and are explored during the discussion of the results.

RESULTS AND DISCUSSION

The results shown here are the direct output from Publish or Perish, as generated from Google Scholar on June 7, 2010. We have not edited the dataset from which the bibliometrics were generated, nor have we excluded any material. As is inherent in Google Scholar output, there may be duplication of cited material or other errors (these limitations are discussed in more detail in a later section). Our only constraint was to confine the software to search only within the Business, Administration, Finance and Economics datasets.

While there may be errors, the data can be thought of as representative of the author’s actual work and provide at least some indication of their scholarly impact. Weaning a few duplicates from their list of works would most likely have little impact, especially in the case of Freeman, who has a large ‘n’ due to his voluminous output.

Richard Freeman’s Impact

Richard Freeman’s scholarly work was analyzed using the Publish or Perish software (Harzing 2010). The phrase “Freeman, Richard” was entered in the author’s name field and an Author Impact Analysis, using only the Business, Administration, Finance and Economics database option, was conducted. Table 1 below shows the results of this analysis:

Table 1: Publish or Perish Results for Richard Freeman

Papers:793	Cites/paper:21.36	h-index:66	AWCR:1174.67
Citations:16935	Cites/author:12103.49	g-index: 117	AW-index:34.27
Years:63	Papers/author:505.08	hc-index:38	AWCRpA:827.77
Cites/year:268.81	Authors/paper:2.16	hI-index:39.96	e-index:84.37
		hI,norm:56	hm-index:53.78
Hirsch a=3.89, m=1.05			
Contemporary ac=3.25			
Cites/paper 21.36/3.0/0 (mean/median/mode)			
Authors/paper 2.16/2.0/1 (mean/median/mode)			
319 paper(s) with 1 author(s)			
258 paper(s) with 2 author(s)			
95 paper(s) with 3 author(s)			
47 paper(s) with 4 author(s)			
46 paper(s) with 5 author(s)			
19 paper(s) with 6 author(s)			
9 paper(s) with 7 author(s)			

Hirsch (2005), inventor of the H-index, designed a basic scale to interpret the ratio developed by his index. Values near 12 indicate a scholar should receive tenure at research institutions, values of 18 would indicate suitability for promotion to full professor, and very high values (approximately 45) would make a scholar eligible for membership in the National Academy of Sciences. Freeman’s H-index is 66, indicating that he has had a large volume of work, that many others have cited his work, and that the conclusion that can be reached is that he has had a significant impact on his field of research.

Other descriptive measures found in this output include the total number of papers (793), the number of sole-authored papers (319), and the number of years during which scholarly work was produced (63). With this data

in hand, it is possible to conclude that Freeman has averaged over 12.5 articles per year. Also of note, is the number of times Freeman has been cited. According to Google Scholar (which is the underlying database that Publish or Perish draws its data from), Freeman’s work has been cited 16,935 times by other authors, which is almost 269 times per year, on average.

James Medoff’s Impact

The scholarly work of James Medoff was analyzed in the same manner, on the same day, as that of Richard Freeman. Table 2 below shows his impact as an author:

Table 2: Publish or Perish Results for James Medoff

Papers:99	Cites/paper:24.87	h-index:17	AWCR:105.07
Citations:2472	Cites/author:1208.25	g-index: 49	AW-index:10.25
Years:38	Papers/author:53.42	hc-index:10	AWCRpA:49.55
Cites/year:65.05	Authors/paper:2.04	hI-index:7.81	e-index:43.27
		hI,norm:13	hm-index:11.25
Hirsch a=8.55, m=0.45			
Contemporary ac=4.20			
Cites/paper 24.97/3.0/2 (mean/median/mode)			
Authors/paper 2.04/2.0/2 (mean/median/mode)			
13 paper(s) with 1 author(s)			
72 paper(s) with 2 author(s)			
11 paper(s) with 3 author(s)			
3 paper(s) with 4 author(s)			

While not as prolific as Freeman, Medoff has obtained sufficient paper and citation counts that establish his contributions as a scholar. Deducing the value of that contribution from these basic numbers is almost impossible. It can be noted, however, that his H-index score fits within the range developed by Hirsch and he has been cited at a rate of 65 times per year (2472 total citations in 38 years), on average. Each individual paper would need to be analyzed to be able to draw greater conclusions, which is beyond the scope of this paper.

Impact of Freeman and Medoff as Co-authors

As the next step, an analysis was conducted to gauge Freeman and Medoff’s impact as co-authors. Using the same methods as earlier, results were generated with the terms “Freeman Medoff” entered into the Author’s Name field of Publish or Perish. Table 3 below shows the results of this analysis:

Table 3: Publish or Perish Results for Freeman and Medoff as Co-authors

Papers:41	Cites/paper:13.02	h-index:10	AWCR:17.96
Citations:534	Cites/author:260.56	g-index: 22	AW-index:4.24
Years:34	Papers/author:19.15	hc-index:3	AWCRpA:8.76
Cites/year:15.71	Authors/paper:2.27	hI-index:4.76	e-index:18.22
		hI,norm:6	hm-index:6.87
Hirsch a=5.34, m=0.29			
Contemporary ac=8.00			
Cites/paper 13.02/4.0/0 (mean/median/mode)			
Authors/paper 2.27/2.0/2 (mean/median/mode)			
35 paper(s) with 2 author(s)			
3 paper(s) with 3 author(s)			
1 paper(s) with 4 author(s)			
2 paper(s) with 5 author(s)			

Of the 41 articles, 35 were jointly authored by just Freeman and Medoff. Another 6 papers were authored by multiple authors including Freeman and Medoff. The 41 papers over a 34 year period average out to almost one co-authored article per year. As in the previous sole-author discussions, this is an average and is not a true count. A year by year analysis of each individual paper would be necessary to truly understand their actual partnership. It is possible that it may be skewed to a point earlier in their careers, or the partnership may have continued over time. Again, this is not a focus of the paper and hence will not be discussed further. Instead, the more relevant results are their h-index of 10 and their citation count of 534. Thus, it appears that as co-authors they have been contributing successfully.

Understanding how co-authorship affects citation analysis and bibliometric indices is a matter that is just now gaining interest. Hirsch (2010) has proposed a new index to account for multiple authors, known as the H-Bar-Index. In spite of the fact that this is more of a way of controlling multiple authorship issues when analyzing the work of a single author, it is important to note that this area of analysis is drawing attention.

IMPACT OF FREEMAN AND MEDOFF’S 1984 BOOK “WHAT DO UNIONS DO?”

Measuring the impact of a specific piece of research, rather than an author, is more problematic. Counting the times the work has been cited is, at best, a starting point. Computer analyses of data sources such as Google Scholar or the ISI Web of Science are common but not trustworthy. A manual examination of all related pieces of research is also difficult as works may be overlooked, or not indexed in such a fashion that they are rendered visible. We attempted three methods of analyzing the book’s impact, and arrived at very different results.

Method 1 - Using Publish or Perish to access Google Scholar

Our first attempt was examining the data that Publish or Perish generated via Google Scholar. These results reflected *all* of the works that Google Scholar identified as being co-authored by Freeman and Medoff. It indicated that these works had been cited a total of 3,607 times. The first step was to remove all of the titles that were obviously not the book itself. 2,856 citations were identified after removing the items that were clearly not the book; these 2,856 citations included references to the book, or some variation on the book and its title. We also removed two other citations referencing a 1977 paper which, while close in title, was published a number of years before the actual book itself. This brought the total items citing the 1984 book to 2,854, as generated by Google Scholar on June 13, 2010.

Unfortunately, further analyses of these results were thwarted by limitations in Google Scholar. Only 100 items can be displayed at a time, and use of automated retrieval software is not permitted. In a communication with Google Scholar representatives, the following was sent to one of the authors:

Unfortunately, there is no easy way to save a large number of citations. Google Scholar is focused mainly on making it possible for users to find articles and isn't really designed for bulk bibliometric operations. (The Google Scholar Team, e-mail message to author, April 27, 2010).

This means that the only method available to check the 2,854 citations would be a manual analysis of over 28 screens of data, with 100 references per page.

In an attempt to generate a better, more defined output, the title of the book was entered directly into Google Scholar, rather than the previous method of using the authors’ names in Publish or Perish. Conducted on June 13, 2010, very similar results were found, with 2,830 citations referencing the book by title.

Method 2 - Using ISI’s Web of Science Cited Reference Search

It is possible, using Web of Science’s ‘Cited Reference Search’ to find all works that cite Freeman and Medoff’s 1984 book. Entering the book’s title in to the Cited Reference Search generated 108 results on June 13, 2010. Those 108 results were references to the book itself, or in some instances, specific pages in the book. Not unlike the Google Scholar results, some of those 108 results were actually misspellings of the title or the author name, hence yielding so many variations on what was a single published book.

Upon analysis of the results, 1,333 citations were identified. It was then possible to further refine the results into a year-by-year summary (see Figure 1 for this listing).

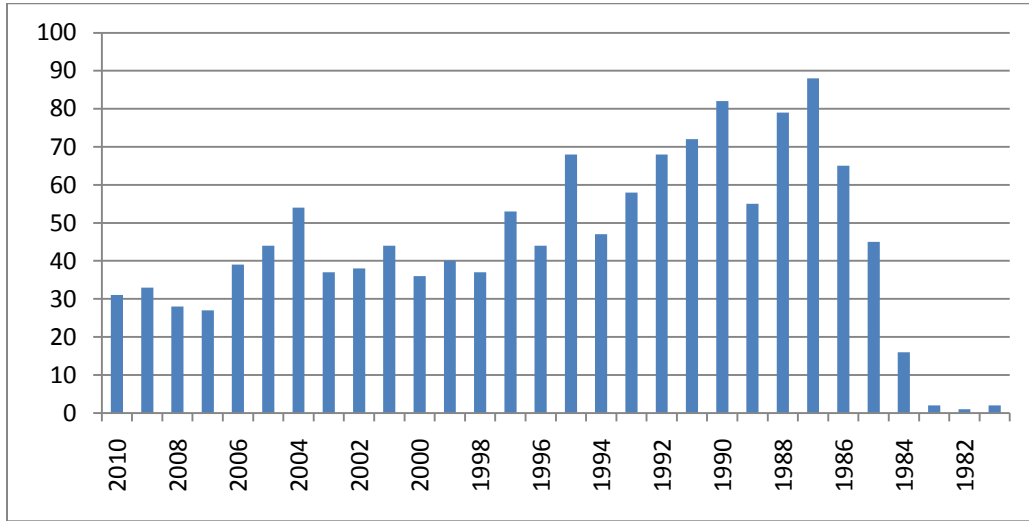


Figure 1: Graphical Representation of the Year-by-year Results for “What Do Unions Do?” from Web of Science Cited Reference Search

Of particular interest in Figure1 is the fact that five articles written before 1984 are able to cite the 1984 book, which causes the data source to be immediately suspect. In all likelihood, the dates of the articles themselves are probably incorrect. They were either entered into the database wrong or were scanned and the optical character recognition software erred when “translating” the article’s key indices. In any instance, we leave these in the analysis, as they were generated by the Cited Reference Search and we have no specific reason to cull them.

While there has been some reduction in the number of citations over the years, it is more than likely that the peaks in 2004 and 2005 are a result of publications marking the 20th anniversary of the work. There was also a marked increase in the year of the publication and its proceeding year. However, without analyzing each and every paper the citation was from, it is hard to tell if the papers published in the 80s were review papers or actually used as theoretical basis for new research. The same is true of the 2004 and 2005 spike in citations.

Another option available in the ISI analysis tool is the ability to see what type of document contained the citation (see Table 4).

Table 4: Web of Science Results Categorized by Document Type

Document Type	Record Count	% of 1333
Article	1090	81.77%
Proceedings Paper	80	6.00%
Review	71	5.33%
Book Review	48	3.60%
Note	21	1.58%
Editorial Material	17	1.28%
Discussion	3	0.23%
Letter	3	0.23%

This analysis helps to further reduce the non-scholarly works from the total citation count. If we remove the document type categories of Review, Book Review, Letter and Editorial Material we arrive at a total of 1,194 citations. This can be thought of as the direct impact the book has had on other research. The remaining categories, Article, Proceedings paper, Note, and Discussion were kept since they are document types most often associated with research, rather than reviews and editorial content. Again, without analyzing each specific citation, it is impossible to define the exact degree of the impact on theory and research; but suffice it to say, it has been significant.

Method 3 - Using Manual Database Analysis and Citation Extraction

In order to overcome the limitations of online reference and citation sources and to get a clearer picture of the impact of Freeman and Medoff's 1984 book, it was decided to conduct an old-fashioned citation analysis through a manual review of the literature. Initial searches were performed in ABI Inform and Ebsco Host Databases (using multiple databases option) in July 2009. The following keywords were used: Freeman Medoff; what do unions do; two faces of unionism; monopoly face; voice face; 1984. In the next step, the two database searches were saved, compared, and subsequently combined. After the common and repeated items were deleted, a final list of approximately 72 articles was generated. These have been classified by year in Table 5. Similar to the Web of Science results, there appears to be a spike in the number of articles published in 2004 and 2005, probably due to it being the 20th anniversary for the publication of the book.

Table 5: Year-by-Year Results of Manual Search for "What Do Unions Do?"

Publication Year	Count
2008	3
2007	1
2006	2
2005	16
2004	9
2003	2
2002	0
2001	2
2000	2
1999	1
1998	0
1997	0
1996	0
1995	0
1994	0
1993	2
1992	3
1991	0
1990	4
1989	2
1988	1
1987	0
1986	1
1985	5
1984	1

As can be seen, there appears to be a huge difference between the number of articles that are produced by either ABI or Ebsco and Google Scholar. Previous research has demonstrated that Google Scholar tends to produce more citations than other citation databases. For example, Meho and Yang (2007) documented that 53% more citations were identified by Google Scholar than Web of Knowledge and Scopus combined. This discrepancy could be due to the fact that Google Scholar reports citations from low-impact journals or conference proceedings (the problems and limitations of Google Scholar are discussed further in the Problems and Limitations section of this paper), in addition to the traditional sources (Meho & Yang, 2007).

DISCUSSION OF THE RESULTS FROM THE THREE METHODS OF ANALYSIS OF THE IMPACT OF THE BOOK

In the previous section, the paper attempted to quantify the impact of Freeman and Medoff’s 1984 book on the field of Industrial and Labor Relations. But what do these numbers mean? The results of the various searches performed show that the book has been cited multiple times every year since its publication in 1984; for instance, the Web of Science data suggests that there have been at least 15 citations each year beginning in 1984, even exceeding 40 in most years. These numbers do seem to suggest that the book continues to have a major impact on its field even after 25 years. However, there is a stream of research that suggests that scientific literature is subject to obsolescence (De Bellis, 2009).

According to De Bellis (2009), the age of a document is inversely related to its chance of current usage; i.e., the greater the age of a document, the less likely that it will be referred to in current literature. This is known as “obsolescence” or “aging.” This, in turn, indicates that there will be a corresponding decline in the validity and utility of the information contained in the aging document. De Solla Price (1975) suggested that a document has high obsolescence if it is cited right after its publication and then subsequently forgotten; on the other hand, if the document continues to be cited in the years to come, it has low obsolescence.

Likewise, Burton and Kleber (1960) popularized the concept of “half-life” of documents, which is defined as the time during which half the total “use” of a given piece of research has been made, or the number of years its impact can be felt within the field of study. For instance, Abt (1981) found that work in astronomy peaked five years after publication and then began a decline of impact. Similarly, Nakamoto (1988) conducted a 24-year study (based on cited references appearing in publications between 1961 and 1984 and indexed by the Science Citation Index) and confirmed that there was an exponential decrease in citations by age of the document.

We can apply this principle to Freeman and Medoff’s 1984 book. When we analyze the 25 year history of the book we do not find a similar constant decrease in the number of citations generated by the book. Hence, since Freeman and Medoff’s work is not experiencing the general decay or “half-life” identified by bibliometricians, we can surmise that their work has low obsolescence and has had a more lasting impact on their field of study.

Another concept that has been used and established within the field of bibliometrics is known as Garfield’s Constant (Garfield, 1976). Garfield established the idea that, on average, a scholarly work receives 1.7 citations per year. Hence, if in 25 years a document has had citations greater than 1.7×25 (or 42.5 total citations), then we can derive that it has had more impact than the average academic work.

In the next step, we apply this concept to the citations generated by Freeman and Medoff’s 1984 book. Summarizing the three methods used to generate citations, we found the following numbers of citations for the book (see Table 6):

Table 6: Summary of the Three Methods Used to Generate Citations for “What Do Unions Do?”

Method Used to Generate Citations	Number of Citations Generated
Publish or Perish via Google Scholar	2,854
Web of Science	1,194
Manual citation collection	72

In a very simplistic light, Freeman and Medoff’s book, over a 25 year period, should have, on average, at least 42.5 citations that reference it. A lesser number would indicate that the work has had little influence on future research. Greater numbers would indicate higher impact, as more work referenced the original work.

While there was a great discrepancy between the three methods of analyzing the book’s impact, we must look more closely at the actual results generated. The 2,854 items identified by Publish or Perish via Google Scholar definitely exceed the 42.5 mark, but are immediately suspect. Google Scholar has known problems of duplication and inflation (the problems and limitations of Google Scholar are discussed in the Problems and

Limitations section below) and hence, many of the items generated by it may not be relevant to truly understanding the impact of Freeman and Medoff.

Similarly, using the ISI Web of Science's Cited Reference Search, and the accompanying analysis tools, it was found that 1,194 scholarly works cited Freeman and Medoff's 1984 book. While this number is considerably less than that found through Google Scholar, it was arrived at via a single database source. Since, the citation count presented by this source far exceeds the 42.5 mark (based on Garfield's Constant) and it was also shown that, other than spikes in the number of citations at two separate time periods (right after the initial publication, and then during the 20th anniversary), the number of citations has remained relatively constant; this indicates that the work is still influential.

Lastly, even the most conservative number (72), which was arrived at via a manual literature review, considerably exceeds the 42.5 mark. Hence, it would be safe to surmise that the book has had, and continues to have, a significant impact on its field in the 25 years since its original publication.

Problems and Limitations

As was obvious in our results, the number of times Freeman and Medoff's 1984 book has been cited by others is very difficult to pinpoint. Using three different methods we arrived at three drastically different numbers. Without an item-by-item analysis of each individual citation generated by the automated databases, it is impossible to conclusively say what the exact value impact of their work has been.

Out of the three methods used, Google Scholar generated the maximum citations and bears further review. The vast majority of the citations generated by Google Scholar (2,735) are actually referencing an online source known as HeinOnline. That source actually links to the *Industrial and Labor Relations Review* 1985 article by John Burton that introduces the review symposium for the book, but not the actual book itself. This may be due to the fact that books themselves are often not included in citation databases and the automated searching tool that Google Scholar uses points to the closest available title that exists in various databases.

Without reading each and every one of the 2,854 articles that cite Freeman and Medoff's book according to Google Scholar, it is impossible to know if the referencing authors are simply stating that the book was an important milestone in an *Industrial and Labor Relations Review* book review, or are they are really using the *content* of the book to support their research. In other words, are the citations really related to the work itself, or is it more of a complimentary cite, or perhaps a cite supporting the overall study of unions? In a perfect world, there should be one version of Freeman and Medoff's book in the database, and all the citations should point back to it. Additionally, when examining the results in Table 5, it can be seen that there are 20 different entries that are obviously intended to be their book, but are marred by typographic mistakes or incomplete data, which may have further contributed to inflation in the number of citations generated.

A very good discussion of the problems with Google Scholar was authored by Peter Jacso in 2009. He notes that the data is skewed high and it results in inflated numbers, both for citations and the number of works. He also notes that Web of Science, another database used to analyze citations, does not have the mistakes Google Scholar presents. Jacso had indicated, in an earlier publication, the same problems with deflated, inflated, and phantom citation counts (Jacso, 2006b).

As another indicator that Google Scholar is inflating records through duplication, the results for the Freeman and Medoff analysis were originally generated on June 7, 2010. Just four days later, on June 11, 2010, Google Scholar indicated that Richard Freeman had a new total of 796 papers, up by three from the previous count of 793. If we were to take Google Scholar at its face value, one would have to arrive at the conclusion that Freeman certainly has an impact on the field, since he is generating 3 new scholarly publications PER WEEK!

To try and better understand what might be occurring, we examined a publication by one of this paper's authors. When examining Hoell's 2004 *Journal of Labor Research* publication, Google Scholar on June 8, 2010 noted that there were three versions of it. One was located at ideas.repec.org and the other two at

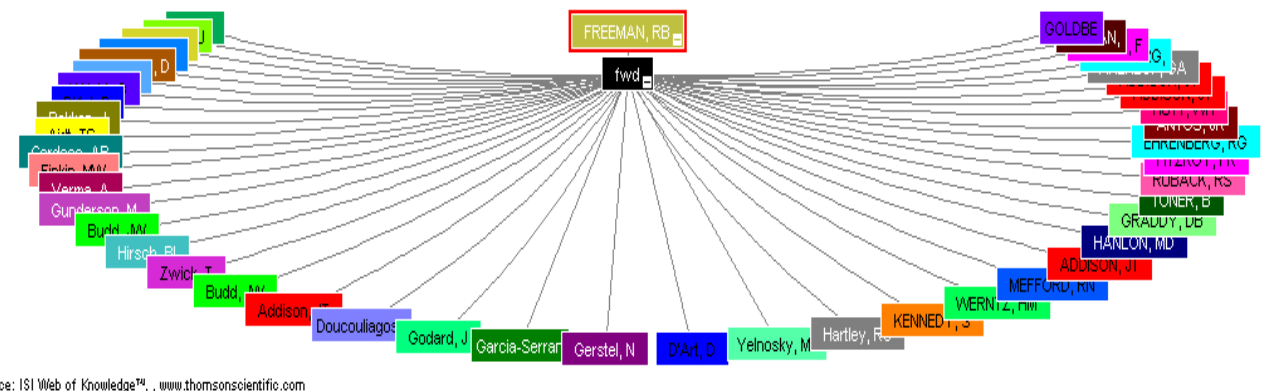
www.springerlink.com. These are actually all the same article, but it inflates the total publication count by 2 through this triplcation.

Additionally, an old syllabus by Hoell from Fall 1999 appears in Google Scholar as a “publication.” Google Scholar then indicates that there are 11 different versions of this item available. When examining the 11 versions, one of which is actually the syllabus itself archived at a university website, Google Scholar lists 10 other documents all entitled “Required text(s)” which are all syllabi by faculty at other locations. Obviously, something in the search methodology needs to be examined, or at least constrained. A syllabus is not correctly a scholarly work, nor should it be inflated 10 times by cross-identifying other syllabi that have a similar term. This obvious problem of inflation of hit counts, when using Google Scholar, due to the inclusion of non-scholarly works has previously been pointed out by Jacso (2006a, b).

Citation Mapping

Citation mapping is a visual depiction of the relationship between scholarly work and its citations. A good introduction to Web of Science’s citation mapping tool is provided in a short article by Simboli (2008). The article walks a user through the tool, explaining how to generate the maps. It also provides a short discussion on how the tool generates the map and possible limitations on the citations it generates.

The problem we encountered in attempting to generate a complete citation map for the Freeman and Medoff 1984 book is that their book itself is not included in the Web of Science database. Accordingly, a true citation map could not be generated. Instead, when the two authors are searched as co-authors, their 1979 article entitled “Two Faces of Unionism” is found (Freeman & Medoff, 1979). This article can be thought of as a precursor to their book and gives us a rough indicator of the expected citations for the book itself. It has been cited 45 times (as of June 7, 2010). Figure 2 shows the citation map that is generated from these 45 citations. Figure 3 further examines the data behind this map.



Source: ISI Web of Knowledge™, www.thomsonscientific.com

Figure 2: Citation Map of First-generation Citations from Web of Science for Proxy of “What Do Unions Do?”

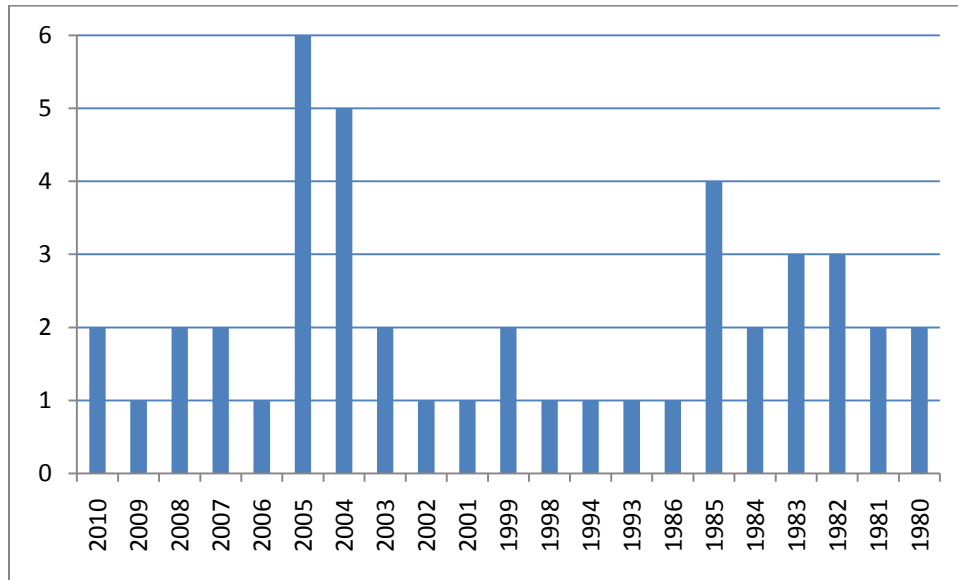


Figure 3: Graphical Representation of Citation Map Data from Web of Science for Proxy of “What Do Unions Do?”

Note that there was a spike in 2004 and 2005, just as was the case with the actual book’s citations. It is most likely that such is a result of the 20th anniversary of the book and that this article is also cited as the precursor to the book. And, as was the case with the book, there was a spike the years following both the article and the book. It is speculative, but the more thorough literature reviews probably cited both the 1979 article and the 1984 book, and hence the article may be used as a proxy for the book for the purpose of creating the citation map.

Another option in the citation mapping tool is to depict the second generation citations (see Figure 4). These are all the works that reference the original 45 First Generation citations. This adds another 751 second generation citations, thus yielding 796 total citations. The map that is generated is almost unreadable. It is included here to indicate the depth to which the original work may have affected other studies.

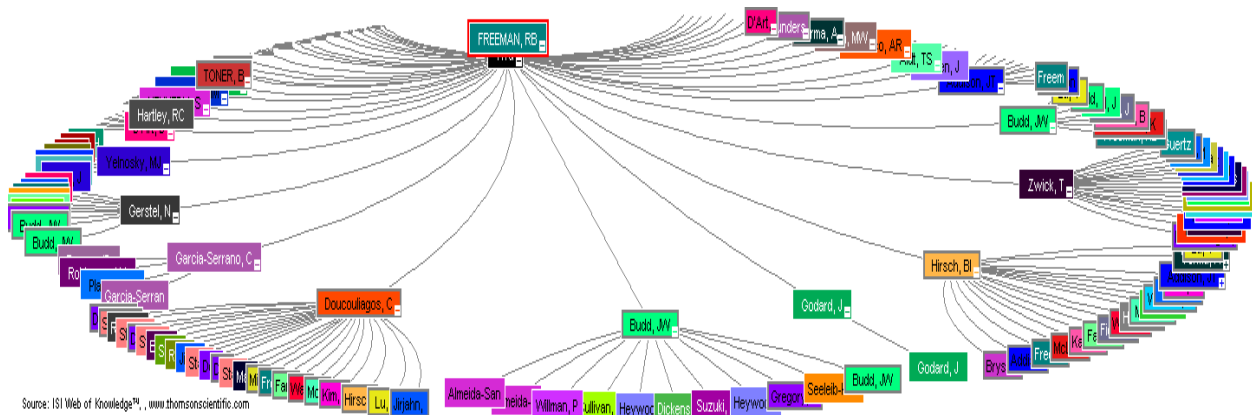


Figure 4: Citation Map of Second-generation Citations from Web of Science for Proxy of “What Do Unions Do?”

While these results illustrate the impact a precursor of the book has had, it is disappointing that such a visual depiction of the book itself is unavailable at this time. While their 1979 article can act as a proxy, it cannot be held as a true measure, as not all research may cite both it and the book. It is hoped that future tools or databases will allow such visual citation mapping for the book itself.

CONCLUSION

The present paper uses citation analysis to quantify the impact that Freeman and Medoff's book "What Do Unions Do?" has had on research in the field of Industrial and Labor Relations in the 25 years since its publication. Depending on the source used, we found that, at minimum 72 articles, and possibly as many as 2,854 articles, have cited the book so far. No matter which source is analyzed, the impact of this book can be judged from the sheer number of scholarly citations that it has received in only 25 years. As discussed earlier, the book does not seem to be suffering from obsolescence or aging (De Bellis, 2009; de Solla Price, 1975), may not have reached its half-life (Burton & Kleber, 1960) yet, and definitely exceeds Garfield's Constant (Garfield, 1976); suggesting that this research work has had, and continues to have an above average impact on its field.

We have also discussed some significant problems and limitations of citation analysis and we hope that future research will address these. It is hoped and expected that additional bibliometric and citation analysis tools will be developed in the future. Newer techniques may enable a better analysis of the impact of the 1984 work. Moreover, Google Scholar may overcome its duplication and ghost author issues, allowing for a more error-free analysis of the authors and their work.

Another possible future study would be to "follow" the two faces of unionism proposed by Freeman and Medoff (1979, 1984). Have both monopoly power and exit/voice yielded additional studies? Have the threads continued, stopped, or been subsumed by another line of inquiry? A detailed analysis of where both these areas have led researchers would further determine the impact of the original work.

Moreover, in the past 25 years since Freeman and Medoff (1984) published their book, the U.S. economy, in general, and the U.S. labor market, in particular, has undergone substantial structural change. Globalization has emerged as a new and growing trend, bringing with it an increased use of and dependence on information technology. Additionally, the recent recession may change the face of the U.S. and global economy. Dealing with these changes poses the biggest challenge to unions today. Perhaps in the next 25 years we will be able to look back and see how unions met these new challenges. Retrospectively, we may be able to see what innovations workers and their organizations developed in response to these challenges, and hopefully we will continue to be able to conclude that what unions actually do is "improve the well-being of the free enterprise system, and of us all" (Freeman & Medoff, 1984, p. 251).

In the past quarter century, Freeman and Medoff's book has had a tremendous impact on its field. It will be interesting to see if this trend continues in the next 25 years or will the changing face of the world economy alter the impact of unions forever? Maybe this would entice Freeman and Medoff to write a follow-up to their book, to reflect the changes, if any.

AUTHOR INFORMATION

Feruzan Irani Williams is an Assistant Professor of Management at Georgia Southern University's College of Business Administration, where she teaches and does research in the field of Human Resource Management. Her other areas of research interest are Organizational Behavior, Leadership, and Workplace Stress and Aggression. Dr. Irani Williams holds a Doctorate in Management and a Masters degree in Human Resource Management from Auburn University, an MBA from the University of West Georgia, and an undergraduate degree in Commerce (Management and Accounting) from the University of Mumbai, India. E-mail: firani@georgiasouthern.edu

Robert Hoell is an Associate Professor in the department of Management, Marketing and Logistics in the College of Business Administration at Georgia Southern University. He holds a Ph.D. in Management and an M.S.B.A. in Human Resource Management and Labor Relations from Virginia Tech. He is certified by the Society for Human Resource Management as a Senior Professional in Human Resources. His current research interests focus strongly on Labor Relations, but also include Human Resource Management and Human Resource Information Systems. He has published in these areas and has presented at numerous professional meetings. E-mail: rhoell@georgiasouthern.edu

REFERENCES

1. Abt, H. (1981). Long-term citation histories of astronomical papers. *Publications of the Astronomical Society of the Pacific*, 93(552), 207-210.
2. Adams, J. (2009). The use of bibliometrics to measure research quality in UK higher education institutions. *Archivum Immunologiae et Therapiae Experimentalis*, 57(1).
3. Adler, R., Ewing, J., & Taylor, P. (2009). Citation statistics. A report from the International Mathematical Union in cooperation with the International Council of Industrial and Applied Mathematics and the Institute of Mathematical Statistics. *Statistical Sciences*, 24(1), 1-14.
4. Bennett, J. T., & Kaufman, B. E. (2004). What do unions do? – A twenty-year perspective. *Journal of Labor Research*, 25(3), 339-349.
5. Browman, H. I. & Stergiou, K. I. (2008). Factors and indices are one thing, deciding who is scholarly, why they are scholarly, and the relative value of their scholarship is something else entirely. *Ethics in Science and Environmental Politics*, 8(1), 1-3.
6. Burton Jr., J. F. (1985). What do unions do?: Editor's introduction. *Industrial and Labor Relations Review*, 38(2), 244-245.
7. Burton, R. E., & Kebler, R. W. (1960). The half-life of some scientific and technical literatures. *American Documentation*, 11(1), 18-23.
8. Butler, L. (2008). Using a balanced approach to bibliometrics: Quantitative performance measures in the Australian research quality framework. *Ethics in Science and Environmental Politics*, 8(1), 83-92.
9. De Bellis, N. (2009). *Bibliometrics and Citation Analysis: From the Science Citation Index to Cybermetrics*. Lanham, MD: Scarecrow Press, Inc.
10. de Solla Price, D. J. (1975). *Science since Babylon* (enlarged ed.). New Haven, Conn. and London: Yale University Press.
11. Egghe, L. (2006). Theory and practice of the g-index. *Scientometrics*, 69(1), 131-152.
12. Fernandez-Alles, M., & Ramos-Rodríguez, A. (2009). Intellectual structure of human resources management research: A bibliometric analysis of the Journal of Human Resource Management, 1985-2005. *Journal of the American Society for Information Science and Technology*, 60(1), 161-175.
13. Freeman, R. B., & Medoff, J. L. (1979). New estimates of private sector unionism in the United States. *Industrial and Labor Relations Review*, 32, 143-147.
14. Freeman, R. B., & Medoff, J. L. (1979). The two faces of unionism. *The Public Interest*, 57, 69-93
15. Freeman, R. B., & Medoff, J. L. (1984). *What Do Unions Do?* New York: Basic Books.
16. Garfield, E. (1976). Is the ratio between number of citations and publications cited a true constant? *Current Contents*, 6.
17. Giske, J. (2008). Benefitting from bibliometry. *Ethics in Science and Environmental Politics*, 8(1), 79-81.
18. Harzing, A. W., & van der Wal, R. (2008). Google Scholar as a new source for citation analysis? *Ethics in Science and Environmental Politics*, 8(1), 62-71.
19. Harzing, A.W. (2010). Publish or Perish, version (3.0.3809). Available at www.harzing.com/pop.htm.
20. Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. Proceedings of the National Academy of Sciences, USA 102: 16569–16572.
21. Hirsch, J. E. (2010). An index to quantify an individual's scientific research output that takes into account the effect of multiple coauthorship. *Scientometrics*.
22. Hoell, R. C. (2004). How employee involvement affects union commitment. *Journal of Labor Research*, 25(2), 267-277.
23. Jacso, P. (2009, Sept.). Google Scholar's ghost authors, lost authors, and other problems. *University of Hawai'i at Manoa -- Library Journal*.
24. Jacso, P. (2006a). Dubious hit counts and cuckoo's eggs. *Online Information Review*, 30(2), 188-193.
25. Jacso, P. (2006b). Deflated, inflated and phantom citation counts. *Online Information Review*, 30(3), 297-309.
26. Kaufman, B. E. (2005). What do unions do? – Evaluation and commentary. *Journal of Labor Research*, 26(4), 555-596.
27. Kosmopoulos, C., & Pumain, D. (2007). Citation, citation, citation: Bibliometrics, the Web and the social sciences and humanities. *Cybergeo European Journal of Geography*, 13, 411.
28. Lawrence, P. A. (2007). The mismeasurement of science. *Current Biology*, 17(15), r583-r585.

29. Lawrence, P. A. (2008). Lost in publication: How measurement harms science. *Ethics in Science and Environmental Politics*, 8(1), 9-11.
30. Nakamoto, H. (1988). Synchronous and diachronous citation distributions. In L.Egghe & R. Rousseau (Eds.), *Informetrics 87/88: Select Proceedings of the First International Conference on Bibliometrics and Theoretical Aspects of Information Retrieval* (pp. 157-163). Amsterdam: Elsevier.
31. Osareh, F. (1996). Bibliometrics, citation analysis and co-citation analysis: A review of the literature II. *Libri*, 46, 217-225.
32. Palmquist, R. A. (1999). Bibliometrics. Retrieved from <http://www.gslis.utexas.edu/~palmquis/courses/biblio.html>.
33. Razzaque, M. A., & Wilkinson, I. (2007). Research performance of senior level marketing academics in the Australian universities: An exploratory study based on citation analysis. Paper presented at the Australia New Zealand Marketing Academy Conference (ANZMAC), University of Otago, New Zealand, December 1-3.
34. Simboli, B. D. (2008). Web of Science's 'Citation Mapping' tool. *Issues in Science and Technology Librarianship*. Retrieved from <http://www.istl.org/08-summer/electronic-1.html>.
35. Sleigh, S. R. (2005). What do unions do? – A unionist's perspective. *Journal of Labor Research*, 26(4), 623-640.
36. Todd, P. A., & Ladle, R. J. (2008). Hidden dangers of a 'citation culture' *Ethics in Science and Environmental Politics*, 8(1), 13-16.
37. van Raan, A. F. J. (2000). The Pandora's Box of citation analysis: Measuring scientific excellence - The last evil? In B. Cronin & H. B. Atkins (Eds.), *Web Of Knowledge - A Festschrift In Honor Of Eugene Garfield* (pp. 301-319). Medford, NJ: Information Today.

NOTES