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A Big-Data Approach to Understanding the Thematic Landscape of the Field of Business Ethics, 1982–2016

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Abstract

This study focuses on examining the thematic landscape of the history of scholarly publication in business ethics. We analyze the titles, abstracts, full texts, and citation information of all research papers published in the field's leading journal, the *Journal of Business Ethics*, from its inaugural issue in February 1982 until December 2016—a dataset that comprises 6308 articles and 42 million words. Our key method is a computational algorithm known as probabilistic topic modeling, which we use to examine objectively the field's latent thematic landscape based on the vast volume of scholarly texts. This "big-data" approach allows us not only to provide time-specific snapshots of various research topics, but also to track the dynamic evolution of each topic over time. We further examine the pattern of individual papers' topic diversity and the influence of individual papers' topic diversity on their impact over time. We conclude this study with our recommendation for future studies in business ethics research.

Keywords Historical review · Intellectual structure · Latent thematic structure · Quantitative content analysis · Probabilistic topic modeling · Thematic landscape · Topic diversity

Introduction

What is the field of business ethics about? It is of course tempting to attempt to answer this question by providing a definition, one that seeks to explain the meaning(s) of the word "ethics" and the ways in which that word applies to a range of issues in the world of commerce. But a different kind of answer would explain what Business Ethics (as a field) is about by explaining what it is that scholars in the field do—in particular, what it is that they write about in attempting to advance discourse within the field. What are the specific topics and issues, in other words, that constitute the bread and butter of scholars in the field? This paper seeks an answer of the latter type by focusing on examining the academic world of business ethics publishing. More specifically, this paper seeks to provide a comprehensive, data-driven analysis of the topics that have been covered in scholarly work on business ethics over roughly the last 30 years by examining what has been published in the field's dominant journal, the *Journal of Business Ethics* (*JBE*).

The field of business ethics is, in many senses, a mature field. Serious, focused scholarship in the field is at least several decades old. And that scholarship is characterized not just by a range of normative and theoretical positions, but by commentaries on those positions and by commentaries on the commentaries. It is a literature that can be found spread across a number of specialty journals, as well as in relatively isolated pockets within various journals dedicated to specific industries, professions, and cognate academic fields.

The popularity of business ethics as a topic and the productivity of scholars in business ethics as a field of scholarly exploration are both very substantial, and because of these it is, at this point, difficult to summarize the full breadth

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of the field. Were an outsider to ask "What sorts of things do Business Ethicists *talk about?*" or worse, "What sorts of things have occupied Business Ethicists over recent decades?" it would be hard for even a senior scholar in the field to answer the question authoritatively with anything but a glib overgeneralization.

Previous Analyses

Over the years a number of scholars have published laudable attempts to summarize the field, or parts of it, using a variety of methods. Each of these scholars or teams of scholars has attempted to take a more or less systematic approach to arriving at some higher-level understanding of the literature and its key themes. We describe a few such attempts at this daunting task below.

To begin, it is worth pointing out the large number of useful sub-topic surveys that have been published. The last three decades have seen survey articles on, among other topics, ethical decision making (e.g., Craft 2013; Ford and Richardson 1994; Lehnert et al. 2015; Loe et al. 2000; O'Fallon and Butterfield 2005; Tenbrunsel and Smith-Crowe 2008), corporate social responsibility and/or performance (e.g., Griffin and Mahon 1997; Malik 2015; Margolis and Walsh 2003; McWilliams and Siegel 2000; Taneja et al. 2011; Van Beurden and Gossling 2008), consumer ethics (e.g., Vitell 2003), corporate philanthropy (e.g., Gautier and Pache 2015; Liket and Simaens 2015), and marketing ethics (e.g., Gaski 1999; Tsalikis and Fritzsche 1989). These studies constitute valuable contributions to scholarly understanding of these specific research streams, but obviously do little, even collectively, to provide a comprehensive portrait of the field as a whole.

Other studies have contributed to scholarly understanding of the field by examining the key journals in the field, in particular by asking questions related to journal quality, author productivity, or the contributions made by scholars from particular universities. Wicks and Derry (1996) and Albrecht et al. (2010), for example, assessed business ethics journal quality based on opinion surveys. Sabrin (2002) ranked school and author productivity based on the number of publications and the number of pages published. Warnick et al. (2014) identified individual scholars and assessed contributions on the basis of publication count. Paul (2004) compares three well-known business ethics journals (namely *JBE, Business Ethics Quarterly*, and *Business & Society*) to the *Academy of Management Journal* and *Academy of Management Review* based on the citation data from the Web of Science Journal Citation Reports (2001).

But other reviews have gone further and attempted to provide detailed examinations of the intellectual structure of the field or of its evolution over time. That is, they have attempted to divine the conceptual shape of the field and to shed light on just what it is that all of those authors writing in all of those journals have been writing *about*. We summarize the results of a number of such studies briefly here, in chronological order, before moving on to our own analysis.

One significant attempt to sketch the scope of the entire field is a paper by Collins (2000), which reviews the range of articles—1500 of them—published in the course of the first 18 volumes (i.e., years) of *JBE* (1982–1999). Collins provides a statistical analysis that covers, for example, the decline of what he calls "essays" in favor of surveys and other empirical research in *JBE*: his analysis shows that while essays had made up 94% of what was published by *JBE* in 1982, that proportion had dropped to just 50% by 1999. Collins also identifies six key topic headings and then summarizes briefly what had been written about each in *JBE* up to that point. The six topics identified by Collins include: prevalence of ethical behavior, ethical sensitivities, ethics codes and programs, corporate social performance and policies, human resource practices and policies, and ethics in the professions.

Based on Collins's (2000) categorization, and extending his analysis, Calabretta et al. (2011) manually classify JBE's publications from 1982 to 2008 into seven topics: ethical sensitivities, corporate culture and human resource practices, corporate social responsibility, business ethics and education, moral theory, marketing and advertising, and accounting and finance. These authors go further in offering a statistical analysis, according to which three topics—ethical sensitivities, CSR, and moral theory—dominated *JBE* during the period under study. The authors further point out how the relative proportion of each of those topics shifted over time (p. 504–505):

> …in the first 8 years of *JBE* the dominant topic is *moral theory*, which then undergoes a steady decline as the field matures. During the second period of *JBE*, there is a sudden rise of interest in *ethical sensitivities*, whose dominance persists over the third period. The contemporary era is dominated by academic discussions on *CSR*. However, this recent trend does not cause articles on *ethical sensitivities* to decline significantly.

Michalos and Poff (2013) likewise looked at publication patterns as a way of understanding the shape of the field. In particular, as the founding editors of *JBE*, they looked at what they refer to as "citation classics" from the journal—the 51 articles that were published in *JBE* between 1982 and 2011 and that were each cited more than 55 times. Given the average number of citations for each of the 3663 articles published in *JBE* during that period, being cited more than 55 times put these papers at 4 standard deviations above the mean (p. 7). Using this focused sample as a

way of understanding the field, the authors are able to make interesting observations about:

- *Authorship* These articles had on average 1.84 authors each, and 86% of lead authors were from the USA. (p. 8)
- *Methodology* 67% of these classics involved some sort of quantitative analysis, while the other 33% were primarily philosophical. (p. 8)
- *Topic* "Very roughly, about 51.0% of the classics involve some sort of analyses of moral virtue and behaviour, 17.6% are literature reviews, 15.7% are concerned with modeling ethical decision making, 9.8% concern some feature of codes of ethics and 5.9% are about corporate social and financial performance." (p. 8)

A more recent attempt at surveying the landscape of scholarly business ethics was made by Arnold et al. (2015), each of whom has at some point served as Editor in Chief of *Business Ethics Quarterly* (*BEQ*). What those authors sought to do was to review all papers published in that journal's first 25 volumes and manually categorize them according to research topic. While claiming to look at "Past Trends and Future Directions in Business Ethics and Corporate Responsibility Scholarship," they focus exclusively (and not surprisingly, given their own roles) on work published in *Business Ethics Quarterly*. Their method was to take each article published in volumes 1–25 of *BEQ* and to place each article into a single topical category. The resulting analysis produced a list of 8 "major themes." Those are, in descending order of significance: conceptual business ethics, global ethics, normative business ethics, organizational ethics, CSR, stakeholder theory, labor relations, and virtue ethics (p. vi). The analysis also identified 16 "minor themes," including for example such topics as ethical leadership, game theory, and diversity (p. viii).

Another set of studies conducted over the past decade has moved beyond intuitive categorizations and has applied more advanced computational methods to analyzing the scope of the field and the range of topics it has historically covered.

For example, studies by Tseng et al. (2010), Ma (2009), and Ma et al. (2012) attempt to identify the intellectual structure of business ethics research by using bibliometric analysis (more specifically, citation and co-citation analysis). This method allows them to identify the most influential articles from within their samples, but also allows the authors to attempt to identify the key research topics in the field. Each of these studies covers a relatively short period of time: Tseng et al. (2010) cover 1997–2006, Ma (2009) covers 1997–2006, and Ma et al. (2012) cover 2001–2008.

The general method these three studies share is as follows. The authors first compile the sample articles for the period under study, along with all citation information, and identify influential articles and authors based on sample articles' citation information. To attempt to identify the intellectual structure of the field, they further compile a "co-citation matrix" for the sample articles, meaning they collect all information about the articles that the sample articles cite. They then identify article pairs that are co-cited by the sample articles, but only article pairs with a high frequency of co-citations are retained for further analysis. For instance, Ma (2009) only kept those cited article pairs with more than four co-citations. The condensed co-citation matrix is further analyzed to identify clusters of papers that suggest the existence of underlying research topics at the research time.

To look for dominant topics, Ma (2009) divides the period under analysis into two segments: 1997–2001 and 2002–2006. Although enhanced by technology, the main method utilized here is intuitive: the author "assigned descriptive names…based on our interpretation" (p. 260) of what popular articles were about. Ma's analysis identifies four key research topics for the period 1997–2001: ethical decision making, corporate social responsibility and corporate performance, the status of business ethics research, and social justice and social contract theory. For 2002–2006, the analysis found the field to be dominated by the following subfields: "stakeholder theory in business ethics, consumer behavior and corporate social responsibility, relationship between corporate social responsibility and corporate performance, including both theoretical exploration and empirical validation" (p. 261).

Tseng et al. (2010) used similar methods. Oddly, perhaps, they chose to study articles published in three journals: *Journal of Business Ethics*, *Ethics and Behaviour*, and *Ethics*. This is somewhat odd because their study is ostensibly a study of business ethics, and yet only one of the journals studied is explicitly a business ethics journal. The resulting analysis concludes that three research topics dominated the field during the time period from 1997 to 2006. The authors assert (p. 590) that key articles in the field were focused on "the interaction between ethical/unethical decision making, corporate governance and firm performance, ethical principles, and code[s] of conduct."

The final paper in this trio of bibliographical analyses, Ma et al. (2012) attempts to understand the structure of the field by looking solely at articles published (between 2001 and 2008) in the "top two business ethics journals included in the Social Sciences Citation Index" (p. 286), namely *Business Ethics Quarterly* and *JBE*. The authors conclude that, "current business ethics studies cluster around four major research themes, including morality and social contract theory, ethical decision making, corporate social responsibility, and stakeholder theory."

Weaknesses of the Extant Analyses

While each of the studies cited above provides valuable insight, each of them is limited in one or more important ways.

The first limitation shared by many extant studies is that they only focus on "influential" articles, which are a small subset of articles selected using bibliographical measures. Note for example that the conclusions reached by Tseng et al. (2010) are based upon the influence of just 30 key articles. Although articles with the most citations deserve to be highlighted, to focus entirely on such a small subset limits one's understanding of the field. The thousands of articles on the "long tail" of the bibliographical measures' distribution are equally important. Through these articles, we can learn how scholars engage in meaningful conversations about various topics in business ethics and steadily move the field forward.

Another limitation of the methods employed in the studies cited above is their need to find a method to systematically describe the field by reference to "the" topics of specific papers, in spite of the fact that any given paper might plausibly be described as having several different topics. Consider, for example, a research paper (a hypothetical one) that attempted to take a methodologically innovative "stakeholder" approach to examining trust issues within the automotive industry. How should such a paper be categorized—as a methodology paper, a stakeholder paper, or an industry-specific paper? The authors of the studies cited above were generally, and sometimes painfully, aware of that problem. Michalos and Poff (2013, p. 8) for example, stated that, "we tried a variety of sorting articles by topics and/or types, but there are too many articles that might plausibly be characterized in several different ways." Calabretta et al. (2011, p. 504) pointed out that "many articles dealing with work climate are actually testing the effects of work environments on individuals' ethical sensitivities." Arnold et al. (2015, p. xv) stated that, "many articles could appropriately be placed into two or more categories," and implicitly admitted that this was a limitation of their analysis.

A further limitation has to do with time frames and the size of the dataset. Any study must necessarily focus on a limited time frame (although some studies, such as Collins (2000) and Arnold et al. (2015) are exhaustive analyses of the entire, but necessarily finite, set of works in a particular journal). In other cases, however, the brevity of the period of analysis is presumably the result of the limits of human capacity: human computational power only permits a single author or team to conduct analysis of a relatively small dataset. And the problem of dataset size is of course only growing as the datasets themselves grow. Since 2008—the last year covered in most of the studies cited above—scholarly

output in the field of business ethics has been accumulating rapidly. In *JBE* alone, there were 2077 research papers published between the beginning of 2008 and September 2013.[1] This rapid accumulation of scholarly material presents a challenge to scholars seeking to understand the shape of the field as a whole. Whatever the strength of the papers cited above, we should have little confidence that they do much to represent the field as it exists today.

There are also problems that result not from the properties of any one analysis, but from trying to form an integrated view of the field by looking at these analyses as a group. As it happens, the *results* of these studies have been quite inconsistent. That is, the "sketch" of the field derived from each study tends to look quite different from the others. This is perhaps not surprising, given differences in methodology, time frame, and the list of journals covered by each.

One inconsistency lies in the fact that some studies identify just a handful of key themes, while others identify many more. Ma (2009), for example, identifies four key themes, while Arnold et al. (2015) identify eight major themes and 16 minor ones. In some cases, such differences may represent simple parsimony on the part of authors who group many smaller themes into fewer bigger ones. Ma (2009), for instance, suggests that corporate governance is one of the four key themes of the business ethics literature. And yet the analysis by Arnold et al. (2015) suggests that corporate governance is not even among the top 8 "major themes."[2] But there are also cases in which a given concept plays a major role in one analysis, but is entirely absent in another. Arnold et al. suggest that their category simply called "global" is one of the very most important topics in the field, and yet that concept—whether it is thought of as "global" or "international" or "multinational"—is absent entirely from many other analyses.

Such differences in conclusions are not surprising (given methodological differences) and perhaps from some perspectives not even worrisome. After all, it is useful to see the range of analyses that result from different authors looking through different lenses. But these differences are a problem to the extent that the authors of these studies purport to be telling us what the field is *really like*—that is, purporting to use the tools at their disposal to get at some underlying reality. But this is also problematic to the extent that the analyses can be expected to result from the intuitions (and hence implicit biases) of the authors of the study. If one author looks at a study on the use of organizational codes of ethics to fight corruption in China and sees a paper that is

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[1] Authors' calculation.

[2] Indeed, Arnold et al. (2015) list governance as 15th, and the topic would probably have been ranked even lower were it not bundled, in these authors' analysis, with agency theory.

fundamentally about codes, where another sees a paper that is fundamentally about corruption, those two authors are liable to paint very different pictures of the extant literature. The method we outline below—the method used in the present study—goes a considerable distance toward eliminating such sources of bias.

A final limitation of previous papers is worth noting, and that is that their analyses tend to represent a *static* snapshot of the field within their chosen periods of study. That is, they tend to present a picture of what the field of business ethics looks like "right now" (where "now" is a time just prior to publication) or "back then" (where "back then" is a particular set of years). Some studies have attempted to provide a diachronic view by dividing the period studied into subsets. Calabretta et al. (2011), for example, divided their period of study (1982–2008) into four smaller time periods. But such divisions are somewhat crude, and arbitrary, and can provide only a very coarse image of the way the field has changed over time. The method used in the present study again goes some distance to overcome this problem by providing a truly dynamic view of the period under study.

Moving Forward

What we present here is the result of a study using a new method that has not been employed by any papers that have to date attempted to analyze and describe the field of business ethics. The present paper attempts to generate not only a snapshot of academic publishing in the field, but also a longitudinal analysis, using advanced computational linguistic tools—very roughly, tools representing a "big-data approach"—that have been developed only quite recently. These tools allow us to examine the full text of 6308 research articles published in the *JBE* between 1982 and 2016 and to objectively and systematically mine this body of work for its underlying themes.

The rapid development of computational linguistics methods in recent years has opened up a new range of possibilities for analyzing the vast business ethics literature. In the present study, we follow the suggestion made by Lock and Seele (2015) in using the tools of quantitative content analysis to examine the business ethics scholarship. In particular, we use these tools to analyze the texts of all titles, abstracts, full texts, and citation information of all research papers that have appeared in *JBE* during the years 1982–2016. We utilize a computer-based analysis method called probabilistic topic modeling (Blei 2012) as the primary method to conduct a historical thematic analysis, with the aim of revealing the research topics that have gained substantial scholarly attention, and to consider how these topics have evolved—how, for instance, they emerge, mature, and decline. We also conduct additional analyses of how the "topic diversity" of

papers (roughly, whether a given paper can be described as covering one or many topics) in the field has evolved over time, and how a given paper's topic diversity affects its influence (judged by citations) over time. Our purpose, here, generally speaking, is to provide scholars with insight into the landscape and evolution of the field.

In particular, this paper asks and answers four questions:

1. What main topics have occupied scholars in the field over the last three decades?
2. How much *emphasis* did the literature collectively put on each of the topics identified, in any given year, and how has the ratio of topics evolved over time?
3. Do different topics have different levels of scholarly impact, and has that changed over time?
4. To what extent do articles in the field tend to focus on a single topic, as opposed to incorporating discussions of a plurality of topics? That is, how much *topic diversity* do articles manifest? And how does an article's topic diversity affect its influence?

JBE as a Proxy for the Field

Before proceeding with our analysis, it is worth taking a moment to explain why it is that we have focused our attention here on *JBE*, and on *JBE* alone. Our simplifying methodological assumption here is that *JBE* is capable of serving as a kind of proxy for the entire field of business ethics. Roughly speaking, our assumption is that what is true of *JBE* is true of business ethics as a whole: if a given topic is prominent in *JBE* in a given year, then it is a popular topic for the field at the time, and if a given topic is hardly mentioned in *JBE*, then it likely is not very popular in the field as a whole. Likewise, if the prevalence of a particular methodological approach within *JBE* has waned over recent years, then that is reason to think that that approach has been used less in the field as a whole.

While we realize that the correlation between any given journal and the field as a whole must necessarily be imperfect, we argue that work published in *JBE* serves as a strong approximation of work published in the field more generally. To begin, *JBE* covers a broad range of topics on business ethics. This is evident from the aims and scope of the journal[3]: "(*JBE*) publishes only original articles from a wide variety of methodological and disciplinary perspectives concerning ethical issues related to business that bring something new or unique to the discourse in their field. Contributors examine moral aspects of systems of production,

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[3] Journal of Business Ethics—Springer, link.springer.com/journal/10,551.

consumption, marketing, advertising, social and economic accounting, labor relations, public relations and organizational behavior." Second, *JBE* is widely recognized in the broader business research community. *JBE* is the only Rank A business ethics journal in the FT 50 (Michalos and Poff 2013, p. 1)—a list of the 50 journals used by the *Financial Times* when compiling the prestigious business school research rank. It is also the only ethics journal in Bloomberg Businessweek's list of the top 20 academic journals (Bloomberg Businessweek 2012). Therefore, as a leading specialized journal, *JBE* has played a significant role in setting the research agenda for the entire field.

Quantitatively, previous studies such as those by Calabretta et al. (2011) and Ma (2009) have found that *JBE* is the most frequently cited journal in business ethics, and Albrecht et al. (2010) found that *JBE* is regarded by business ethics scholars as the field's most prestigious journal. Also, it is not insignificant that *JBE* has published roughly ten times as many papers as some other prestigious journals in the field. For instance, in 2016, *JBE* published 321 research articles, while *BEQ* published 16 and *Business & Society* (*B&S*) published 37 research articles. *JBE*, therefore, is quite simply where a huge proportion of business ethics articles get published. Finally, as shown later, our analyses provide evidence that the topical coverage between *JBE* and the field's other leading journal, *BEQ*, is highly correlated. Hence, the conclusions based on our dataset are likely generalizable to other journals in the field.

However, we realize that there are limits to this approach. *JBE* is a leading journal, but there are of course (now) many others. And what *JBE* publishes is not necessarily perfectly reflective of the broader field. *JBE*, for example, seems to publish disproportionately more empirical work than does, for example, the more philosophically oriented *BEQ*. Based on our count, in 2016, there were 240 empirical studies out of the total 321 research articles (75%) published at *JBE*, while there were 7 empirical studies out of the total 16 research articles (44%) published at *BEQ*. We acknowledge this limitation. But the value of the analysis presented here is not fully dependent upon our claim that *JBE* serves as a proxy for the field. A more modest version of our claim is that, rather than presenting *JBE* as a proxy for the entire field, what we present here is a robust analysis of what has been published—what has been *discussed*—in the field's dominant journal. We feel that this in itself is a significant contribution.

Method

To present a dynamic and comprehensive picture of thematic landscape of the field of business ethics (and to answer the four research questions noted above), we use here a tool known as probabilistic topic modeling.

Probabilistic topic modeling (PTM) is a suite of statistical machine learning methods that analyze the observed words within a target body of text in order to discover the latent thematic structure—the pattern of themes present within the body of text—and how those themes evolve over time. This process can usefully be thought of as "reversing" the process by which an article is composed. *Composition* (i.e., the process of authoring) proceeds by beginning with a topic or set of related topics, deciding how much to focus on each of the topics covered in the paper,[4] and then selecting words appropriate to discussing that topic. PTM reverses that process, by picking out clusters of words (words used frequently together in a particular text) and determining the frequency with which those clusters occur. We can then use that data to suggest which topics those word clusters would be best suited to discuss. PTM aims thereby to find the hidden thematic structure or topic distribution that is most likely to generate the word combinations observed within the text (Blei 2012). This sort of topic modeling allows the themes to emerge from the analysis *without prior labeling or coding of the texts*—that is, there is no need for a human analyst to tell the algorithm which topics to look for. Assuming the availability of a reasonable amount of computational power, the analysis proceeds by annotating each article from within the desired sample in order to find out the range of topics covered in each, a task that would be difficult at best and perhaps impossible to accomplish by hand (Blei 2012).

The dataset for the present study was made up of the full text of articles published in the *JBE* between 1982 and 2013 and the abstracts of articles between 2014 and 2016. These together constitute a sample of some 42 million words.

Our article sample includes all and only research papers published in *JBE* from its inaugural issue in 1982 to 2016. We excluded articles that are non-research papers, including book reviews, research notes, commentaries, and editorial notes. We analyze the titles, abstracts, and the full text of all the research papers without relying on author-provided keywords. We chose this method for several reasons. First, PTM enables us to conduct large-scale analysis to identify keywords organically: the process determines algorithmically

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[4] For example, the author of a hypothetical paper on the *ethics* and *legality* of bribery must necessarily (if not necessarily consciously) decide how much space (or how many words) to allocate to defining bribery, how much space to allocate to questions of the ethics of bribery, and how much space to allocate to the *legality* of bribery.

which words are in fact "key" words in a paper by looking at the text itself. This makes author-provided keywords redundant. Second, some early *JBE* papers simply do not have author-provided keywords, and so relying on such keywords would necessarily limit our dataset. Third, author-provided keywords are often subjective and inconsistent: there is no formal method by which authors choose keywords. The main purpose of keywords is to describe the article to a broader audience as well as describing it to automatic information retrieval systems such as academic search engines. So as a matter of caution, authors who know this may provide only very generic keywords. Such generic keywords then have a reduced capacity to capture what is distinctive about a given article. Keyword choice may also be flippant, idiosyncratic, or even ideologically motivated. Fourth, even when keywords are provided consistently and rigorously, inconsistency in the *number* of author-provided keywords can also bring noise to the analysis because the results may be biased toward those papers that simply happen to provide *more* keywords. For all these reasons, we eschew author-provided keywords and instead base our analysis on the authors' complete narrative, including article titles, abstracts, and (for 1982 and 2013) the full text of the papers.

We compiled our dataset from three sources: JSTOR, Thomson Reuters Web of Science, and Springer Science + Business Media. JSTOR Data for Research (dfr. jstor.org) is a free, self-service tool that allows researchers to interact with and choose content from JSTOR. For each *JBE* article, we collected article metadata (i.e., title, abstract, author(s), volume, issue, and publication date). We also collected word and phrase frequencies for the full text of each paper, generated with JSTOR's optical character reader (OCR) technology. We then obtained each paper's citation data from the Web of Science. According to Thomson Reuters (2014), the Web of Science is the world's most trusted citation index, a tool that has become the gold standard source of data for research aimed at identifying hidden patterns and at gaining insight into research trends. We thus collected each research paper's citation data by year from the Web of Science. Because JSTOR Data for Research has a 3-year embargo window, full-text word frequencies for articles from 2014 to 2016 are not available. We collected title, abstract, keywords, and metadata from JBE's publisher, Springer Science + Business Media, to complete the sample. It is also worth noting that there are 48 papers published by *JBE* during the target period for which citation information is missing from the Web of Science. Most of those articles are from supplemental issues published in 2011. We collected the citation information for these articles from Scopus, an alternative to the Web of Science (Chadegani et al. 2013; Vieira and Gomes 2009). In the end, we obtained a sample of 6308 research papers, representing 139 volumes published between February 1982 and December 2016.

The specific method of PTM used here is known as latent Dirichlet allocation (LDA). Technical details of LDA have been relegated to Appendix 1. Interested readers can look there for more information. Readers primarily interested in the outcome of our study can feel free to proceed to our results, which we present next.

Advantages and Disadvantages of Our Method

The big-data approach utilized in the present paper has several advantages. The first and most obvious advantage is completeness. The tools used here have allowed us exhaustively to examine every research article published in the *Journal of Business Ethics* during the period from 1982 to 2016. As noted above, this amounts to some 6308 articles. It is further worth noting that these articles together constitute a total of approximately 42 million words. No human reader has the capacity to read, comprehend, and reliably summarize even a fraction of such a vast dataset. A human reader, reading an ambitious 10 articles each day, 365 days per year would need a year and a half just to get through all these papers, let alone to conduct any sort of meaningful analysis. The second advantage of our method is objectivity. The algorithms used are able to "pull" themes from our very large dataset, whereas other studies that have attempted to summarize the field required the authors to begin their analysis with a preconceived set of themes or topics that they expect to see. Under the older method, specific articles are then categorized by placing them into one or more of those preconceived categories.

Our method also has the advantage that it allows us to account for the fact that a particular paper may discuss more than one topic, to track the *weighting* of each topic within each paper, and to tally those. Methods that simply count "paper topics" do not have this virtue. Imagine, for example, a fictional paper that is primarily about "leadership," but that devotes 20% of its attention to questions of "ethics education." Most methods used previously would count this exclusively as a paper about leadership—the discussion of ethics education would simply be lost. And examination of dozens or hundreds of such papers would result in a badly skewed analysis, which would imply—wrongly—that no one is paying any attention to ethics education at all.[5] Our

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[5] Note the statistical analogy with voting systems: a first-past-the-poll voting system in a 2-party jurisdiction can end up allocating 100% of votes to a single party, even if the "other" party got 49% of the votes in every local election. Categorizing papers by "main topic" is effectively a first-past-the-poll voting system. Such systems have their merits, but their results can easily misrepresent the shape of the electorate.

system tracks all of the word clusters (topics) that emerged algorithmically and counts them proportionally, which gives us a far more granular result.

This approach also has certain limitations. First, the algorithm is capable of finding clusters of words, but it is incapable of *naming* them in a meaningful way. A simple fictional example will help explain the issue. Imagine an algorithm finding three words occurring repeatedly together, in various published articles: "yellow," "hot," and "orbit." The algorithm would not be able to infer that these articles were all about *the sun*. It would take (barring improvements in available technology) a human to make that inference. With regard to the present research, this means that while the algorithm has identified clusters of words, we the researchers have been left to give those clusters names, such as "ethical leadership." This inevitably involves a degree of subjectivity—different researchers may well have assigned different names to these clusters, and indeed, the authors of the present paper occasionally disagreed among themselves as to the best name for a particular cluster.

Relatedly, it is worth noting that the algorithm used is (necessarily, given the size of our dataset) an "unsupervised" algorithm. This term, quite common in machine learning, refers to the fact that the algorithm performs seeking clusters and then categorizes articles as including those clusters without any human intervention. That is, there is no moment within our process at which a human looks at each cluster found and says either "yes, that looks like a genuine cluster of topics," or "no, that looks like a spurious correlation of words." This is the price that is paid for using an algorithm capable of examining trends within millions of published words independently: independence is both a strength and a weakness.

Finally, the method used here relies on the frequency of occurrence of terms. This means that the algorithm will end up ignoring altogether topics that are discussed only by a relatively small (but perhaps significant) cluster of articles. What this implies is that this method is capable only of providing a "big-picture" view of the field. Fine-grained analysis of sub-topics and sub-sub-topics and how they are related again would require human intervention.

Results

1. What main topics have occupied scholars in the field over the last three decades?

The main outputs of the PTM are two probability distributions (relative frequency tables). The first is a topic-word distribution that gives the probability of an author using each word to write about a topic, i.e., the high (and low)-frequency words for each topic. The second is a document-topic distribution which provides the topical composition of each article, i.e., what each article is about. We can view the topic-word distribution as a "soft" clustering of words. Each cluster of words is used in a similar context, yet the words can appear in different clusters with varying frequencies (similar to an exploratory factor analysis). Our analysis identified 18 word clusters, which we interpret as embodying topics that are latent in the observed texts. Each such cluster is composed of a number of keywords appearing frequently together. For example, one set of words occurring frequently together included the following:

> fraud, audit, accounting, professional, control, system, financial reporting, accountability, auditing, quality, reporting, integrity, internal control, fraudulent, financial, scandal, internal, profession, sanction, internal audit.[6]

The PTM algorithm was able to identify this cluster of keywords as appearing relatively frequently together within our dataset. Note that PTM provides the probability of *all* the words appearing under this topic; we here list only the twenty words with the highest probability.

However, as noted above, the algorithm cannot apply a label to this cluster. The keywords merely supply the "data for ethical interpretation or sensemaking" (Lock and Seele 2015, p. S35), a task that must necessarily be taken on by human interpreters. For ease of reference (and greater analytic utility) we have labeled each cluster (or topic) with a descriptive word or phrase. We took a two-pronged approach when labeling each topic. First, we interpret "the bag of words" as a whole for each topic, paying special attention to the top words with high frequency. Then, we made use of the document-topic distribution provided by PTM. For each topic, we selected articles with topic weight greater than 50% and sorted them by citation counts. Appendix 3 lists five such articles under each topic. We made sure that the topic names are in congruence with these high-impact articles by cross-checking with the author-provided keywords, title, and abstract. The cluster above, for example, we have labeled "accounting ethics." As another example, here is another set of 20 words constituting a cluster appearing together frequently within our dataset:

> fair trade, cooperative, worker, employment, labor, export, labour, factory, union, safety, buyer, global supply chain, workforce, wage, foreign, supplier, domestic, working condition, work life, trade.

We have labeled this cluster "fair trade and labor." Table 1 provides the full list of the 18 topics our process uncovered

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[6] In this paper, we have listed only the twenty words with the highest frequency within each word cluster.

**Table 1** Major topics in Journal of Business Ethics (1982–2016)

Topic name	Top 20 words in topic
Virtue ethics	Virtue, leadership, business ethic, justice, human, perspective, compassion, virtue ethic, wisdom, principle, meaningful work, spiritual, motivation, normative, life, humility, spirituality, philosophy, religious, morality
Employee ethical behaviors	Risk, fairness, arbitration, sanction, goodwill, structure, labor market, unethical, dissonance, identifiable, irresponsible, transgression, consequence, legitimation strategy, job, harm, harmful effect, justify, ethical reasoning, cultural
Consumer ethics	Consumer, product, green, privacy, information, consumption, attribute, ethical consumption, online, service, attitude, purchase, intention, evaluation, perceive, brand, attitude toward, benefit, consumer willingness, sustainable consumption
Corporate social responsibility	Sustainability, corporate social responsibility, environmental, legitimacy, approach, impact, identify, influence, role, social responsibility, strategic, corporation, organization, sustainable, environment, organizational, green, corporate sustainability, innovation, challenge
Gender	Gender, family, moral judgment, male, role, women, difference, career, decision make, feminist, biological, mindset, position, male female, feminine, ethnic diversity, sex discrimination, female manager, woman man, gender equality
Accounting ethics	Fraud, audit, accounting, professional, control, system, financial reporting, accountability, auditing, quality, reporting, integrity, internal control, fraudulent, financial, scandal, internal, profession, sanction, internal audit
Marketing ethics	Brand, advertising, product, marketing, news, audience, source, media, impression management, child, negative, obesity, market, reputation, credibility, campaign, blame, advertisement, image, consumer
Ethical decision making	Ethical decision making, moral intensity, scenario, ethical judgment, value orientation, judgment, unethical, decision make, ethical decision, attitude toward, intention, ethical predisposition, attitude, personality type, business ethic, personal, dilemma, managerial, personal moral philosophy, religiously
Ethics education	Student, business school, business ethic, education, teaching, course, training, learning, MBA, effectiveness, university, management education, subject, curriculum, faculty, ethic course, approach, unethical intention, instructor, classroom
Corporate personhood	Right, political, duty, contract, legal, capitalism, normative, liberal, status, justice, morality, economic, debate, market, market failure, equality, commercial, well, freedom, obligation
International development	Global, political, governance, compliance, regulation, government, economic, institutional, policy, international, institution, country, economy, united nations global compact, local, developing country, national, regulatory, multinational enterprise, context
Qualitative case studies	Question, think, personal, questionnaire, know, view, say, situation, student, story, believe, opinion, response, thought, experience, attitude, survey, word, respondent, event
Managerial morality	Insider trading, insider, payment, disclosure, covenant, fraud, access, information, trustworthy, transaction, delay, ban, legal, purchase, amend, injustice, scandal, trading, moral obligation, abnormal
Doing well by doing good	Financial, environmental, performance, corporate governance, investment, investor, earning management, corporate environmental, shareholder, reputation, policy, incentive, compensation, managerial, stock, significant, positive, affect, corporate philanthropy, corporate social
Ethical leadership	Ethical leadership, leader, effect, influence, perception, trust, leadership, impact, moral identity, job satisfaction, workplace, positive, antecedent, moral disengagement, justice, ethical climate, fairness, power, authentic leadership, organizational identification
Fair trade and labor	Fair trade, cooperative, worker, employment, labor, export, labour, factory, union, safety, buyer, global supply chain, workforce, wage, foreign, supplier, domestic, working condition, work life, trade
Corporate governance	Tax, profit, tax avoidance, taxpayer, capital, maximization, loan, obligation, value pluralism, tax evasion, gain, shareholder, fiduciary duty, tax practitioner, agency problem, tax morale, shareholder interest, income, ownership, proprietor
National culture	Corruption, country, China, collectivism, Confucianism, Buddhism, national, love money, cultural value, western, guanxi, individualism, ethical behavior, Muslim, materialism, cross cultural, Islamic, international, bribery, American

and the top 20 keywords associated with each. What Table 1 provides is essentially an objective analysis of the topics examined in *JBE* over the first three decades of its existence. And, we argue, given the salience of *JBE* in the field, it is reasonable to infer that these 18 topics constitute a rough approximation of the outlines of the field as a whole.

It is worth emphasizing that while the labels we have applied are subject to debate (they are in no way authoritative and are merely labels that make intuitive sense to us), the clusters of keywords themselves and the articles under each topic, however, are objective features of the dataset.

One observation worth making at this point is that this list of topics includes topics not identified by previous studies.

Fig. 1 Evolution of the topic "ethics education" over years

13.7% of total articles published in 1996 were about Ethics Education
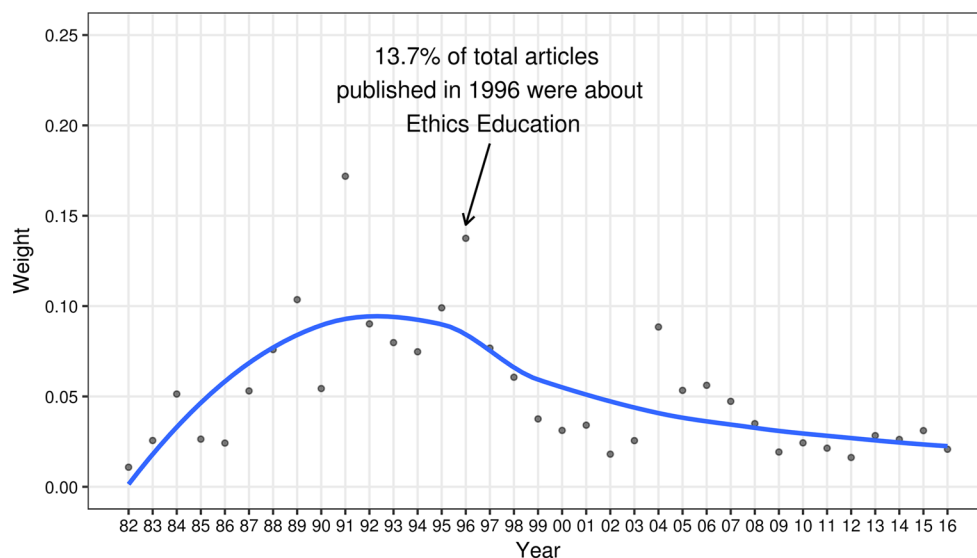
Take for example the topic we have labeled "gender." While other studies—such as, for example, Collins (2000)—identified gender as part of a larger topic (in Collins's case, that larger topic was "ethical sensitivities"), no other study that we know of has identified gender (or, a more expansive and equally plausible label, "The Effect of Gender on Ethical Reasoning") as a major theme in the field. Our analysis found that, between 1982 and 2013, a total of 1734 research papers from within our dataset touch meaningfully upon this topic. Among those 1734 papers, 304 papers discuss this topic with a weight of above 0.2 (i.e., roughly 20% of the discussion within each of those papers is about gender) and 95 papers have this topic as the main topic (with a topic coverage proportion of above 0.5, or 50%).

2. How much emphasis did the literature collectively put on each of the topics identified, in any given year, and how has the ratio of topics evolved over time?

Based on the proportions of the topics in each article, we calculated the yearly sum of each topic's weights across all articles that were published in each year being studied. This yearly sum of a topic's weights was then used to calculate the proportion of the topic across the 18 identified topics. This proportion is interpreted as the degree of scholarly attention that was paid to the topic in a particular year.

Based on this, we can map out the evolution of the popularity of each topic among scholars over the period under study.

Figure 1 provides an example. It charts, over the 35-year period under examination, the trend in the popularity of the topic cluster we have labeled "ethics education." Time is plotted on the *X*-axis, and the *Y*-axis indicates the proportion of scholarly attention devoted to the topic. For instance, in

1996, among the 18 topics identified here, 13.7% of scholarly attention was dedicated to the topic of ethics education.

Figure 2 plots the changing trend of the proportion of scholarly attention paid to each of our 18 topics over the years from 1982 to 2016.[7]

The results are in many cases striking. For instance, we see a steady downward trend in attention to *virtue ethics* and likewise a downward trend in attention to fair trade and labor over the period studied, and a substantial upswing in attention to *ethical leadership* and *international development.* Other topics rose in prominence during the early years of *JBE,* but then peaked and have subsequently declined. Attention to *ethics education,* for example, seems to have peaked around 1990 and has declined in relative importance ever since.

It is worth emphasizing, however, that these are proportions: the downward trend in attention to the topic *virtue ethics* does not necessarily mean that less is being written about that topic now than was the case 30 years ago. It may simply mean that much more is now being written about other topics, with the result that *virtue ethics* represents a smaller proportion of the total.

A second caveat when interpreting our results is that topical proportions are not equivalent to the extent of contributions.[8] Our model measures how much ink is spilled on a topic, which may or may not represent meaningful contributions to the topic. For example, in an article that discusses *corporate governance* and *CSR*, the authors may use *corporate governance*-related terms more frequently, yet the

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[7] We generate the smoothed lines using locally weighted scatterplot smoothing (LOWESS).

[8] We thank an anonymous reviewer for pointing out this important difference.

Fig. 2 Topic focus in JBE (1982–2016)
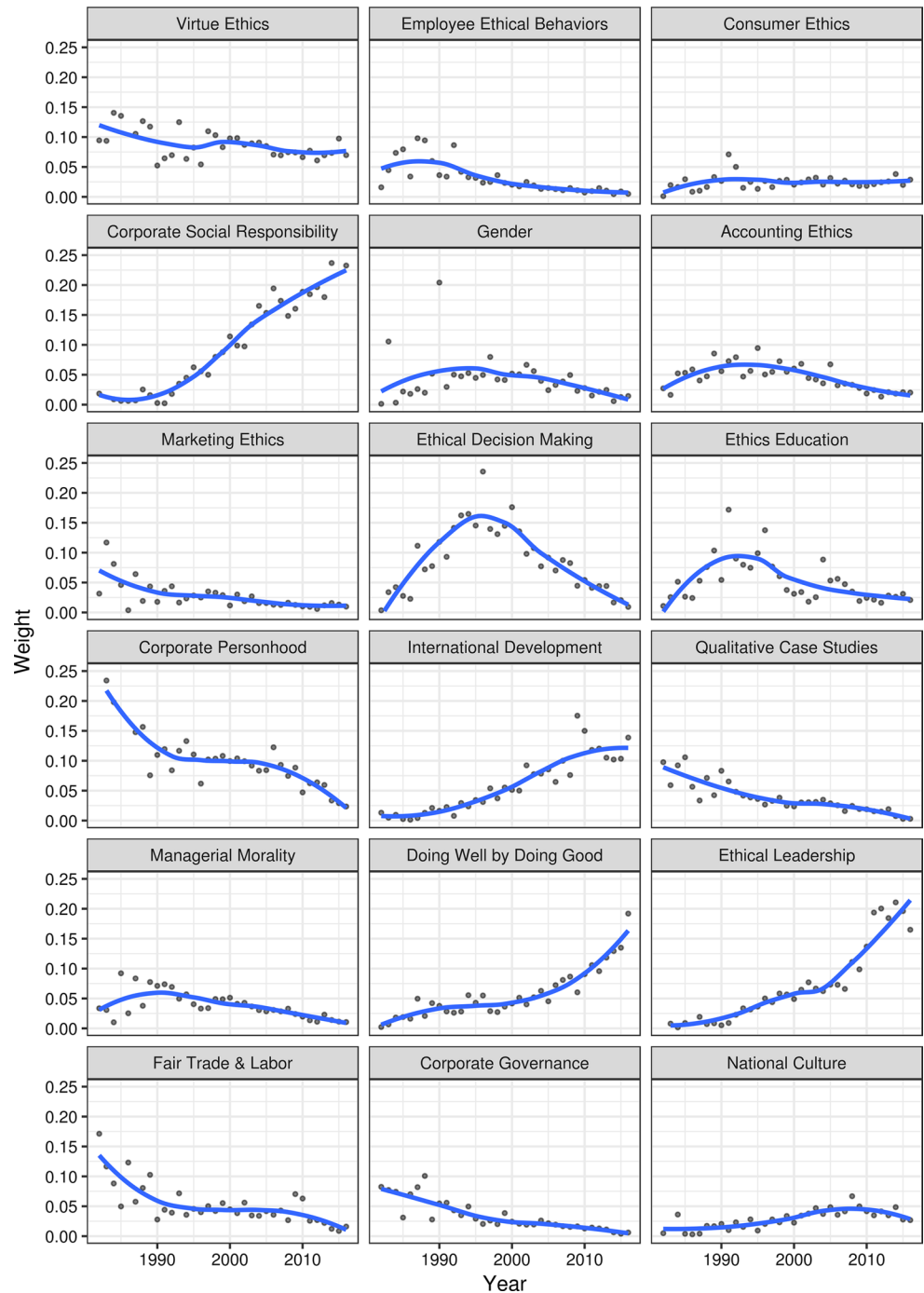
actual theoretical contribution may be equal or even greater in *CSR*. In addition, the seed ideas of many contemporary topics may be traced back to earlier articles on unrelated topics. Thus, our analyses provide only a bird's-eye view of the major themes. Readers interested in the intellectual history of a specific topic could use our results in conjunction with bibliographical analyses.

To provide a more stark illustration of the dynamics of topic distribution in the field over time (i.e., how the proportions have shifted), we use a stacked column chart to show

the snapshots of the proportional distribution of topics in 1982 and 2013 (see Fig. 3). The height of each block within the columns indicates the proportion of a particular topic in a given year. The ordering of topics shown in the two columns is constant, so that it is easier to see which topics have gained in popularity over the three decades as well as those that have declined in relative popularity.

The results are striking. In 1982, two topics—*corporate personhood* and *fair trade and labor*—account for over half (56.3%) of scholarly attention. In 2013, those two topics

Fig. 3 Comparison of topic composition in 1982 and 2013
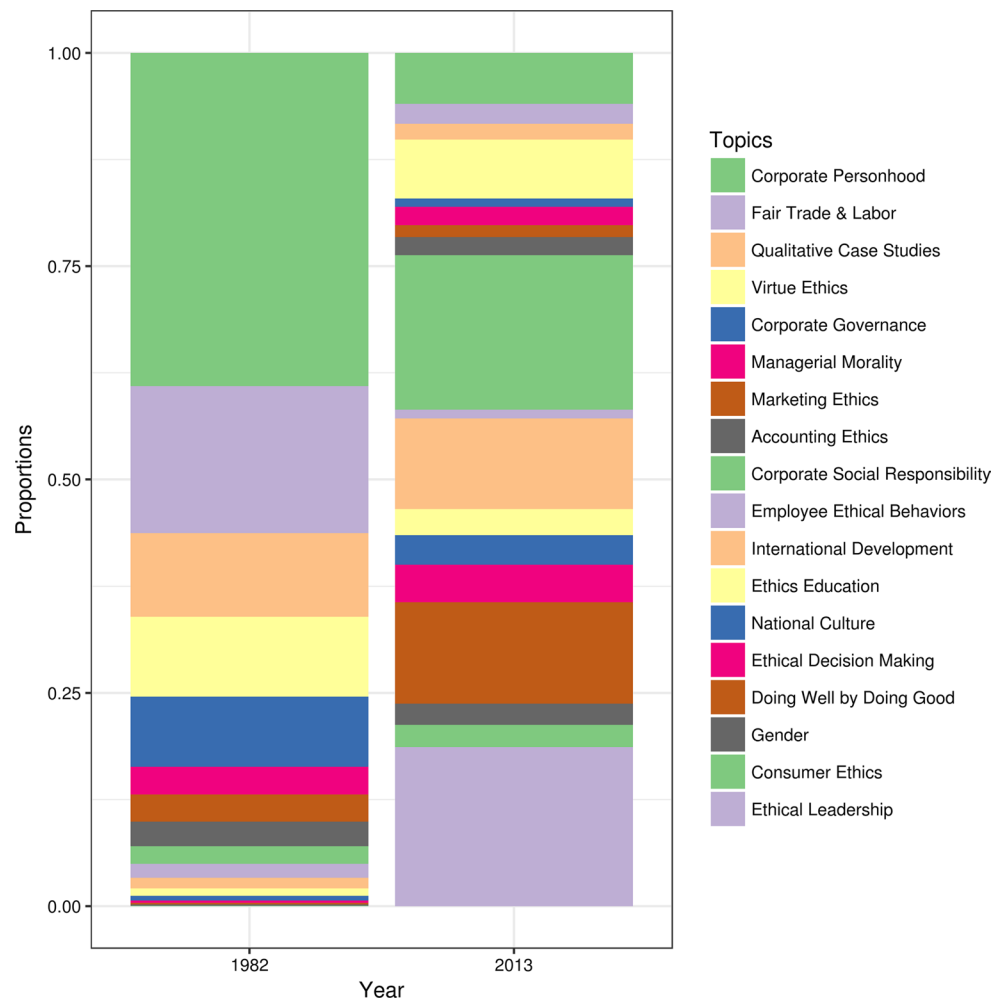
together account for just 8.3% of scholarly attention. Indeed, the 5 topics at the top of both columns went from together representing 83.7% of articles in 1982 to representing less than 18.1% in 2013.

As a robustness check of our results, we provide a visual comparison of the topical trends of *JBE* and *BEQ* in Appendix 4. Most topics share similar trends in *JBE* and *BEQ*. The average contemporary correlation of topical weights in *JBE* and *BEQ* is 0.73 between 1991 and 2011 (the years we have full-text data for both journals). The correlation also exhibits an increasing trend, rising to 0.84 in 2011. Small discrepancies remain. For instance, *BEQ* puts greater emphasis on more theoretical topics such as *corporate personhood* and less weight on topics such as *national culture*. Overall, though, the relative emphasis that business ethics scholars place on different topics is similar in the two leading journals.

3. Do different topics have different levels of scholarly impact? And has that changed over time?

In order to answer these questions, we need first to measure each article's impact and then each individual topic's impact. We employ two approaches, namely total citations and average citations per year, to measure a paper's impact. Citations can be considered a proxy of an article's popularity and impact in a field, because in principle authors cite those works that have influenced their work in one way or another (Calabretta et al. 2011; Culnan 1987; Tahai and Meyer 1999). To calculate a paper's total citations, we count the total number of times an article has been cited during the study period. We calculate the average citations per year as another measure to level the playing field for newer articles and control for possible age effect. For each individual topic's impact, we calculate the individual topic's proportional impact by multiplying the topic's weight with the paper's total citations or yearly average citations. We then calculate a topic's impact in a certain year by aggregating paper-topic citations across all papers published in a year.

We place bars representing the overall impact of papers in each topic next to bars representing impact post-2006 in

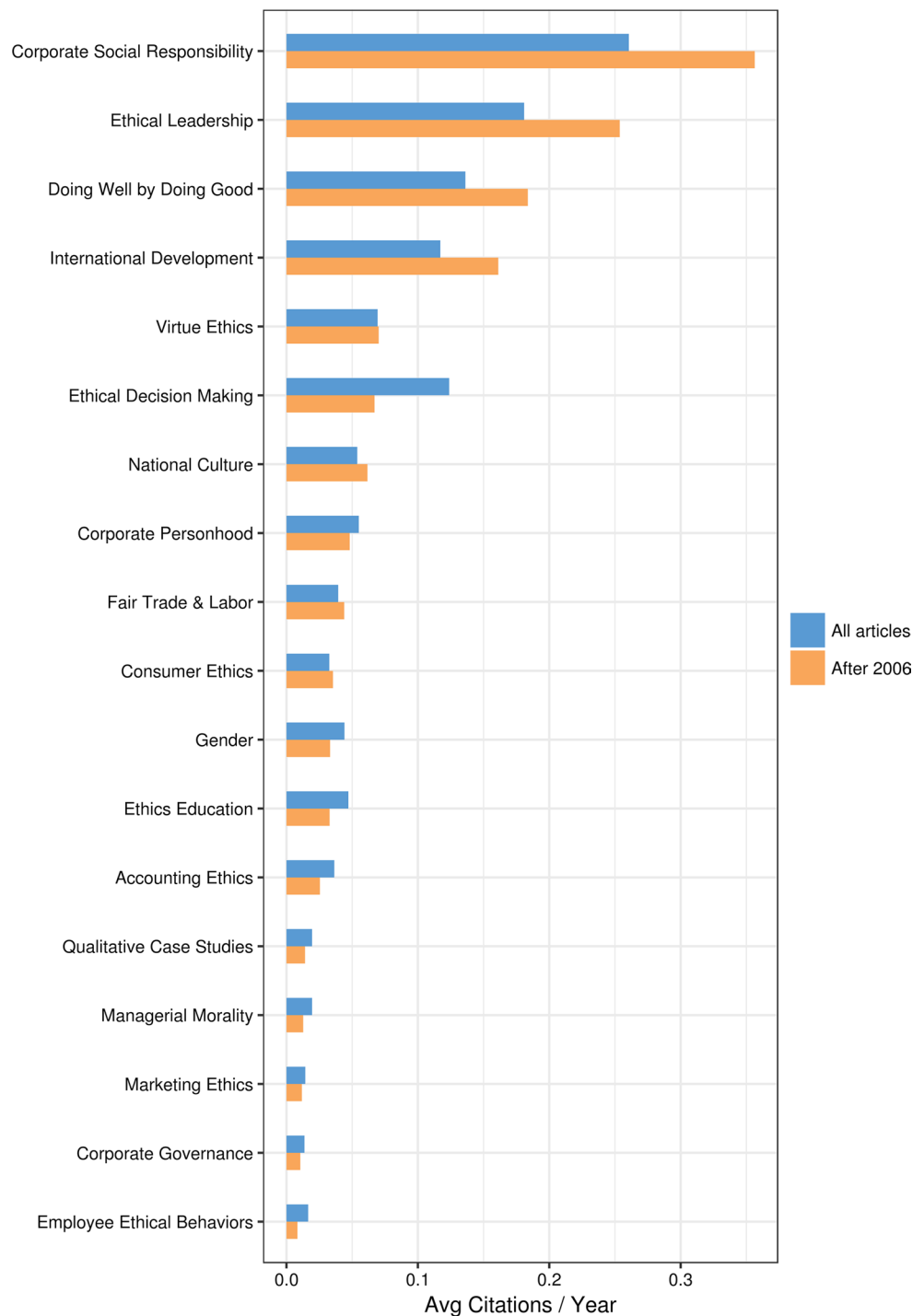**Fig. 4** Impact of topics (overall versus after 2006)

Fig. 4. From this figure, we can see that overall, some topics such as *corporate social responsibility*, *ethical leadership*, *ethical decision making*, and *doing well by doing good* have more impact than other topics, including *managerial morality*, *employee ethical behaviors*, *corporate governance*, and *marketing ethics*. This figure also shows that some topics (i.e., *corporate social responsibility*, *ethical leadership*, *dong well by doing good*, *international development*,

national culture, *fair trade and labor*, *consumer ethics*) have gained more attention or become more popular among scholars in recent years, compared to their overall historical popularity.

4. To what extent do articles in the field tend to focus on a single topic, as opposed to incorporating discussions of a plurality of topics? That is, how much topic diversity
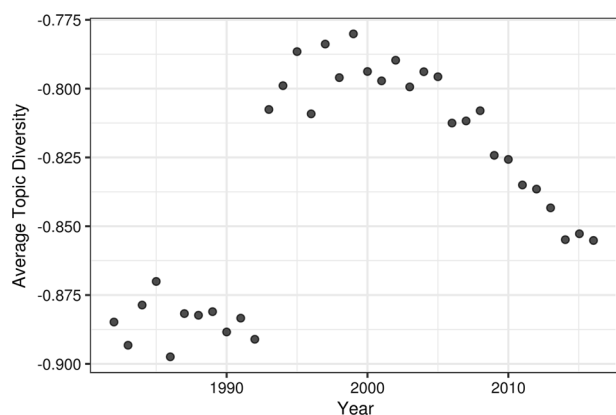
Fig. 5 Trend of average topic diversification in an article (1982–2016)

do articles manifest? And how does an article's topic diversity affect its influence?

We define *topic diversity* as the extent to which a multiplicity of topics is discussed within an individual paper. The higher the topic diversity, the higher the number of topics explored within a given paper. The extreme case at one end of the spectrum would be a paper that pays equal attention to each of our 18 topics (extremely diverse), and at the other end of the spectrum would be a paper that only pays attention to just one topic (extremely concentrated).

To examine this question, we need a measure of the differences in the extent to which particular topics are discussed in an article. Since differences, here, mean quantitative inequalities, we used the measure known as the Gini coefficient. Gini coefficients will be familiar to many readers as a way to express levels of economic inequality within a nation, but the mathematical notion is much more general and has been used for many purposes. Interested readers can find details in Appendix 2.

How Much Topic Diversity Have Articles Manifested During Each Year During the Period Examined, and How has that Diversity Evolved Over Time?

We first calculate the yearly average of topic diversity across articles that were published in a particular year, and then we plot the trend as shown in Fig. 5. The X-axis indicates the time (i.e., year), and Y-axis indicates the yearly average of topic diversity.

From this figure, we can see the yearly average topic diversity increased abruptly in 1993 and reached a peak in 1999. After 2000, the yearly average topic diversity declined, but it is still higher than it was before 1993. The possible reason might be that, after around 1990, there was a substantial shift in scholarly attention from initial discussion

of the theoretical and moral foundations of business ethics to more practical concerns (Lock and Seele 2015) and the literature started to see more and more empirical studies (Calabretta et al. 2011; Lock and Seele 2015; Robertson 1993). Empirical studies often touch upon several topics to uncover certain relationships. This is evidenced by several studies (e.g., Calabretta et al. 2011; Michalos and Poff 2013) that encountered difficulties when categorizing articles into one topic.

The results of our PTM reflect this trend. After 1990, topics that are closely related to practical issues—such as *corporate social responsibility, international development,* and *doing well by doing good*—showed rapid growth. With the continuously increasing attention paid to these practical issues as shown in Figs. 2 and 3, scholarly attention became more concentrated, leading to decreased topic diversity after around 2000 as shown in Fig. 5.

The Impact of Topic Diversity: Does the "Topic Diversity" of a Given Article Affect How Likely that Article is to be Cited? That is, Does a Single Article Gain or Lose Impact if It is a Highly Focused Examination of a Single Issue (as Opposed to Spreading Its Attention Across a Number of Topics)?

As part of our analysis, we investigated whether an article's topic diversity has an effect on its impact. We first use a scatterplot to identify the overall trend. Figure 6 shows the overall trend with the X-axis indicating topic diversity and the Y-axis indicating each paper's influence measured by total citations. From this chart, we can see the overall *negative* relationship between a paper's topic diversity and its influence. The higher a paper's topic diversity, the less influence it is likely to have.

To test the relationship between an article's topic diversity and its influence, we use ordinary least squares (OLS) regression to test whether there is a linear relationship while controlling for possible confounding variables. As a robustness check, we use negative binomial regression, since the dependent variable can be considered count data.

We then quantify the relationship using regression models (i.e., ordinary least squares regression and negative binomial regression), using the citation measure as the dependent variable and topic diversity as the focus independent variable. We also added time (year) and major topic (defined as the topic with the highest weight) as controls. Table 2 shows the results. Regardless of the model we use, both tests show there is a significant, negative relationship between a paper's topic diversity and its scholarly influence. This finding provides a caution for future researchers that a paper's topic diversity should be carefully designed. Including a broad scope of topics (i.e., high topic diversity) in a single paper
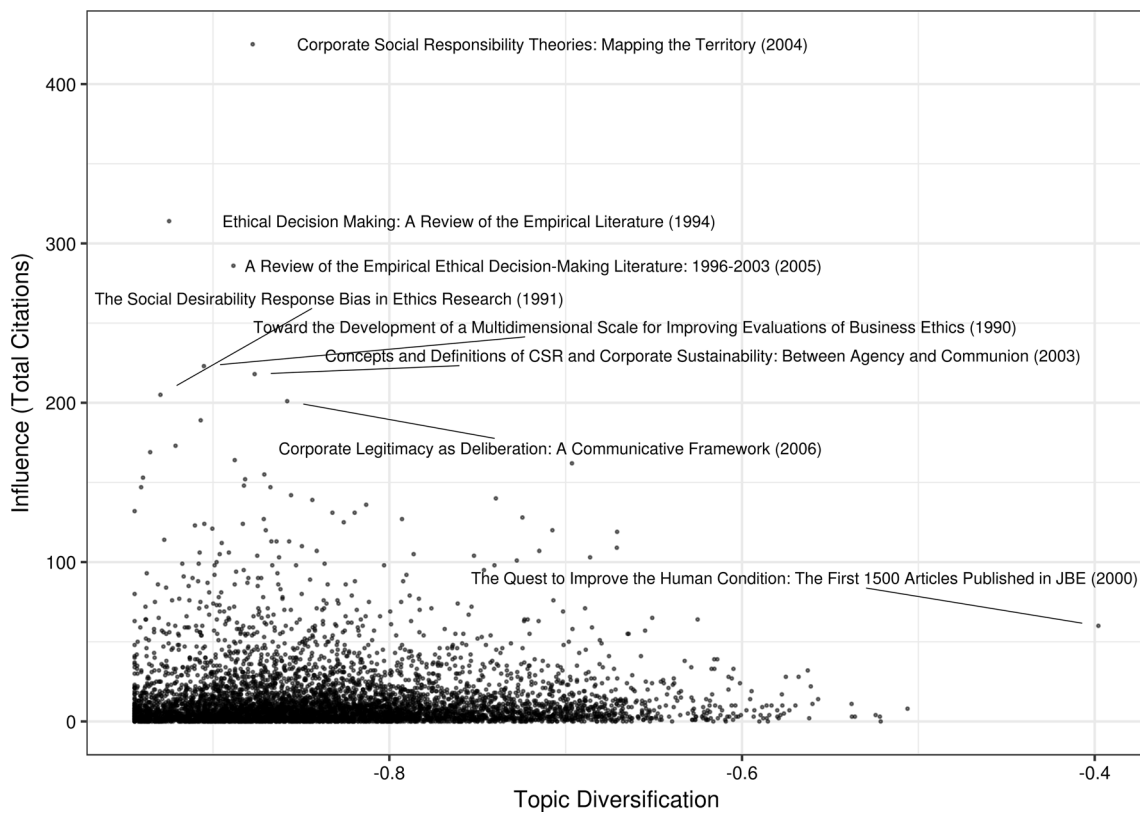
Fig. 6 Topic diversification and influence of an article

Table 2 Effects of topic diversity on citation measures

| Model | OLS | OLS | Negative binomial | Negative binomial |
Dependent variable	Total citations	Avg. citations/year	Total citations	Avg. citations/year
Topic diversity	− 36.01***	− 4.102***	− 2.441***	− 3.098***
	(3.849)	(0.319)	(0.227)	(0.240)
Constant	− 23.20***	− 3.312***	− 0.130	− 4.250***
	(3.661)	(0.290)	(0.273)	(0.295)
Observations	6308	6308	6308	6308
Pseudo-R^2	0.210	0.175	0.074	0.094

Robust standard errors in parentheses. We control for publication year and an article's major topic in the regression models. Year and major topic effects are omitted in the table

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

does not guarantee that the paper will have high impact. For some articles, high topic diversity may mean a lack of focus, leading to lower influence. However, topic diversity may be correlated with interdisciplinarity, and a recent study published on *Nature* (Van Noorden 2015) contends that interdisciplinary research receives less attention than the norm over the first 3 years following publication, but in the long term (after 13 years), such work gains influence. We posit that this phenomenon might well be observed in business ethics in the future, as many scholars have called for interdisciplinary studies in this field (e.g., Arnold et al. 2015).

Conclusions

The work presented here implies three different types of conclusions, which we present here in ascending order of importance. These include: our own interpretation of the data outlined here; the conclusions others may reach through interpreting the data we have provided; and conclusions about the power of computer algorithms and "big data" to help us understand the shape of the field of business ethics. We proceed next to touch upon each of these in sequence.

First, what can we conclude about publication trends in business ethics based on the analysis provided here? Our analysis has identified, on an objective basis, the 18 topics (again, see Table 1) that have dominated the business ethics scholarship, as approximated by what was published in *JBE* over the first three decades of the journal's existence. We believe this is a significant contribution and a significant improvement over previous attempts to produce an overview of scholarship in the field. Our list has the virtue of being relatively objective, since it was generated organically by the probabilistic topic modeling algorithm we used. This means that, regardless of what anyone, no matter their depth of knowledge, *feels* are the important topics in the field, these 18 themes are the ones that have dominated the field over the last three decades.

We have also been able to demonstrate important shifts in emphasis. In the early 1980s, corporate personhood was a dominant theme in the literature; by 2013, it was a relatively minor one. In the early 1980s, CSR and ethical leadership were both trivial themes; by 2013, they had become the two most prominent topics of business ethics scholarship. We are also pleased that our analysis has revealed significant topics (such as *gender*) not identified as important topics by previous studies.

Our analysis also provides strong empirical evidence for trends in the popularity of various topics from 1982 to 2016. Some of those findings are not surprising. It is not at all surprising, for instance, that scholarly attention to the *corporate social responsibility* has only grown, given the increasing salience of that topic culturally and politically and its increasing significance as an area requiring attention by top corporate leaders. It is likewise unsurprising that *ethical leadership* has gained an increasing share of scholarly attention. Other results are surprising indeed. *Accounting ethics* has remained nearly "flat" (having reached a small peak in the late 1990s) in spite of the huge public attention to that topic resulting from the large number of accounting scandals that have occurred, especially since the turn of the millennium. It is perhaps also surprising that scholarly attention to *corporate personhood* has (according to our data) declined very substantially since the early 1980s. The year 2013 saw what was very near to a 30-year low in scholarly attention paid to that topic, in spite of the public significance of that topic, demonstrated most acutely by the controversy over the court cases of *Citizens United vs FEC* and *Hobby Lobby*.[9] It is likewise surprising that attention to the related topic of

corporate governance has subsided, albeit less dramatically, over the period under study.

We also consider it noteworthy that our data provide evidence of a significant, negative relationship between a paper's topic diversity and its scholarly influence. We found that—with rare exceptions—the more topics a given paper attempted to cover in substantial detail, the less impact it had. Yet this should not be interpreted as a definite signal for avoiding such research. For one, the citation-based impact can be a poor proxy for quality—especially in the short run. Second, the pseudo-R^2 of the regressions is low, ranging from 0.07 to 0.21 depending on the model used. This suggests that topic diversity only plays a small role in explaining the future citations of an article. The actual content of an article, along with other factors outside the model, is much more important in determining the article's impact. Finally, as an anonymous reviewer notes, rarely can any of the topics in business ethics be separated from other topics. Synthesis of these topics is simply as critical as singular analysis of them in the literature.

While we stand by the conclusions presented in the section immediately above, we think our main contribution is to have analyzed an enormous body of literature and made the data available to readers of this journal. Those readers may make use of these data what they will. For example, we would welcome and encourage others to examine in detail the 18 word clusters that our analysis produced.

We think that the data we have provided on trends in the literature provides fodder for a potentially wide range of analyses. We thus consider this study a provocative and useful springboard to future careful research. What should we make of the downward trend in scholarly attention to *corporate personhood* over the period under study? Does it reflect a trend in the broader literature? A cultural trend? A change in the way business ethics scholars are educated and trained? We have our suspicions, but we invite analyses on the part of others in the field. What is it that accounts for the very substantial leap in topic diversity that apparently occurred in 1993? Does this reflect a change in scholarly practice, or perhaps a change in editorial policy at *JBE*? In fact, the trend lines for each of the 18 topics identified—whether considered individually or in comparison with each other—open up a number of questions. Does each trend reflect something internal to the field, or an aspect of society more generally? What role do editorial interests and preferences play? The data we have provided, in other words, open up many potentially fruitful avenues for investigation.

Finally, we believe this paper makes a contribution in having shone a new kind of light upon the scholarly field of business ethics. To the best of our knowledge, this study represents the first time that a "big-data" approach has been taken to understanding the shape of the field. Our approach represents a new kind of analysis, one that for the first

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[9] See *Citizens United v. Federal Election Com'n*, 130 S. Ct. 876, 558 U.S. 310, 175 L. Ed. 2d 753 (2010) and *Burwell v. Hobby Lobby Stores, Inc.*, 134 S. Ct. 2751, 573 U.S., 189 L. Ed. 2d 675 (2014), respectively.

time ever provides a comprehensive examination of scholarly trends in the field, an examination that is largely free from reliance on human intuition and biases. Similar work could be done on what has been discussed in the realm of practice—for example, examining ethics-related topics in the business press and in organizations' annual reports. As noted above, this method naturally has its limitations. But it is an exciting development, too. Our analysis represents an attempt to analyze the field of business ethics by utilizing sophisticated computerized methods. This means finally subjecting the scholarly literature in this field to a set of methods that are as sophisticated and complex as the field itself.

Compliance with Ethical Standards

Conflict of interest The author declares that there is no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

Appendices

Appendix 1: Latent Dirichlet Allocation

We chose the latent Dirichlet allocation (LDA) (Blei et al. 2003) model as our probabilistic topic modeling method. As the first and the most mature topic model, LDA has emerged as a powerful and commonly used technique to reveal thematic information from digital archives (Griffiths and Steyvers 2004). Recently, it has received growing attention in various areas of management research, especially in the study of the historical evolution of ideas. For instance, recent work by Kaplan and Vakili (2015) mined topics in a body of knowledge concerning patents; Wang et al. (2015) employed topic modeling to conduct a historical review of research on consumer behavior; and Chen and Zhao (2015) used topic modeling to study the field of information systems. All of these studies used LDA.

An example will help convey the intuition behind LDA. Figure 7 is the abstract of "Ethical leadership behavior and employee justice perceptions: the mediating role of trust in organizations"—a research paper by Xu et al. (2016). Suppose a dedicated scholar read through every published JBE article and learned all the coherent topics in them. Upon reading the article in Fig. 7, she may identify that three of the topics are addressed here. We highlight these three topics

Using data collected at two phases, this study examines why and how ethical leadership behavior influences employees' evaluations of organization-focused justice, i.e., procedural justice and distributive justice. By proposing ethical leaders as moral agents of the organization, we build up the linkage between ethical leadership behavior and the above two types of organization-focused justice. We further suggest trust in organization as a key mediating mechanism in the linkage. Our findings indicate that ethical leadership behavior engenders employees' trust in their employing organization, which in turn promotes their justice perceptions toward the organization. The theoretical and practical implications of these findings are discussed, and some directions for future research are suggested.

Fig. 7 Topics and associated words in a document

in different colors: blue indicates the topic "ethical leadership"; green indicates the topic "employee ethical behaviors"; and yellow indicates the topic "virtue ethics." The scholar can also decide the weights Xu et al. put on the three topics in the article. If the three topics are addressed equally in the article, she may annotate ("ethical leadership" = 0.33, "employee ethical behaviors" = 0.33, and "virtue ethics" = 0.34, where all weights must add up to 1.0).

The sheer volume of articles makes human understanding, organizing, and annotating of the entire JBE archive a daunting—if not impossible—task. We use LDA to conduct the above analysis automatically. LDA builds upon the intuition that articles often exhibit multiple topics, and these topics are expressed using different words.[10] LDA uses a probabilistic model and random variables to express the relationship between documents, topics, and words. The model inference process matches the probabilistic model with the observed JBE archive and provides the outputs we presented in the paper. Next, we introduce the assumptions behind LDA and inference process.

As with all other machine learning models, LDA starts with several statistical assumptions. First, an article is a "bag of words," meaning that LDA ignores the order of words in an article. The order of the words is, of course, important for readers to understand an article. However, as Blei et al. (2003) have argued, this simplification (i.e., ignoring word order) can result in enhanced computational efficiency while largely preserving the semantic themes in the article. Second, LDA assumes that all articles in the archive share the same set of topics, but the topic proportions differ across articles (from 0 to 100% for any given topic). This assumption is based on the fact that all JBE authors share a body of knowledge, while different authors are experts in various sub-domains. As such, their articles will have different foci. Third, LDA assumes that each topic is manifested in the form of a cluster of topic-related keywords. These topic-related keywords are from fixed vocabulary of the totality of the article archive. Fourth, LDA assumes that the set of

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[10] The same phrase is allowed to be used in multiple topics, although the weight might be different.

words contained in any given article is a combination of topic-related words from a variety of topics. The third and fourth assumptions lead to the generative process of LDA.

LDA is a generative model. The model assumes that the observed JBE articles are *generated* from a probabilistic process characterized by hidden (latent) random variables. The random variables are hidden from us, but all of the authors know about them. For our purpose, we focus on two sets of hidden random variables. The first is the per-document topic distribution. The parameters of this distribution could tell us, for each article, the likely weights of each topic. The second is the per-topic word distribution, the parameters of which could indicate the most likely words under each topic.[11]

With the two hidden distributions, LDA assumes that the procedure of writing a JBE article (i.e., generating the bag of words in the article) follows two main steps:

1. The authors pick the weight distribution of the topics for each article according to the per-document topic distribution. For example, 80% about CSR and 20% supply chain-related issues.
2. The authors choose the corresponding bag of words according to how words are related to topics (the per-topic word distribution). For example, use the word "social" 20 times, "stakeholder" 10 times, "contract" 5 times, "retailer" 3 times.

Given the collection of the JBE articles, which are the observable outcomes of the above generative process, our goal of the analysis is to uncover the per-document topic distribution and the per-topic word distribution. The inference algorithm of LDA reverses the above generative process using hierarchical Bayesian inference (Blei 2012). In other words, the algorithm tries to answer: assuming all the articles are indeed generated according to the above two steps, what are the most plausible document-topic distribution and topic-word distribution that gave rise to the observed JBE articles? The inference process gave us the results presented in the paper, namely (1) which topic(s) are covered in a given article and their proportions, and (2) the representative words for each topic.

Lastly, we describe our implementation details. We first downloaded our data from JSTOR Data for Research (dfr.jstor.org). We used *gensism* (Rehurek and Sojka 2010), an open-source natural language processing package for Python, for preprocessing and LDA inference. In the preprocessing stage, we used lemmatization to remove the inflectional endings of words. We excluded the most common (top 50), rare (less than 10 occurrences), and stop-words following the convention. The most common words are words that are generic terms such as *business*, *ethic*, *study*, *research*, while the rare words are usually study specific. Neither can help us learn the pervading themes in the articles. We then identified the most frequent bigrams and trigrams (two- and three-word terms) and concatenated them to words. In the LDA inference stage, *gensism* implements the online variational Bayes algorithm outlined in Bach et al. (2010). We chose the number of topics $K = 18$ using the perplexity measure, which is commonly used to evaluate a language model's performance (Asuncion et al. 2009). In addition, the solution presented agrees with our human judgment in terms of semantic coherence and interpretation.

Appendix 2. Gini Coefficients

To analyze topic diversity, we utilize the way of calculating *Gini coefficient*—a measure usually used for income inequality (Gini 1909). In our analysis, the Gini coefficient is instead used to measure the inequality of the weight across the multiple topics examined by LDA model in a paper. The value of the Gini coefficient varies between "0" and "1". The Gini coefficient "0" indicates complete equality, meaning the weight of each topic identified by the LDA model is the same. In this case, the diversity is high because all the topics are discussed with the same amount of scholarly attention (extremely spread). The Gini coefficient "1" indicates complete inequality, meaning that only one topic is discussed or gains all the scholarly attention (extremely concentrated). In this case, the diversity is low. Therefore, there is a negative relationship between the Gini coefficient and diversity. To make our analyses and results more intuitive, we transform Gini coefficient to the value of diversity by multiplying the initial Gini coefficient with "− 1".

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[11] Both are Dirichlet distributions—hence the name of LDA. We can think of a Dirichlet distribution as an urn containing many multi-faced dice. Each die in the urn is different in terms of the probability of its each face showing up in a roll. For the per-document topic distribution, the number of faces is the number of topics. For the per-topic word distribution, the number of faces is the total number of words.

Appendix 3. Representative Articles Under Each Topic

Topic	Article title	Authors	Vol.	Iss.	Year
Virtue ethics	How virtue fits within business ethics	J. T. Whetstone	33	2	2001
	Virtue theory as a dynamic theory of business	S. Arjoon	28	2	2000
	Integrating personalism into virtue-based business ethics: the personalist and the common good principles	D. Mele	88	1	2009
	Aristotelian virtue and business ethics education	S. M. Mintz	15	8	1996
	The language of managerial excellence: virtues as understood and applied	J. T. Whetstone	44	4	2003
Employee ethical behaviors	Organizational dissidence: the case of whistle-blowing	J. P. Near, M. P. Miceli	4	1	1985
	A behavioral model of ethical and unethical decision making	M. Bommer, C. Gratto, J. Gravander, M. Tuttle	6	4	1987
	An integrative model for understanding and managing ethical behavior in business organizations	W. E. Stead, D. L. Worrell, J. G. Stead	9	3	1990
	The challenge of ethical behavior in organizations	R. R. Sims	11	7	1992
	Organizational ethics: a stacked deck	H. R. Smith, A. B. Carroll	3	2	1984
Consumer ethics	Consumers' ethical beliefs: the roles of money, religiosity and attitude toward business	S. J. Vitell, J. J. Singh, J. Paolillo	73	4	2007
	Marketing dataveillance and digital privacy: using theories of justice to understand consumers' online privacy concerns	L. Ashworth, C. Free	67	2	2006
	Exploring the structure of ethical attributions as a component of the consumer decision model: the vicarious versus personal perspective	J. Whalen, R. E. Pitts, J. K. Wong	10	4	1991
	Relational consequences of perceived deception in online shopping: the moderating roles of type of product, consumer's attitude toward the internet and consumer's demographics	S. Roman	95	3	2010
	The end of religion? Examining the role of religiousness, materialism, and long-term orientation on consumer ethics in Indonesia	A. Denni, T. Fandy	123	3	2014
Corporate social responsibility	Corporate social responsibility theories: mapping the territory	E. Garriga, D. Mele	53	2	2004
	Concepts and definitions of CSR and corporate sustainability: between agency and communion	M. van Marrewijk	44	3	2003
	Corporate social responsibility and resource-based perspectives	M. C. Branco, L. L. Rodrigues	69	2	2006
	Corporate social responsibility (CSR): theory and practice in a developing country context	D. Jamali, R. Mirshak	72	3	2007
	Measuring corporate social responsibility: a scale development study	D. Turker	85	4	2009
Gender	Gender-based barriers to senior management positions: understanding the scarcity of female CEOs	J. G. Oakley	27	4	2000
	Managers, values, and executive decisions: an exploration of the role of gender, career stage, organizational level, function, and the importance of ethics, relationships and results in managerial decision-making	J. H. Barnett, M. J. Karson	8	10	1989
	Gender differences in managerial careers: yesterday, today, and tomorrow	C. Kirchmeyer	37	1	2002
	Mentoring in organizations: implications for women	R. J. Burke, C. A. McKeen	9	5	1990
	Gender and ethical orientation: a test of gender and occupational socialization theories	E. S. Mason, P. E. Mudrack	15	6	1996

| Topic	Article title	Authors	Vol.	Iss.	Year
Accounting ethics	Legislated ethics: from Enron to Sarbanes–Oxley, the impact on corporate America	H. Rockness, J. Rockness	57	1	2005
	Historical perspectives: development of the codes of ethics in the legal, medical and accounting professions	J. F. Backof, C. L. Martin, Jr.	10	2	1991
	Beyond bean counting: establishing high ethical standards in the public accounting profession	J. R. Cohen, L. W. Pant	10	1	1991
	Reactions to ethical dilemmas: a study pertaining to certified public accountants	G. A. Claypool, D. F. Fetyko, M. A. Pearson	9	9	1990
	Cultural and socioeconomic constraints on international codes of ethics: lessons from accounting	J. R. Cohen, L. W. Pant, D. J. Sharp	11	9	1992
Marketing ethics	Children and the changing world of advertising	E. S. Moore	52	2	2004
	Persuasive advertising, autonomy, and the creation of desire	R. Crisp	6	5	1987
	The ethics of psychoactive ads	M. R. Hyman, R. Tansey	9	2	1990
	Ethical dimensions of advertising executions	I. D. Nebenzahl, E. D. Jaffe	17	7	1998
	Advertising and behavior control	R. L. Arrington	1	1	1982
Ethical decision making	Ethical decision making: a review of the empirical literature	R. C. Ford, W. D. Richardson	13	3	1994
	A review of the empirical ethical decision-making literature: 1996–2003	M. J. O'Fallon, K. D. Butterfield	59	4	2005
	A review of empirical studies assessing ethical decision making in business	T. W. Loe, L. Ferrell, P. Mansfield	25	3	2000
	The effects of culture on ethical decision-making: an application of Hofstede's typology	S. J. Vitell, S. L. Nwachukwu, J. H. Barnes	12	10	1993
	Judging the morality of business practices: the influence of personal moral philosophies	D. R. Forsyth	11	6	1992
Ethics education	Concerns of college students regarding business ethics	R. F. Beltramini, R. A. Peterson, G. Kozmetsky	3	3	1984
	Ethics, CSR, and sustainability education in the "financial times" top 50 global business schools: baseline data and future research directions	L. J. Christensen, E. Peirce, L. P. Hartman, W. M. Hoffman, J. Carrier	73	4	2007
	Measuring the impact of teaching ethics to future managers: a review, assessment, and recommendations	J. Weber	9	3	1990
	Do company ethics training programs make a difference? An empirical analysis	J. T. Delaney, D. Sockell	11	9	1992
	Designing and delivering business ethics teaching and learning	R. R. Sims, E. L. Felton, Jr.	63	3	2006
Corporate personhood	The concept of corporate responsibility	K. E. Goodpaster	2	1	1983
	Self-interest and business ethics: some lessons of the recent corporate scandals	T. L. Carson	43	4	2003
	Corporate Environmental Responsibility	J. DesJardins	17	8	1998
	A critical perspective of integrative social contracts theory: recurring criticisms and next generation research topics	T. W. Dunfee	68	3	2006
	A social contract account for CSR as an extended model of corporate governance (i): rational bargaining and justification	L. Sacconi	68	3	2006
International development	Public policies on corporate social responsibility: the role of governments in Europe	L. Albareda, J. M. Lozano, T. Ysa	74	4	2007
	The global compact selected experiences and reflections	G. Kell	59	2	2005
	Child labor and multinational conduct: a comparison of international business and stakeholder codes	A. Kolk, R. van Tulder	36	3	2002
	Corporate social responsibility for developing country multinational corporations: Lost war in pertaining global competitiveness?	P. Gugler, J. Y. J. Shi	87	S1	2009
	Corporate governance and institutional transparency in emerging markets	C. C. J. M. Millar, T. I. Eldomiaty, C. J. Choi, B. Hilton	59	2	2005

Topic	Article title	Authors	Vol.	Iss.	Year
Qualitative case studies	Ethical attitudes of students and business professionals: a study of moral reasoning	J. A. Wood, J. G. Longenecker, J. A. McKinney, C. W. Moore	7	4	1988
	A comparison of five business philosophies	P. Miesing, J. F. Preble	4	6	1985
	Student perceptions of 'job politics' as practised by those climbing the corporate career ladder	M. M. Pressley, D. E. Blevins	3	2	1984
	Plane truth: a qualitative study of employee dishonesty in the airline industry	E. D. Scott	42	4	2003
	Real estate sales agents and the code of ethics: a voice stress analysis	D. E. Allmon, J. Grant	9	10	1990
Managerial morality	Everyday moral issues experienced by managers	J. A. Waters, F. Bird, P. D. Chant	5	5	1986
	The ethics of insider trading	P. H. Werhane	8	11	1989
	What is really unethical about insider trading?	J. Moore	9	3	1990
	The nature of managerial moral standards	F. Bird, J. A. Waters	6	1	1987
	Predictors of ethical decisions regarding insider trading	D. E. Terpstra, M. G. C. Reyes, D. W. Bokor	10	9	1991
Doing well by doing good	The relationship between corporate social performance, and organizational size, financial performance, and environmental performance: an empirical examination	P. A. Stanwick, S. D. Stanwick	17	2	1998
	An empirical investigation of the relationship between change in corporate social performance and financial performance: a stakeholder theory perspective	B. M. Ruf, K. Muralidhar, R. M. Brown, J. J. Janney, K. Paul	32	2	2001
	The association between corporate social-responsibility and financial performance: the paradox of social cost	M. L. Pava, J. Krausz	15	3	1996
	The link between corporate social and financial performance: evidence from the banking industry	W. G. Simpson, T. Kohers	35	2	2002
	Corporate social and financial performance: an investigation in the UK supermarket industry	G. Moore	34	4	2001
Ethical leadership	Toward an understanding of ethical climate: Its relationship to ethical behavior and supervisory influence	J. C. Wimbush, J. M. Shepard	13	8	1994
	Leaders, values, and organizational climate: examining leadership strategies for establishing an organizational climate regarding ethics	M. W. Grojean, C. J. Resick, M. W. Dickson, D. B. Smith	55	3	2004
	The virtuous influence of ethical leadership behavior: evidence from the field	M. J. Neubert, D. S. Carlson, K. M. Kacmar, J. A. Roberts, L. B. Chonko	90	2	2009
	A cross-cultural examination of the endorsement of ethical leadership	C. J. Resick, P. J. Hanges, M. W. Dickson, J. K. Mitchelson	63	4	2006
	Perceived integrity of transformational leaders in organisational settings	K. W. Parry, S. B. Proctor-Thomson	35	2	2002
Fair trade and labor	The fair trade movement: parameters, issues and future research	G. Moore	53	2	2004
	Impacts of corporate code of conduct on labor standards: a case study of Reebok's athletic footwear supplier factory in China	X. Yu	81	3	2008
	Fair trade: three key challenges for reaching the mainstream	A. Hira, J. Ferrie	63	2	2006
	What do corporations have to do with fair trade? Positive and normative analysis from a value chain perspective	D. Reed	86	S1	2009
	Embedding CSR values: the global footwear industry's evolving governance structure	S. Lim, J. Phillips	81	1	2008
Corporate governance	The ethics of leveraged management buyouts revisited	T. M. Jones, R. O. Hunt, III	10	11	1991
	The curious case of corporate tax avoidance: Is it socially irresponsible?	G. R. Dowling	124	1	2013
	Moral ethics v. tax ethics: the case of transfer pricing among multinational corporations	D. R. Hansen, R. L. Crosser, D. Laufer	11	9	1992
	The limits of shareholder value	P. Koslowski	27	2	2000
	The ethics of going private	D. A. Houston, J. S. Howe	6	7	1987

Topic	Article title	Authors	Vol.	Iss.	Year
National culture	The impact of national culture on software piracy	B. W. Husted	26	3	2000
	The morality of software piracy: a cross-cultural analysis	W. R. Swinyard, H. Rinne, A. K. Kau	9	8	1990
	Perceptions of country corruption: antecedents and outcomes	J. H. Davis, J. A. Ruhe	43	4	2003
	Determinants of bribery in international business: the cultural and economic factors	R. Sanyal	59	2	2005
	Attitudes towards business ethics: a five nation comparative study	R. L. Sims, A. E. Gegez	50	3	2004

Appendix 4: Topical Trend of Journal of Business Ethics and Business Ethics Quarterly

See Fig. 8.

Fig. 8 Comparing topic compositions of Journal of Business Ethics and Business Ethics Quarterly
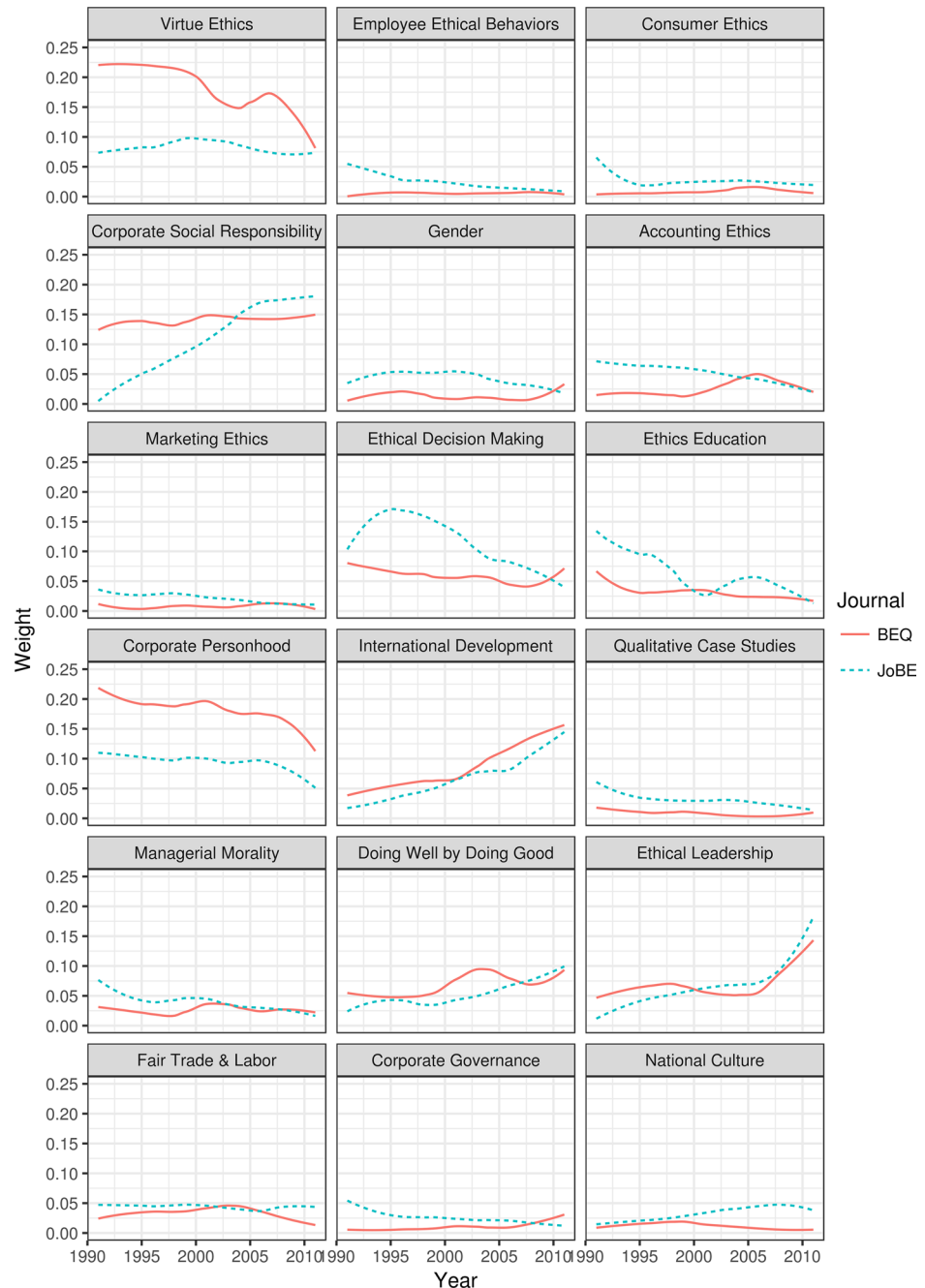
References

Albrecht, C., Thompson, J. A., Hoopes, J. L., & Rodrigo, P. (2010). Business ethics journal rankings as perceived by business ethics scholars. *Journal of Business Ethics, 95*(2), 227–237.

Arnold, D. G., Goodpaster, K. E., & Weaver, G. R. (2015). Past trends and future directions in business ethics and corporate responsibility scholarship. *Business Ethics Quarterly, 25*(4), v–xv.

Asuncion, A., Welling, M., Smyth, P., & Teh, Y. W. (2009, June). On smoothing and inference for topic models. In *Proceedings of the 25th conference on uncertainty in artificial intelligence* (pp. 27–34). AUAI Press.

Bach, F. R., Hoffman, M. D., & Blei, D. M. (2010). Online learning for latent dirichlet allocation. *Advances in Neural Information Processing Systems, 23*, 856–864.

Blei, D. M. (2012). Probabilistic topic models. *Communications of the ACM, 55*(4), 77–84.

Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent Dirichlet allocation. *Journal of Machine Learning Research, 3*, 993–1022.

Bloomberg Businessweek. (2012). *How is the intellectual capital score determined?* Retrieved from http://www.bloomberg.com/bw/articles/2012-03-19/faq-full-time-mba-rankings#p2. Accessed 20 Jan 2016.

Calabretta, G., Durisin, B., & Ogliengo, M. (2011). Uncovering the intellectual structure of research in business ethics: A journey through the history, the classics, and the pillars of journal of business ethics. *Journal of Business Ethics, 104,* 499–524.

Chadegani, A. A., Salehi, H., Yunus, M. M., Farhadi, H., Fooladi, M., Farhadi, M., et al. (2013). A comparison between two main academic literature collections: Web of science and scopus databases. *Asian Social Science, 9*(5), 18–26. https://doi.org/10.5539/ass.v9n5p18.

Chen, H., & Zhao, J. L. (2015). *IStopic: Understanding information systems research through topic models*. Retrieved from http://ssrn.com/abstract=2601719 or http://dx.doi.org/10.2139/ssrn.2601719. Accessed 5 Mar 2016.

Collins, D. (2000). The quest to improve the human condition: The first 1500 articles published in journal of business ethics. *Journal of Business Ethics, 26,* 1–73.

Craft, J. (2013). A review of the empirical ethical decision-making literature: 2004–2011. *Journal of Business Ethics, 117,* 221–259.

Culnan, M. J. (1987). Mapping the intellectual structure of MIS, 1980–1985: a co-citation analysis. *Management of Information System Quarterly, 11*(3), 341–353.

Ford, R. C., & Richardson, W. D. (1994). Ethical decision making: A review of the empirical literature. *Journal of Business Ethics, 13*(3), 205–221.

Gaski, J. (1999). Does marketing ethics really have anything to say?—A critical inventory of the literature. *Journal of Business Ethics, 18*(3), 315–334.

Gautier, A., & Pache, A. (2015). Research on corporate philanthropy: A review and assessment. *Journal of Business Ethics, 126,* 343–369.

Gini, C. (1909). Concentration and dependency ratios (in Italian). *English translation in Rivista di Politica Economica, 87*(1997), 769–789.

Griffin, J. J., & Mahon, J. F. (1997). The corporate social performance and corporate financial performance debate twenty-five years of incomparable research. *Business and Society, 36*(1), 5–31.

Griffiths, T. L., & Steyvers, M. (2004). Finding scientific topics. *Proceedings of the National Academy of Science, 101,* 5228–5235.

Kaplan, S., & Vakili, K. (2015). The double-edged sword of recombination in breakthrough innovation. *Strategic Management Journal, 36,* 1435–1457.

Lehnert, K., Park, Y., & Singh, N. (2015). Research note & update on J. L. craft review of the empirical ethical decision making literature—Boundary conditions & extensions. *Journal of Business Ethics, 129*(1), 195–219.

Liket, K., & Simaens, A. (2015). Battling the devolution in the research on corporate philanthropy. *Journal of Business Ethics, 126,* 285–308.

Lock, I., & Seele, P. (2015). Quantitative content analysis as a method for business ethics research. *Business Ethics: A European Review, 24*(S1), S24–S40.

Loe, T., Ferrell, L., & Mansfield, P. (2000). A review of empirical studies assessing ethical decision making in business. *Journal of Business Ethics, 25,* 185–204.

Ma, Z. (2009). The status of contemporary business ethics research: present and future. *Journal of Business Ethics, 90,* 255–265.

Ma, Z., Liang, D., Yu, K., & Lee, Y. (2012). Most cited business ethics publications: Mapping the intellectual structure of business ethics studies in 2001–2008. *Business Ethics: A European Review, 21*(3), 286–297.

Malik, M. (2015). Value-enhancing capabilities of CSR: a brief review of contemporary literature. *Journal of Business Ethics, 127,* 419–438.

Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly, 48*(2), 268–305.

McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: Correlation or misspecification? *Strategic Management Journal, 21,* 603–609.

Michalos, A. C., & Poff, D. C. (2013). Introduction. In A. C. Michalos & D. C. Poff (eds), *Citation Classics from the Journal of Business Ethics, Advances in Business Ethics Research 2*. https://doi.org/10.1007/978-94-007-4126-3_1.

O'Fallon, M., & Butterfield, K. (2005). A review of the empirical ethical decision-making literature: 1996-2003. *Journal of Business Ethics, 59*(4), 375–413.

Paul, K. (2004). Business and society and business ethics journals: A citation and impact analysis. *Journal of Scholarly publishing, 35*(2), 103–117.

Rehurek, R., & Sojka, P. (2010). Software framework for topic modelling with large corpora. In *Proceedings of the LREC 2010 workshop on new challenges for NLP frameworks*.

Robertson, D. C. (1993). Empiricism in business ethics: Suggested research directions. *Journal of Business Ethics, 12*(8), 585–599.

Sabrin, M. (2002). A ranking of the most productive business ethics scholars: A five-year study. *Journal of Business Ethics, 36*(4), 355–379.

Tahai, A., & Meyer, M. J. (1999). A revealed preference study of management journals' direct influences. *Strategic Management Journal, 20*(3), 279–296.

Taneja, S. S., Taneja, P. K., & Gupta, R. K. (2011). Researches in corporate social responsibility: A review of shifting focus, paradigms, and methodologies. *Journal of Business Ethics, 101*(3), 343–364.

Tenbrunsel, A. E., & Smith-Crowe, K. (2008). Ethical decision making: Where we've been and where we're going. *Academy of Management Annals, 2,* 545–607.

Thomson Reuters. (2014). *Web of science—Core collection*. Retrieved from http://thomsonreuters.com/content/dam/openweb/documents/pdf/scholarly-scientific-research/fact-sheet/web-of-science-core-collection.pdf.

Tsalikis, J., & Fritzsche, D. (1989). Business ethics: A literature review with a focus on marketing ethics. *Journal of Business Ethics, 8*(9), 695–743.

Tseng, H. C., Duan, C. H., Tung, H. L., & Kung, H. J. (2010). Modern business ethics research: Concepts, theories, and relationships. *Journal of Business Ethics, 91*(4), 587–597.

Van Beurden, P., & Gössling, T. (2008). The worth of values—A literature review on the relation between corporate social and financial performance. *Journal of Business Ethics, 82*(2), 407–424.

Van Noorden, R. (2015). Interdisciplinary research by the numbers, an analysis reveals the extent and impact of research that bridges disciplines. *Nature, 525,* 306–307.

Vieira, E. S., & Gomes, J. A. N. F. (2009). A comparison of Scopus and web of science for a typical university. *Scientometrics, 81*(2), 587–600. https://doi.org/10.1007/s11192-009-2178-0.

Vitell, S. J. (2003). Consumer ethics research: Review, synthesis and suggestions for the future. *Journal of Business Ethics, 43*(1/2), 33–47.

Wang, X., Bendle, N. T., Mai, F., & Cotte, J. (2015). The journal of consumer research at 40: A historical analysis. *Journal of Consumer Research, 42,* 5–8.

Warnick, B. J., Rodrigo, P., Albrecht, C. O., & Stephens, N. M. (2014). Individual scholar productivity rankings in business ethics research. *Innovar, 24*(54), 183–198.

Wicks, A. C., & Derry, R. (1996). An evaluation of journal quality: The perspective of business ethics researchers. *Business Ethics Quarterly, 6*(3), 359–371.

Xu, A. J., Loi, R., & Ngo, H. J. (2016). Ethical leadership behavior and employee justice perceptions: The mediating role of trust in organization. *Journal of Business Ethics, 134*(3), 493–504. https://doi.org/10.1007/s10551-014-2457-4.