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New Concepts, Expanding Audiences: What Highly Cited Texts Tell Us about Scholarly Knowledge in the Social Sciences

WHAT DOES THE FUTURE HOLD FOR SCHOLARLY KNOWLEDGE IN THE SOCIAL sciences? Some have argued that the social sciences will be marginalized in a future that focuses much more heavily even than our current era does on knowledge produced by the natural sciences and engineering. Others have argued that the future of the social sciences will lie in interdisciplinary work aimed at solving such problems as poverty and declining information literacy.

At a time when universities are becoming more centrally constitutive institutions of the "knowledge society" (Baker 2014), I would like to posit an alternative position, one that focuses on the role of social science in revealing hidden forces in social relations and social organization. Concepts such as "emotional intelligence," "social capital," "stakeholders," and "communities of practice" were, for example, developed by social scientists during the 1980s and 1990s and have entered into public discourse not only as modes of understanding but also as influences on social action and, more rarely, in the development of social structures. New concept development is

not the only contribution of important works in the social sciences—methods development and empirical tests of theory are among the others—but it is perhaps the most important way that social science contributes to public understanding.

This new way of thinking about the contributions of social science takes as a basic premise that highly cited work offers a more valuable window onto the contributions of social scientists than a random sample of publications could. By citing these works more often than any others, the social science community registers its understanding of what important work looks like.

No previous work has attempted a treatment of the content of highly cited social-science research across a range of disciplines. Instead, previous work has focused on the structural circumstances of individual disciplines (see, e.g., Fourcade, Ollion, and Algan 2014), coauthorship and cocitation patterns among members of a single disciplinary community (see, e.g., Mullins 1973), or patterns of citation of the work of particular social scientists (see, e.g., Abbott 2016; Ollion and Abbott 2016). Some have discerned discursive preferences from studies of interactions on review panels (Lamont 2009) or interdisciplinary study groups (Strober 2010). And of course, secondary studies of the contributions of influential social scientists are too numerous to cite. Each of these approaches has yielded valuable information about the social science disciplines, but in a more limited context of disciplinary (or individual) reference than that surveyed here and without the aid of content analysis to determine the substantive contributions of a large sample of the leading contributors across the social science disciplines.

STUDY POPULATION AND SOURCES

I conducted content analysis on the top 25 cited articles in five social science disciplines (anthropology, economics, political science, psychology, and sociology) and the top 50 cited books in the social sciences, including both basic and applied fields, for a total sample of 175 texts.[1] On its face, the choice to code the same number of arti-

cles in each discipline would seem clearly biased against the large disciplines of psychology and economics.[2] However, the goal of this study is not proportional representation; instead it is to grasp a sense of what leading scholars in these disciplines were thinking and writing about. The samples of articles and books do provide wide-enough apertures through which to gain perspective on the work each of these social science communities has most valued in the recent past.[3] Needless to say, however, conclusions from an analysis of 175 texts must be drawn with caution.

To chart the impact of scholarly articles and books requires that the works have had time to accumulate citations. Yet too wide a time span tells us little about the trajectory of the disciplines. I therefore concentrate on the most recent generation's work, papers and books published during the period 1980–2015.

For analysis of articles I use Web of Science (Wos), the most widely used source for journal publications (see, e.g., Javitz 2006; National Science Board 2016; Toutkoushian et al. 2003). Thomson Reuters indexes journals to the WoS based on specific criteria in an effort to include only high-quality, high-impact work. WoS currently features more than 12,000 high-impact journals across disciplines, as well as citation count information. WoS is a particularly valuable source because it features tools to automatically aggregate publications and citations by authors, disciplines, and institutions.

WoS is not an appropriate source for the analysis of books. Thomson Reuters only recently began to catalog books published in 2003 and thereafter. By contrast, Google Scholar catalogues a very extensive range of books written in English beginning in the nineteenth century (Green 2015).[4] I therefore rely on Google Scholar for my analysis of highly cited books. Google Scholar does not yet provide tools for automatically aggregating citations by authors, disciplines, and institutions. In this paper, analyses that require such aggregation are consequently limited to articles.[5]

CONTENT ANALYSIS

Conventions

I begin by categorizing the works by the genres into which they fit. In this context, genres can be defined as the recurrent, culturally legitimated rhetorical shapes in which the works' speech acts appear. I characterize the primary genres of highly cited articles as (1) methodological discovery and refinement, (2) concept development/application, (3) empirical tests of theory, (4) analysis/critique of key ideas or frameworks, and (5) new perspective on old issues. A different scheme is required for categorizing the genres of highly cited books. Here the primary frames consist of (1) concept development (as in the case of articles), (2) analyses of world-transforming phenomena, (3) treatises, and (4) sensitizing texts.

Topics largely reflect the traditional interests of the social science disciplines—for example, the interest of anthropologists in the origins of Homo sapiens and the interests of economists in understanding the sources of economic growth. Themes, or leitmotifs (as I will call them), are topics that generated highly cited work across the social science disciplines. During the 1980–2015 period, leitmotifs included articles and books that attempted to recast the neoclassical model of market behavior in more realistic terms and those that examined the bases of elevated human performance. While topics can be coded in a straightforward way from the articles and books themselves, the identification of leitmotifs is a more complex task and requires sensitivity to emerging concentrations of topical interests that cross-cut more than one of the social science disciplines.

Genres

Articles

Methodological contributions comprised nearly two-fifths of the articles. They dominated highly cited works in psychology and economics, accounting for more than 40 percent of the highly cited papers in each of the two disciplines. Economists were interested in estimation

of heteroskedastic and autoregressive panel data, and they showed great sensitivity to assumptions in conventional methodological practices that strained credibility, such as identification problems between variables in macroeconomic models and economic reality. Psychologists were more interested in developing or reviewing the performance of scales measuring constructs such as life satisfaction, anxiety, and stress. Fewer than half of the methods articles among the top 25 in psychology were about statistical estimation or testing. Methodological articles were the most important single category in two of the other three social science disciplines, although not by as wide a margin.[6]

The prevalence of methodological articles can be explained by occupational interests: first, social scientists want to be on firm ground in their work, and better methods allow them to be on firmer ground; second, like members of any other occupation, social science professionals are concerned about malpractice and therefore monitor the boundaries of malpractice, in part through methodological interventions; and, third, technical skills help to differentiate and elevate social science professionals from others, such as journalists, who also have insights on social science subject matter.

The remaining 60 percent of the articles took up substantive themes. One-fifth of the articles fit best into the category of concept development and application. Concept development articles carefully define a high-leverage concept and attempt to demonstrate their value using selected case or statistical data. *High-leverage concepts* promised to provide explanatory power across a range of social relations or organizational forms. A wide range of high-leverage concepts were developed during the period, including some that have become quite familiar in the social sciences, such as "institutional isomorphism" (the tendency of organizations to emulate dominant models in their fields in order to gain legitimacy) (DiMaggio and Powell 1983); "embeddedness" (the depth of involvement in dense network ties that yield social and economic benefits independent of market factors); "social capital" (the value of interpersonal ties) (Bourdieu 1990;

Coleman 1994; Putnam, Leonardi, and Nanetti 1994); and "transaction costs" (the costs associated with preventing the opportunism of agents in principal-agent relationships) (Williamson 1985). These articles defined the concept clearly and included *plausibility tests* of its utility. Plausibility tests do not attempt an exhaustive proof of the concept but rather select cases or conduct a single statistical study to illustrate the value of the concept. In rare cases, authors made more comprehensive efforts to prove the concept's (or the theory's) utility by reporting on a large number of relevant studies or experiments (see, e.g., Bandura 1986 on "self-efficacy," and Tversky and Kahneman 1992 on "prospect theory").

Another fifth of the articles can be characterized as empirical tests of theory. Empirical tests subject a single theory or competing theories to critical tests using well-designed observational or statistical data. One such test, for example, examined ethnic diversity as a source of armed conflict and discovered that conditions favoring guerrilla war, such as government instability and rugged terrain, provided a far better explanation (Fearon and Laitin 2003). Others in this category included, for example, articles by economists testing competing theories of economic growth (Barro 1991) and examining the role of debt as an instrument of control used by shareholders to constrain managers (Fama and Jensen 1983). They included also an article by an organizational sociologist comparing the effects of network and market relations for firm well-being in the apparel industry (Uzzi 1995) and another on the importance of worldwide changes in values associated with modernization relative to the continuing differentiating role of national religious and political ideologies (Inglehart and Baker 2000).

The largest portion of the remaining highly cited articles, constituting less than 15 percent of the total, either provided a deep analysis/critique of an important phenomenon or offered a new perspective on an old problem. Analysis/critique articles subject influential ideas or practices to a probing analysis for strengths and weaknesses. One of the analysis/critique articles, for example, critically evaluated

the premises and internal contradictions of "the new public management" ideology (Hood 1991). Another critiqued the idea of "hegemonic masculinity" by showing variations in forms of masculinity developing in advanced industrial societies (Connell and Messerschmidt 2005). New perspective articles examine familiar themes in a new way. The new perspective articles included, for example, one by the sociologists West and Zimmerman (1987) that examined the regulation of gender relations from the perspective of gender performances rather than through the familiar lenses of law or structural inequalities. Another in this category reexamined the nature of dictatorship through the prism of autocrats' economic interests (Olsen 1993).[7]

Books

Books that developed and applied high-leverage concepts were by some measure the most common, accounting for nearly 60 percent of the total, a much higher proportion than found for articles. Concept development books follow a discursive form similar to that of articles while often adding consideration of the historical or intellectual origins of the concept and including a wider variety of validity tests. The books in this category identified an element of interpersonal or social life previously unseen or incompletely analyzed, defined it clearly, and showed how the concept helped readers to understand the world better than they understood it before. In a few cases, social scientists extended article-length treatments of concepts into books. Examples include Putnam, Leonardi, and Nanetti's comprehensive treatment of declining social capital in *Making Democracy Work* (1994) and Bandura's elaboration of the causes and consequences of feelings of competence in *Self-Efficacy* (1997). Others brought to light previously hidden features of interpersonal or organizational life, defined them clearly, and showed how they helped readers to understand the world better than they understood it before. This description fits works such as Goleman's elaboration of the concept of emotional intelligence and Gilligan's approach to relational morality.

The eight books on world-changing transformations accounted for 16 percent of the top 50 list. These books typically discussed the origins of the phenomenon, the aspects of social relations the phenomenon has influenced, and the consequences of this influence. The transformations considered included the historical development of the institutional underpinnings of capitalist firms (North 1990), decisive moments in the history of sexuality (Foucault 1985), the rise of information technology and the transformations in social relations it has produced (Castells 1996), and the rise and decline of the (bourgeois) public sphere (Habermas 1991).

Treatises develop a new and comprehensive approach to understanding the interpersonal and/or organizational worlds and elaborate on the main concepts and principles behind the construction of this approach. I also classified eight books (16 percent) on the top 50 list as treatises. Bourdieu's *The Logic of Practice* (1990), for example, refined a praxeological approach to social relations, including the development of a distinctive vocabulary for making sense of the social world from this perspective. This vocabulary included such now-familiar terms as "forms of capital" (the economic, social, cultural, and symbolic resources individuals bring to interactions); "habitus" (the embodied dispositions that arise from individual's social positions); "reflexive monitoring" (ego's strategic adjustment to alter's moves); "fields" (the institutional arenas in which actors compete for place); and many others. Treatises included works by well-known figures such as Bandura (1986) on social psychology and social action; Coleman (1994) arguing for the rational action foundations of social theory; Giddens (1984) on the constitution of society; and Habermas (1981) on communications and social order. They also included works by authors who focused on smaller canvases, including management for stakeholders rather than shareholders (Freeman 1984), and the successful design and management of educational reforms (Fullan 1982).

Sensitizing texts bring to consciousness a hidden but important feature of mind or social life in an effort to sensitize readers to

its consequences for thought and action. These works do not focus on concept development or exposition, but rather on the potential distortions or biases created by the hidden forces they uncover. Lakoff and Johnson's (1980) work on the pervasiveness of metaphor in ordinary language, for example, laid out a large number of common metaphorical constructions, such as argument as warfare (as in "I attacked his findings"), and commented on the cognitive biases that different metaphorical constructions can create. Other texts in this category discussed the interpenetrations of cultural discourses and power relations (Foucault 1980), and the coproduction of science by funders and academics, emphasizing the salesmanship required of researchers to enact science (Latour 1987).

Such an overview provides only a limited context for understanding the contributions of these works. It is important therefore to emphasize the extent to which the books, like the articles, allowed readers to see phenomena that were previously invisible or, when visible, incompletely understood. Due to works by Lakoff and Johnson (1980) and Morgan (1986), readers had the opportunity to become sensitized to the pervasiveness of metaphors in the structure of human thinking and of the possibility that the metaphors we live by may also distort the way we think about the entities they describe. Morgan (1986) asked, for example, whether organizations are machines, organisms, brains, cultures, political systems, psychic systems, or instruments of domination—and how the choice of metaphor brings out distinctive qualities of organizations while repressing others. Gilligan (1982) showed that men tend to reason about morality in relation to abstract principles and women in relation to the preservation of valued relationships. The work offered an influential expansion of approaches to moral reasoning based on social analysis. Bourdieu (1984) described how taste cultures and the underlying feelings of recognition and superiority they animate are influenced by the distributions of cultural and economic capital held by the occupants of different classes and class fractions. Burt (1995) showed that those who provide a link between otherwise unconnected networks gain advan-

tages from bridging and brokering relations between those networks.

Table 1 provides an overview of the genre distribution of sampled works by discipline.

Primary Topics

Discipline-specific topics are another structuring feature of work in the social sciences. The topics of the articles clustered around long-standing interests of the disciplines. A high proportion of substantive articles in anthropology examined issues in human evolution. In economics, corporate control, returns on investment, and economic growth were among the primary topics. In political science, highly cited authors focused on governance forms, armed conflict, and policymaking. In psychology, cognition and mental health were frequent topics. Top cited articles in sociology covered many fields, but were most heavily concentrated on organizations/institutions, social networks, and culture.

The interests of the book writers were somewhat more wide-ranging. Both social capital (four entries) and institutional analysis (three entries) were frequent topics in books as well as articles. Apart from these areas of shared interest, the books shed new light on a very wide range of topics, in most cases highly connected to traditional disciplinary interests. These included, in psychology, the concepts of emotional intelligence, multiple intelligences, stress appraisal and coping, and differences in moral reasoning between men and women. In sociology they included the history of sexuality, cognitive processes involved in intergroup conflict, and how information technologies have reshaped economic geography, organizational structures, and social interaction. In anthropology, they included sense-making in organizations and an empirical examination of the value structures of cultures in different regions throughout the world. Table 2 provides an overview of the topics of highly cited books.

Table 1. Genres of Highly Cited Articles and Books

(n=26)1	Psychology (n=25)	Economics (n=25)2	Political Science (n=25)	Anthropology (n=25)2	Sociology (n=50)	Books
Methods	65%	56%	28%	28%	16%	—3
Conceptual Development	16%	16%	16%	16%	34%	58%
Empirical Test of Theory	16%	20%	26%	28%	16%	—
Analysis/ Critique of Key Idea	4%	4%	26%	12%	26%	—
New Perspective on Old Issue	—	4%	4%	16%	8%	—
Analysis of World- Changing Phenomenon	—	—	—	—	—	16%
Treatise	—	—	—	—	—	16%
Sensitizing Text	v	—	—	—	—	10%

Source: Author's calculations from Web of Science (articles only) and Google Scholar (books only).
The null hypothesis that disciplines are not significantly related to genres is rejected.
Chi value=26.7; Critical value=21.0.

Notes:
[1] One additional article included in psychology to offset high number of methodological articles among top 25 most highly cited works.
[2] One article in political science and one in sociology were classified as half in each of two categories, due to equal fit in both categories.
[3] Methods texts were excluded from the analysis as summaries of knowledge, rather than efforts to develop new knowledge.

Table 2. Selected Topics of Highly Cited Social Science Books, 1980–2015

Topic	Number	Author(s)
Organizational Learning	5	Etienne Wenger, Peter Senge, Ikujiro Nonaka/Hirotaka Takeuchi, Thomas H. Davenport/Lawrence Prusak, Karl E. Weick
General Social Theory	4	Albert Bandura, Anthony Giddens, James Coleman, Pierre Bourdieu
Cultural Analysis	4	Geert Hofstede (2), George Lakoff/Mark Johnson, Gareth Morgan
Social Capital/Networks/Trust	4	Robert Putnam (2), Robert Axelrod, Ronald Burt
Deep Learning	3	Jean Lave/Etienne Wenger, Donald A. Schon (2)
Institutional Analysis	3	Douglas North, Oliver Williamson, Gosta Esping-Andersen
Modernity	3	Anthony Giddens (2), Ulrich Beck
Strategic Management	3	Michael Porter (2), R. Edward Freeman
Future of the World Order	2	Samuel Huntington, Frances Fukuyama
Gender	2	Carol Gilligan, Patricia Hill Collins
Intelligence	2	Howard Gardner, Daniel Goleman
Power/Knowledge	2	Michel Foucault (2)
Communications	1	Jurgen Habermas
Economic Development	1	Amartya Sen
Educational Reform	1	Michael Fullan
Information Technology	1	Manuel Castells
Intergroup Relations	1	Henri Tajfels
Nationalism	1	Benedict Anderson
Public Sphere	1	Jurgen Habermas
Science	1	Bruno Latour
Sexuality	1	Michel Foucault
Stress and Coping	1	Richard Lazarus/Sarah Folkman
Taste/Status Cultures	1	Pierre Bourdieu

Leitmotifs

Challenges to neoclassical economic assumptions represented one leitmotif running through the highly cited articles during this period. Most generally, the bases for preferring markets, hierarchies, or social networks as coordinating mechanisms struck a chord among both sociologists and institutional economists during the period, suggesting the possibility of a synthesis in the future. The idea of network embeddedness, developed by Granovetter (1985), allowed sociologists to supplement economists' preference for markets as efficient coordinating mechanisms with realistic observations about human behavior under specific environmental conditions. The transaction cost analysis of Williamson (1985) leads to different preferences for hierarchy or markets depending on the cost of controlling the opportunism of agents in principal-agent relationships. At a microlevel, the prospect theory of the social psychologists Tversky and Kahnemann (1992) challenged the notion that a simple calculus of benefits and costs explains choice decisions under varying probabilities of success and varying stakes. The political scientist Axelrod (1984) demonstrated that cooperative strategies optimized gains in potentially competitive two-person game situations. The economists Fehr and Schmidt (1999) modeled the influence on outcomes of interactions under varying game conditions when a fraction of the participants in the games value fairness in addition to rational self-interest.

Another leitmotif concerned the conditions for elevated human performance, whether at the individual or the collective level. At the individual level, the "self-determination" theory of Ryan and Deci (2000) and the "self-efficacy" concept of Bandura (1982) were prominent explanations for elevated performance. Ryan and Deci's (2000) work emphasized human preferences for autonomy (choice), competence, and relatedness and how environments that affect these preferences can create higher levels of self-direction and effectiveness. Bandura's (1982) work focused on how confidence and resilience can be improved through structured activities that increase a person's sense of self-efficacy. At the collective level, the focus of political

scientists and sociologists on the elevation of organizational performance through bonds of trust, cooperation, and social capital played an analogous role, as exemplified in the work of Granovetter (1985), Ostrom (1998), Putnam (1995), and Uzzi (1993). Isolation and disorganization stood as complementary negative cases that also attracted attention, as in the cases of Putnam's (2007) "declining community social capital" and Sampson and Groves's (1989) studies of crime and "community social disorganization."

The books were marked by a different set of crosscutting themes. These included efforts by several authors to excavate underneath easy generalizations about the "knowledge economy" and "knowledge workers" to understand what exactly knowledge consists of and how it can be produced by professions and organizations. This objective is central in Shoen's (1983) work on the reflective practitioner with its emphases on experience, reflection on practice, and confrontation with doubt as keys to growth in professional judgment. We see it also in Davenport and Prusak's (1998) careful differentiation of data, information, and knowledge and their sensitivity to the problems organizations face when they mistake one for another. It underlies Nonaka and Takeuchi's (1995) study of the methods Japanese business organizations use to bring tacit knowledge to light and subsequently to transform it into explicit knowledge that can be used by all.[8] And it is the basis of communities of practice, the optimizing social structure for learning identified by Wenger (1998). These communities are defined as requiring the shared commitments of participants to a domain of interest and the shared competence that defines success in it; the community building relationships that enable members to learn from one another; and committed practice through sustained interaction oriented to improvement in skills.

Another leitmotif running through both books and articles concerned the prominence of cognitive and culturalist approaches to understanding social relations. Several highly cited psychologists brought cognition to the forefront of behavior and interpersonal relations, as in Lazarus and Folkman's (1984) definition of stress as an

environmental stimulus appraised as beyond a person's powers to manage or Tajfel's (1981) work on the cognitive processes involved in identity formation and the construction of group oppositions. Those in anthropology, linguistics, and sociology focused, by contrast, on cultural formations. The work of Lakoff and Johnson (1980) and Morgan (1986) showed the extent to which cognition is pervaded by metaphors and the ways that metaphors can distort cognition. Hofstede's ([1983] 2003) work identified six global cultural dimensions (individualism/collectivism, uncertainty avoidance/risk tolerance, strength of social hierarchy, task/person orientation, long-term/short-term horizon, and indulgence/self-restraint) and used cross-national data from the World Values Survey and other sources to validate the typology. Bourdieu (1984) and Foucault (1980) drew readers' attention to the inseparability of dominant cultural discourses and power locations in society.

ENVIRONMENTAL INFLUENCES

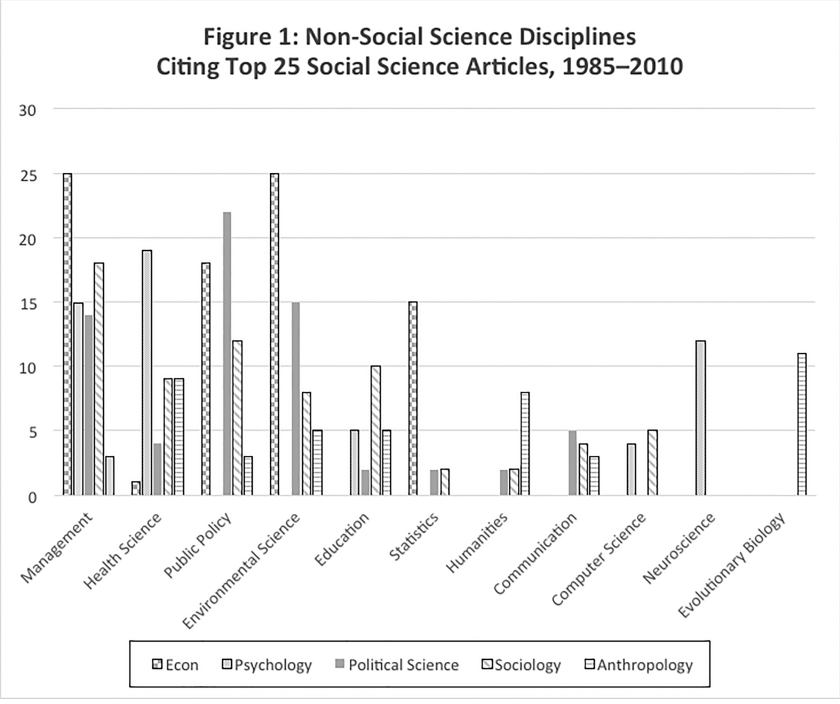
I have identified established genres, discipline-specific topical interests, and period-relevant thematic waves as cognitive structures that underlie the distinctive forms of contribution made by leading social scientists. These underlying cognitive structures filter environmental influences and create obstacles for influences that seem capable of disrupting the social sciences. With this context in mind, I discuss five environmental forces that I have identified as having the potential to influence the content and/or impact of social science inquiry in the future. Both the content analyses and my previous work on trends in university organization (see, e.g., Brint 2005; Brint and Clotfelter 2016) inform my assessment of the likely impact of the following environmental influences: (1) the size and citation practices of scholars in neighboring disciplines; (2) the expansion of research capacity in industrialized countries outside the United States; (3) the incorporation of once-marginalized groups into the core of research universities; (4) initiatives to reorganize larger parts of universities around interdisciplinary research groups; and (5) the rise of performance auditing.

External Disciplinary Audiences

Citing disciplines are already major influences on the development of the social sciences. In Figure 1, I show the citing disciplines for the top 25 articles in each of the five social science disciplines studied. This figure is based on an examination of the top 10 citing disciplines for each of 25 articles in each of the five disciplines. The bars in Figure 1 cumulate the number of times a discipline appears among the top 10 citing disciplines for the 25 most highly cited articles during the period in each discipline. Thus, the bars represent frequency counts where 25 is the highest possible count. The prominent role of two applied social-science disciplines emerges clearly: management (through its citation ties to economics, political science, psychology, and sociology) and public administration/public policy (through its citation ties to economics, political science, and sociology). Scholars in two natural science fields, healthcare sciences and services (through its ties to psychology and sociology) and environmental science (through its ties to economics, political science, and sociology), also emerged as major audiences for highly cited articles.

The significance of neighboring disciplines should not be underestimated. In some highly cited articles in both economics and sociology, management scholars were responsible for the largest number of citations. Given the influence of management scholarship and its application to concrete organizational problems, it is not surprising that topics of interest to management scholars, such as corporate control, organizational learning, and the role of social networks in economic performance, achieve a prominence that they would not have achieved if citations were gathered solely from scholars in the author(s)' own disciplines.

Education may grow into a similarly large audience for social science research based on the size of the field and its current citation ties to psychology and sociology. Yet connections between education and social science remain limited for the time being; educational researchers focus on teachers' beliefs and practices and their consequences for learning, and they have not shown as much interest



in the larger contexts of learning. Other citing disciplines present equally significant but as yet not fully realized opportunities for influence (and mutual influence). An overview of top 25 articles in communications indicates that narrative framing, social cognition, trust, and public opinion are among the social science topics that have influenced communication researchers in recent years. Humanists have taken a strong interest in writers, such as Bourdieu and Foucault, who link cultural discourses to power relations (*Times Higher Education* 2009). But they have shown little interest in the work of economists, psychologists, or other social scientists who employ quantitative methods. As shown in Figure 1, other ties between the social sciences and neighboring disciplines are more narrowly focused. Statisticians have drawn more or less exclusively on econometric research. Neuroscientists have close links only to psychologists working on cognition

and perception. Evolutionary biologists have maintained strong citation ties to physical anthropologies but to no others.

Globalization of the Research Community

The scientific research community is slowly moving away from its anchorage in the United States and the English-speaking world. The American share of top cited papers has steadily declined since the 1970s, with shifts in market share favoring Western Europe, Australia, and East Asia, particularly China and Japan (Javitz 2006; King 2004). The most recent *Times Higher Education* rankings show that more than half of the top 100 ranked universities are non-US, with Britain and Europe accounting for nearly 40 percent, and Australia and East Asia accounting for another 16 percent (*Times Higher Education* 2016).

Change has been slower in the social sciences than the natural sciences, due to the heavy investment of world universities in the natural sciences, biomedicine, and engineering (see, e.g., Xie, Zhang, and Lai 2014). The highly cited articles analyzed in this paper remain largely a province of American writers, with economics the only one of the basic social-science disciplines to show a notably international profile. However, the production of highly cited books has already become a more internationalized domain. Half of the authors of top 50 cited books were North Americans by origin and schooling; the other half were born and educated outside the United States.

Based on these trends in world production of research, it is very likely that the future of scholarly production in the social sciences will be more international than it has been in the past. We have seen the beginnings of such contributions already in articles like Inglehart and Baker's globally inclusive "Modernization, Cultural Change, and the Persistence of Traditional Values" (2000), and books like Hofstede's globally inclusive *Culture's Consequences* ([1983] 2003), as well as works based outside the United States but with the United States at least partly in mind, such as Putnam's *Making Democracy Work* (1994), a study of regional governance in Italy; and Nonaka and Takeuchi's *The Knowledge-Creating Company* (1995), a study of Japanese corporations.

Globalization alone will not automatically lead to a more representative global distribution of highly cited social scientists. The dominant discursive frames in social science have been heavily influenced by sciences' drive for new discoveries. They also reflect the influence of Aristotelian orders and Humean empirics, as indicated by the prominence of high-leverage concepts and empirical tests of theory. So long as these originally Western social-science genres remain dominant, non-Western scholars will have incentive to adapt to them.

Demographic Change in American Universities

Since the late 1960s, civil rights advocates have fought for the idea that the voices of once-marginalized groups should become more central to the curriculum and to the research of scholars in the humanities and social sciences (see, e.g., Gates 1992). By the 1980s the evidence was in that the undergraduate curriculum in the humanities and social sciences had indeed shown a greater sensitivity to the experiences of women, minorities, and people from non-Western cultures (Levine and Cureton 1992). Universities also began more determined efforts to increase the diversity of their faculties at this time, achieving considerable success with gender diversification and much less success with racial-ethnic diversification (NCES 2014: tables 315.10 and 315.20).

Demographic changes in the academy have not as yet strongly influenced highly cited social-science research. Race was not a major interest of highly cited scholars (five articles on immigration and ethnicity, but only one on race per se), and gender was a topic of only a little more frequent focus (three articles, all in sociology). These distributions were presumably influenced by the demographic characteristics of the authors of highly cited work. The female proportion ranged from two percent (in economics) to 26 percent (in anthropology), and only a small fraction, fewer than five percent, of the authors of highly cited articles and books were members of underrepresented minority groups.[9]

As in the case of non-Western scholars, the breakthroughs of women and minority scholars in US research universities will depend not only on their growing numerical representation but also on their adaptation to the discursive frames that underlie highly cited social-science research—or their ability to mount effective critiques of those frames. Because social scientists search for new discoveries, highly cited articles tend to reorient or critically examine conventional views of social reality rather than reinforce them—witness Connell's and Messerschmidt's (2005) critique of the concept of "hegemonic masculinity" and Jablonski and Chaplin's (2000) debunking of skin color as a defining characteristic of human populations. They also tend to identify meaningful differences within disadvantaged communities rather than treating these communities as experiencing a common fate, as in Sampson and Groves' (1989) treatment of "community social disorganization" as the decisive factor in outcomes others have associated with the more general phenomenon of racial segregation.[10]

Interdisciplinary Structures

Interdisciplinary initiatives and cluster hiring plans are an important feature of contemporary university life (Crow and Dabars 2015; Jacobs 2013). The intent of these initiatives is to create critical mass in areas that have the prospect of advancing the universities' stature or funding opportunities. Very often these interdisciplinary initiatives are justified as contributing to the solution of "grand challenges," such as deceleration of climate change, mapping of the brain, or reduction of global poverty. Advocates of interdisciplinary organization criticize departmental structures, fairly or not, for the barriers they put up to the free flow of knowledge (Jacobs 2013).

The research reported here provides little support for the idea that interdisciplinary initiatives have had a decisive influence on the production of highly cited social-science articles and books. Although many of the scholars represented have worked in interdisciplinary contexts, not a single interdisciplinary team showed up as the fount

of the highly cited work analyzed here. Instead, highly cited work in the social sciences has been designed and written by a single author or by two or three close collaborators. The broader community participates in the production of this work through feedback at conferences, colloquia, and seminars. Other features of the production environment are more important. Authors who produce impactful work are disproportionately located at the most prestigious universities,[11] suggesting that a stimulating environment of other highly productive scientists and scholars is important for the production of impactful work. These are environments where expectations are high and scholars have the skill, the resources, and the freedom to meet high expectations.

Performance Auditing

Until the late 1990s, efforts to compare citation counts of individual authors or whole fields were time consuming and rare. The development of metrics for comparison is also relatively new. Many observers think they will have a profound effect on the future of social science output, and most do not think this effect will be positive (see, e.g., Tuchman 2009). The acronym LPU, for least publishable unit, has been used by natural scientists since the early 1980s (see Broad 1981) and, insofar as promotion committees reward the quantity of production, the LPU philosophy is inevitably an influence on how scholars present their work. In the social sciences, as in other disciplines, the LPU phenomenon is very common. Most articles and books have few, if any, readers, and most observers would likely agree that it would be much better if academics had incentives to publish one excellent article rather than three that are of marginal importance.[12]

To the extent that accountability measures have become a force in the social science disciplines, they have more likely hastened impactful work than impeded it. Universities and individual academics are not motivated solely, or decisively, by the quantity of their production. The leading social scientists want to have an impact. One presumes that in most cases, high citation counts are a byproduct of

scholars' interests in discovery and perhaps also fame. High-impact work brings with it opportunities to obtain grants, to place graduate students, and to move to higher-ranked departments and universities. Metrics used to measure impact, such as citation counts, journal impact factors, and H-indices, reinforce these motivations by incentivizing a focus on the production of highly cited work, rather than merely voluminous work. For these reasons the "audit culture" of universities (Tuchman 2009) should logically contribute to increasing the impact of social science research and not just encourage more of it.

Table 3 provides a summary of the assessed impacts of the five environmental forces considered here.

CONCLUSION

Many university leaders and policymakers believe that the role of the social sciences is to put the spotlight on societal problems and identify solutions to these problems. This belief does not correspond to the primary contributions of the authors of highly cited work. It is true that some writers expect that the concepts they have developed will lead to improvements in social relations or organizational performance; the work of Bandura (1982, 1994) on "self-efficacy," Goleman (1996) on "emotional intelligence," Burt (1995) on "structural holes," Putnam (1995, 2007) on "bridging social capital," and Wenger (1998) on "communities of practice" are notable examples. But the primary goal for many highly cited article writers and most highly cited book writers appears to have been to illuminate features of social reality that have not previously been visible or, if visible, not well understood.[13]

The social sciences are structured by adherence to long-established generic conventions, traditional disciplinary interests, and the emergence of thematic waves that crosscut the disciplines. Genres provide a deep form of knowledge structuration in the social sciences. While the development of methodological refinements, high-leverage concepts, and empirical tests of theory are likely to remain

Table 3. Assessment of Potential Environmental Impacts

Influence	Assessed Impact in Future
Neighboring Disciplines	
Management	High, except in Anthropology
Public Admin./Public Policy	High, in Economics, Sociology, Political Science
Environmental Science	High, except in Anthropology
Health Care	High, especially in Psychology and Sociology
Education	Moderate, but growing in Psychology and Sociology
Communication	Moderate, except in Economics and Anthropology
Humanities	Limited
Globalization	High in book production, growing in article production; Contingent on adaptation to dominant cognitive frames
New University Demographics	Contingent on adaptation to dominant discursive frames, but higher
Interdisciplinary Structures	Minimal
Performance Auditing	Limited, and positive

at the heart of the intellectual achievement of the social sciences in the future, as they are today, consideration of the future should also examine features of the environment surrounding the disciplines. The size and interests of neighboring academic fields are important features of this environment. Management and public policy scholars are already important consumers of social science research, as are health and environmental researchers. Other disciplines, with more specialized ties, could easily become more important consumers in the future. The continued proliferation of new consumers of research in neighboring disciplines should contribute to the social sciences' continuing health and expanding reach over the next several decades, and influence the topics of work that command large numbers of citations.

Other features of the changing university environment have not yet struck close enough to the intellectual objectives of highly cit-

ed social scientists to leave a profound mark on their work. Because the discursive frames of social science are regulatory, I see no obvious reasons to expect that any of the new university priorities—whether arising from globalization, demographic transformation, interdisciplinary reorganization, or performance auditing—will, as a matter of course, reshape the future of scholarly knowledge in the social sciences. However, we can expect high-quality studies coming from a broader range of national societies, a phenomenon that is already very evident in the natural sciences (National Science Board 2016).

This paper provides evidence that the social sciences thrive when they generate concepts, tests of theory, or analyses of world-changing phenomena that create new and productive ways of thinking about the world, ways that are not so esoteric or abstruse as to exclude nonspecialists. This altered consciousness becomes influential in the world when it begins to shape social action and social expectations and, through these means, in rarer cases, the construction of new or reoriented social structures.

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NOTES

1. Some complications also arise in determining whether or not an author is a social scientist. I have followed Green's (2015) approach by limiting selection to authors who either have received their doctoral degree in a social science field or who have taught in a social science faculty, including an applied social science faculty.

2. During the period, psychologists published more than 1.1 million articles; economists published more than 650,000 articles; political scientists more than 450,000 articles; sociologists more than 250,000 articles; and anthropologists more than 185,000 articles.
3. In Supplemental Table 1, I provide a list of the top 25 highly cited articles in the five social science disciplines coded as of September 2016. In Supplemental Table 2, I provide a list of the top 50 highly cited books in the social sciences as of the same date. All supplemental tables accompanying this article are available online at **[www.socres.org/TK].**
4. These discrepancies are based on two primary factors: (1) the focus of WoS on only high-impact journals, most of which are published in English, and (2) the collection of citations from books as well as articles in Google Scholar. Moreover, the amount of inflation in citation counts varies quite a bit by field, according to work by Meho (2007), Yang and Meho (2006), and others. The coverage of the two sources does not completely overlap, making it impossible to convert citations in one to citations in the other.
5. Based on an analysis of citations in several disciplines in engineering and physical science, Meho (2007) has estimated that citation counts can be as much as 160 percent higher in Google Scholar than in WoS. Because I am interested in the content of highly cited work, rather than exact counts of citations, my reliance on two different sources for purposes of identifying highly cited work does not create serious difficulties for the analysis. However, it is important to keep in mind that an analysis that used Google Scholar only would lead to a somewhat different roster of top 25 most highly cited articles, because citation counts would also come from books.
6. I provide an overview of topics addressed in the top 25 articles in each of the five social science disciplines in Supplemental Table 3.
7. Based on the chi-square test, the null hypothesis that discursive frames do not vary significantly by discipline can be rejected. The rejection of the null is driven most clearly by the high proportion of methods articles in psychology, the high proportion of concept devel-

opment articles in sociology, the high proportion of articles analyzing and critiquing key ideas in sociology and political science, and the low proportion of these latter types of articles in psychology (see table 2).

8. A famous example from this book concerns one manager's observation of a master baker kneading bread and the adaptation of the motions observed into a machine for kneading bread.
9. The proportion of women associate or full professors is now slightly over one-third of the total, and African American and Hispanic scholars make up fewer than 10 percent of associate and full professors (NCES 2014: table 315.20).
10. Patricia Hill Collins's highly cited *Black Feminist Thought* (2000) represents a case that both challenges and supports this assessment. In addition to emphasizing the distinctive set of inequalities experienced by black women arising from the joint influence of racial and gender inequalities, Collins also introduces the high-leverage concept of "insider-outsider" status associated with black women's close association to white families as domestic servants combined with their close association with black communities in other circles.
11. The proportion of authors located in top 60 research institutions, as identified by the Association of American Universities, ranged from 84 percent (in political science) to 44 percent (in anthropology), with distributions in economics, psychology, and sociology much closer to political science than to anthropology.
12. The journal impact factor, a measure of the prominence of journals, was developed in the late 1970s, but papers using it were not common until the mid-1990s (Archambault and Larriviere 2009). Citation counting for individual authors goes back to the 1970s (Cole and Cole 1973), but did not become widespread until new tools that automated citation counting appeared in the early 2000s (Quint 2007; Thomson Reuters n.d.). The H-index, an important contemporary measure of scientific productivity, dates from 2005 (Hirsch 2005).
13. Needless to say, this Aristotelian predisposition can obscure as much as it illuminates, as when memorable concepts oversimplify complex

realities or when they form normalizing mental pathways that bypass uncomfortable features of social life.

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