

Disciplinary Legal Empiricism

Lynn M. LoPucki

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DISCIPLINARY LEGAL EMPIRICISM

LYNN M. LOPUCKI*

ABSTRACT

This Article reports on an empirical study of one hundred and twenty empirical legal studies published in leading, non-peer-reviewed law reviews and in the peer-reviewed Journal of Empirical Legal Studies. The study is the first to compare studies by disciplinary empiricists—defined as Ph.D. holders—with those by non-disciplinary empiricists—defined as J.D. holders who are not also Ph.D. holders.

The study identifies three differences between disciplinary and non-disciplinary legal empiricism that are relevant to law school faculty hiring decisions. First, because disciplinary empiricists are more likely to collaborate with other disciplinary empiricists, hiring disciplinary empiricists will increase the quantity of legal empiricism only modestly. That finding is in tension with the claim that, through collaboration, Ph.D.s hired on law faculties will enable their non-Ph.D.s colleagues to become empiricists.

The second relevant difference is that non-disciplinary empiricists focus their studies more directly on legal issues and materials. The third difference is that non-disciplinary legal empiricists are twice as likely as disciplinary empiricists to create new datasets and to engage with legal source materials. Disciplinary empiricists are more likely to conduct statistical analyses of pre-existing datasets. These findings suggest that disciplinary legal empiricism is not as effective as non-disciplinary legal empiricism in exploring legal source materials and preparing tenure-track law faculty to prepare students for the practice of law. Instead, disciplinary legal empiricism may further remove the tenure-track faculty from the reality of legal practice.

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INTRODUCTION

In their landmark attack on law review empiricism,¹ social science empiricists Lee Epstein and Gary King claimed to have found that every one of the 231 empirical studies they reviewed violated social science “rules of inference.”² They concluded that “the current state of empirical legal scholarship is deeply flawed”³ and proposed reforms designed to make law review empiricism more like social science empiricism.⁴ They did not, however, explain their methodology sufficiently to support replication⁵ or include a control group of social science empiricism. The latter prevented them from

1. Lee Epstein & Gary King, *The Rules of Inference*, 69 U. CHI. L. REV. 1, 6, 15 (2002).

2. *Id.* at 6, 15.

3. *Id.* at 6 (emphasis omitted).

4. *Id.* at 116–33.

5. Richard L. Revesz, *A Defense of Empirical Legal Scholarship*, 69 U. CHI. L. REV. 169, 186 (2002) (“[B]ecause Epstein and King never explain how they define the universe of works that they evaluate, their study suffers from the same types of replication problems that they attribute to legal scholarship: other researchers would simply not know what works Epstein and King considered.”).

comparing law review and social science empiricism, leaving the actual differences between the two kinds of empiricism unexplored.

This Article reports the findings of the first empirical study of the differences between disciplinary legal empiricism—defined as empiricism produced by holders of Ph.D. degrees—and nondisciplinary legal empiricism.⁶ The study is of 120 empirical legal studies published in the leading non-peer-reviewed law reviews and in the leading peer-reviewed *Journal of Empirical Legal Studies* (“*JELS*”). The initial purpose of the study was to identify and quantify differences between law review and peer-reviewed empiricism.

During the study, I discovered that whether the researchers had been trained in a Ph.D. program had even greater explanatory power than the type of journal in which the research was published. My most important findings are that Ph.D.s, including J.D.-Ph.D.s, prefer to collaborate with other Ph.D.s than with the holders of only law degrees,⁷ that Ph.D.s use different data sources than non-Ph.D.s to study different questions,⁸ and that Ph.D.s are less likely than non-Ph.D.s to create their own datasets.⁹

This Article is the last of three in which I report on a series of empirical studies of the relationship between law schools and Ph.D.-granting disciplines. Based in part on the findings in the study reported here, I argued in *Disciplining Legal Scholarship*¹⁰ that the hiring of large numbers of social scientists on law faculties—principally economists and political scientists—is impeding the empirical study of legal practice. Social scientists employ their own disciplines’ methods to study their own disciplines’ traditional data sources and answer their own disciplines’ questions. As a result, they largely replicate the work in their own disciplines while leaving legal practice relatively unstudied. By imposing their disciplines’ rules on nondisciplinary legal empiricists—through tenure, hiring, and peer review—social scientists on law faculties discourage the nondisciplinary study of legal practice.

In the second article, *Dawn of the Discipline-Based Law Faculty*,¹¹ I presented empirical evidence on the massive shift in law school hiring practices that is fundamentally changing the nature of legal education.¹² Law schools, at all levels of the hierarchy, are rapidly increasing the rate at which

6. I have adopted this terminology for convenience. Whether law is a discipline is a matter of some dispute. See, e.g., ERNEST J. WEINRIB, CORRECTIVE JUSTICE 324 (2012) (“Law, however, is regarded not as a discipline in its own right with something of its own to contribute to the interdisciplinary enterprise, but merely as a context for projects from other disciplines.”). That dispute is beyond the scope of this Article.

7. See *infra* Part III.A.

8. See *infra* Part III.C–D.

9. See *infra* Part III.C–D.

10. Lynn M. LoPucki, *Disciplining Legal Scholarship*, 90 TUL. L. REV. 1 (2015).

11. Lynn M. LoPucki, *Dawn of the Discipline-Based Law Faculty*, 65 J. LEGAL EDUC. 506 (2016).

12. *Id.*; see also Justin McCrary et al., *The Ph.D. Rises in American Law Schools, 1960–2011: What Does it Mean for Legal Education?*, 65 J. LEGAL EDUC. 543, 557–58 (2016).

they are hiring Ph.D.s. The J.D.-Ph.D.s being hired by top-twenty-six law faculties have sharply lower levels of experience in the practice of law than the non-Ph.D.s being hired by those faculties.¹³

The study reported in this Article explored the effects of disciplinary training on the types of empirical legal scholarship produced. The study revealed four categories of differences associated with the presence and concentrations of Ph.D.s among the authors of an empirical study. First, although Ph.D.s collaborate more than faculty holding only law degrees (“J.D.-only professors”), Ph.D.s, including J.D.-Ph.D.s, exhibit a preference for collaboration with other Ph.D.s over collaboration with J.D.-only professors.¹⁴ That preference is important because it is in conflict with the principal justification for law school Ph.D. and J.D.-Ph.D. hiring. The justification is that hiring even small proportions of Ph.D.s will generate large proportions of empiricism, because the Ph.D.s will collaborate with J.D.-only professors to enable the latter to produce empiricism.¹⁵ Because of the preference, however, massive Ph.D. hiring is actually producing only moderate increases in legal empiricism.¹⁶

Because Ph.D.s and J.D.-Ph.D.s have greater methodological expertise and J.D.s have greater legal expertise, the Ph.D.s’ choice of collaborators also suggests that the Ph.D.s see more need for additional methodological expertise than for legal expertise. This observation supports the argument I made in *Disciplining Legal Scholarship* that disciplinary legal empiricism is undergoing a competitive and unproductive escalation of its methodological sophistication.¹⁷

Second, nearly two-thirds of the empirical studies I examined had at least one author who held a Ph.D.¹⁸ The proportion was much higher in the peer-reviewed *JELS* (85%) than in the law reviews (55%). It appears that the standard for acceptance of legal empiricism at *JELS* makes Ph.D. training almost a necessity. It also appears that standard does not value legal training as highly. Thirty-five percent of the *JELS* articles had no author who held a

13. LoPucki, *supra* note 11, at 522 tbl.6 (showing that 57% percent of J.D.-Ph.D.s hired from 2011 through 2015 had no practice experience); *id.* at 523 tbl.7 (showing that J.D.-Ph.D.s hired from 2011 through 2015 had, on average, 0.9 years of practice experience, compared with 3.6 years for J.D.-only hires during that period).

14. *See infra* Part III.A.

15. *E.g.*, Jeffrey J. Rachlinski, *Evidence-Based Law*, 96 CORNELL L. REV. 901, 908 (2011) (arguing that because “[s]ocial scientists, by nature, collaborate[,] . . . [they] are thus apt to spread their methods among the faculties that they join”).

16. LoPucki, *supra* note 10, at 26–30.

17. *Id.* (discussing the escalation of method in legal empiricism); *see also* Tom Ginsburg & Thomas J. Miles, *Empiricism and the Rising Incidence of Coauthorship in Law*, 2011 U. ILL. L. REV. 1785, 1787 (“Strikingly, the data shows that the share of nontechnical articles in [the *Journal of Legal Studies* and the *Journal of Law, Economics and Organization*] has plummeted since 1989. With the expansion of empiricism and formal modeling in these journals, coauthorship has risen substantially.”).

18. *See infra* tbl.9.

law degree. From those two findings, I conclude that the peer-reviewed journals that many disciplinary legal empiricists would substitute for the law reviews¹⁹ would also tend to value methodological sophistication over legal expertise.

Third, Ph.D. empiricism differs from J.D. empiricism in the sources from which the scholars obtain their data.²⁰ J.D. empiricists tend to draw from published sources—principally court opinions on Lexis and Westlaw. Ph.D. empiricists are more likely to obtain their data from prior research, survey, or experiment. The experiments Ph.D.s conducted were often more relevant to the Ph.D.s' home disciplines than to law. Thus, in conducting their research, the J.D.-only empiricists tended to read cases, while the Ph.D. empiricists analyzed existing data and worked with research subjects. Again, the J.D.-only empiricists reinforce their legal knowledge, while the Ph.D.s reinforce their methodological expertise.

Fourth, Ph.D.s were only about half as likely as J.D.-only professors to create new datasets.²¹ “Coding” is the process by which researchers create datasets. The researchers categorize empirical observations and usually convert them into numbers for statistical analysis. When Ph.D.s coded, they were more likely than J.D.-only professors to code nonlegal materials. Coding legal materials is an important activity because it requires engagement with the materials. That engagement provides the scholar with valuable context and may lead to discoveries. In addition, the scholar becomes an expert on the subject of the materials, thus positioning the scholar for future research.

Scholars who analyze preexisting data become experts on the protocols that governed collection of the data. But they rarely personally read and analyze the data source and so are unlikely to become experts on the content of the data source. For example, scholars who download and analyze data extracted by others from Supreme Court opinions may have no occasion to actually read Supreme Court opinions.

Ph.D.-only scholars cannot practice law and, therefore, have no legal practice experience. Most J.D.-Ph.D.s have no legal practice either.²² As a result, Ph.D. holders are unlikely to know or understand much of the legal system's institutional detail at the time of their hiring. That initial lack of knowledge and understanding is exacerbated by the disciplinary legal empiricists' reluctance to engage with legal materials. Thus, disciplinary legal empiricists are less likely than nondisciplinary legal empiricists to develop legal

19. See, e.g., Epstein & King, *supra* note 2, at 127 (advocating an alternative model of scholarly journal management in which “law schools would expand editorial boards to include faculty members” and every article would be peer reviewed by faculty members).

20. See *infra* Parts III.C–D.

21. See *infra* Part III.E.

22. See LoPucki, *supra* note 11, at 522 tbl.6 (showing that 57% of J.D.-Ph.D. hires during the period 2011 through 2015 had no practice experience).

sophistication. Nor are the disciplinary legal empiricists very effective in spreading their methodological expertise to legally sophisticated empiricists through collaboration.²³ Hiring Ph.D.s is, thus, not an effective means of promoting *legally* sophisticated empiricism.²⁴

Part I explains why the nature of disciplinary legal empiricism matters. In essence, it matters because the nature of disciplinary legal empiricists' work determines whether they can be full and effective participants in preparing students for the practice of law. If they cannot, competitive pressures will force law schools to reduce the size of the tenure-track faculty and to shift the task of preparing students for the practice of law to the growing full-time, non-tenure-track faculty.

Part II describes the methods employed in this study. Part III presents my empirical findings and analyses. Part IV concludes that important differences exist between disciplinary and nondisciplinary legal empiricism. As Ph.D.s and J.D.-Ph.D.s continue to replace J.D.-only professors on law faculties, the ratio of disciplinary to nondisciplinary legal empiricism will increase. As a result, the tenure-track faculty will be further removed from the realities of law and legal practice.

I. WHY THE NATURE OF DISCIPLINARY LEGAL EMPIRICISM MATTERS

The nature of disciplinary legal empiricism is important because law schools are rapidly hiring disciplinary legal empiricists. Not surprisingly, the scholars hired tend to focus on the subjects and apply the theories and methods of their home disciplines. To the extent those scholars focus on subjects other than legal practice, they may reduce the faculty's aggregate knowledge of legal practice, reduce its ability to teach courses that prepare students for practice, and generate pressure for curricular changes that would move law schools further from law practice. That pressure conflicts with increasing demands from educational experts, students, the organized bar, and potential employers of law graduates that law schools place greater emphasis on preparing students for practice. Whether the shift to disciplinary legal empiricism actually reduces the faculty's aggregate knowledge of legal practice depends ultimately on what disciplinary legal empiricists study and how they study it. That is why the nature of disciplinary legal empiricism matters.

A. *Ph.D. Hiring*

Law school hiring of Ph.D.s as tenure-track faculty members has increased dramatically in recent years. For example, in 2014 and 2015, two-thirds of the entry-level tenure-track hires at top twenty-six law schools were

23. See *infra* Part III.A.

24. See LoPucki, *supra* note 10 (explaining the reasons in greater detail).

J.D.-Ph.D.s.²⁵ The corresponding proportion in the period from 1996 to 2000 was 13%.²⁶ If current trends continue, Ph.D. holders will constitute a majority of the top twenty-six law faculties by 2028.²⁷ Ph.D. hiring is not merely a top-school phenomenon. Aggregate Ph.D. hiring at American Association of Law Schools member law schools has increased from 11% in the period 1996–2000, to 19% in the period 2000–2009, and to 21% in the period 2011–2015.²⁸

The importance of empiricism to Ph.D. hiring is reflected in the fact that 62% of the Ph.D. holders on the top twenty-six faculties in 2015 held their degrees in disciplines that likely required knowledge of statistics.²⁹ Increasing the quantity and quality of legal empiricism is often asserted as a motive for hiring Ph.D.s.³⁰ When seeking to hire empiricists, law schools tend to hire Ph.D.s in statistical fields because the law schools know that the Ph.D.s programs have trained the Ph.D.s in statistics.³¹

Three aspects of Ph.D. hiring suggest that it will continue until substantially all tenure-track law faculty hold Ph.D.s. First, an avowed purpose of Ph.D. hiring is to spread empiricism widely through law faculties.³² Hiring small numbers of Ph.D.s trained in empirical methods was expected to accomplish that through collaboration between the Ph.D.s and non-Ph.D. holders on the faculties. As described in Part II.A., the intended collaboration did not occur because Ph.D.s prefer to collaborate with other Ph.D.s. As a result, more Ph.D. hiring than was expected will be necessary to reach the goal.

Second, law schools are under competitive pressure to cut costs. Hiring Ph.D.s cuts costs by delegating the task of training and culling law school job applicants to the Ph.D. programs—along with the associated costs.³³ Ultimately, the candidates pay the cost of their own training and culling in the

25. LoPucki, *supra* note 11, at 520–21 (indicating eleven of thirty-three hires were J.D.-Ph.D.s).

26. Richard E. Redding, “Where Did You Go to Law School?” *Gatekeeping for the Professoriate and Its Implications for Legal Education*, 53 J. LEGAL EDUC. 594, 599–600 (2003).

27. LoPucki, *supra* note 11, at 510.

28. *Id.* at 511.

29. *Id.* at 538.

30. *See, e.g.*, Shari Seidman Diamond & Pam Mueller, *Empirical Legal Scholarship in Law Reviews*, 6 ANN. REV. L. SOC. SCI. 581, 595 (2010) (“One possibility is that the increasing number of JD/PhDs in the legal academy will improve the quality of the research submitted for publication.”).

31. JANET BUTTOLPH JOHNSON & H.T. REYNOLDS WITH JASON D. MYCOFF, *POLITICAL SCIENCE RESEARCH METHODS* 27–29 (6th ed. 2008) (“[W]e emphasized empirical research methods, a set of procedures that employ scientific principles and techniques. . . . Although this stance . . . is controversial . . . it remains perhaps the dominant approach.”); BOB RYAN ET AL., *RESEARCH METHOD AND METHODOLOGY IN FINANCE AND ACCOUNTING* 27 (2d ed. 2002) (arguing that “the dominant methodology of the financial disciplines” is “empiricist in nature”).

32. *See supra* note 15 and accompanying text.

33. LoPucki, *supra* note 11, at 541–42 (describing the strategy).

form of tuition and foregone earnings.³⁴ Ph.D.s arrive in the law schools with certified competency in producing scholarship and substantial portfolios of published work.³⁵ If law schools instead hire J.D.-only faculty members, the hires would have no training, less experience in writing, and fewer publications. J.D.-only hires might take years—working at high salaries paid by the law schools—to build portfolios of the size that Ph.D. hires bring with them, and a larger proportion will fail. Hiring Ph.D.s who have completed their dissertations is less risky because most have already produced enough scholarship for tenure in a law school.

Third, although top law schools hire larger proportions of Ph.D.s, Ph.D. hiring extends all the way down to the fourth quartile of law schools. From 2011 through 2015, eleven percent of entry-level hires at fourth quartile law schools held Ph.D.s.³⁶ Despite arguments that Ph.D. hiring—and perhaps scholarship itself—should be solely the province of the elite schools,³⁷ the lower-tier schools seem to be unable or unwilling to break from the competition and cede their places in the hierarchy to competing schools.³⁸ As the proportions of Ph.D.s on top law faculties increase, so will the pressures to hire Ph.D.s on the faculties lower in the hierarchy.

The financial benefit to the law schools from Ph.D. hiring comes with a considerable detriment. The Ph.D.s hired have little or no experience in the practice of law. In fact, at the point where they begin preparing students for

34. McCrary et al., *supra* note 12, at 548 (As the law teaching market increasingly demands more credentials, especially ones that require lengthy investments of time and forgone earnings like Ph.D.s, it may become increasingly difficult for those from underrepresented groups to become law professors, especially at the elite schools.”).

35. Rachlinski notes:

Graduate school provides law-faculty candidates the time and training needed to produce publications, thereby providing law school hiring committees with an assurance that these candidates can get work out the door. Such a record also gives hiring committees an indication of what that scholarship will look like. Job candidates who have not spent a great deal of time producing scholarship in an academic environment are increasingly at a disadvantage on the entry-level teaching market.

Rachlinski, *supra* note 15, at 908.

36. LoPucki, *supra* note 11, at 535–36 (showing a thirteen percent rate for the third quartile and a seventeen percent rate for the second).

37. Professor Brian Leiter of the University of Chicago Law School was recently quoted as saying:

Law schools in different parts of country [sic] often have very different missions Chicago is not going to change, nor is Harvard, nor is Penn, but other law schools facing financial pressures—can they afford to subsidize legal scholarship? The problem is we have one model of what a law school does, which is set by Chicago and Yale and Harvard, and everybody else is trying to do the same thing.

Blake Edwards, *The Age of the PhD Law Professor Is Upon Us, Study Says*, BLOOMBERG L. (Feb. 19, 2016), <https://bol.bna.com/the-age-of-the-phd-law-professor-is-upon-us-study-says/>.

38. See LoPucki, *supra* note 11, at 537–38 (speculating on the reasons lower-tier law schools hire Ph.D.s).

the practice of law, *most* J.D.-Ph.D.s today have *no* practice experience.³⁹ On average, recent J.D.-Ph.D. hires have less than one year of practice experience.⁴⁰ Furthermore, the data suggests a declining trend in the mean level of practice experience.⁴¹

B. Preparation of Students for Practice

While law faculties are apparently withdrawing from engagement with practice and embracing the traditional academic disciplines of the university through Ph.D. hiring, a succession of experts on legal education has been recommending that the law schools move in the opposite direction. The 1979 Report of the ABA Task Force on Lawyer Competency recommended:

(a) developing some of the fundamental skills underemphasized by traditional legal education; (b) shaping attitudes, values, and work habits critical to the individual's ability to translate knowledge and relevant skills into adequate professional performance; and (c) providing integrated learning experiences focused on particular fields of lawyer practice, including but not limited to trial practice.⁴²

The 1992 Report of the ABA Task Force on Law Schools and the Profession—commonly known as the “MacCrate Report”—recommended that law schools should not just prepare students “for admission to the bar” but should “prepare them to participate effectively in the legal profession.”⁴³ Law schools, the report stated, should “continue to emphasize the teaching of the skills of ‘legal analysis and reasoning’ and ‘legal research,’” but should also “develop or expand instruction in such areas as ‘problem solving,’ ‘factual investigation,’ ‘communication,’ ‘counseling,’ ‘negotiation’ and ‘litigation.’”⁴⁴

The 2007 Report of the Carnegie Foundation for the Advancement of Teaching was blunter, citing the law schools’ “lack of attention to practice

39. *Id.* at 522 (showing that fifty-seven percent of entry-level hires from 2011 through 2015 had no practice experience).

40. *Id.* at 523 (showing that the mean level of practice duration for entry-level hires from 2011 through 2015 was 0.9 years).

41. That is, mean practice duration declined from 1.6 years for the 2010 faculty to 0.9 years for the 2011 through 2015 hires. *Id.*

42. AM. BAR ASS'N, SECTION OF LEGAL EDUC. AND ADMISSIONS TO THE BAR, REPORT AND RECOMMENDATIONS OF THE TASK FORCE ON LAWYER COMPETENCY: THE ROLE OF LAW SCHOOLS 14 (1979).

43. AM. BAR ASS'N, SECTION OF LEGAL EDUC. AND ADMISSIONS TO THE BAR, LEGAL EDUCATION AND PROFESSIONAL DEVELOPMENT—AN EDUCATIONAL CONTINUUM, REPORT OF THE TASK FORCE ON LAW SCHOOLS AND THE PROFESSION: NARROWING THE GAP 330 (1992).

44. *Id.* at 331–32.

and inadequate concern with professional responsibility.”⁴⁵ The Report elaborated:

Most law schools give only casual attention to teaching students how to use legal thinking in the complexity of actual law practice. Unlike other professional education, most notably medical school, legal education typically pays relatively little attention to direct training in professional practice. The result is to prolong and reinforce the habits of thinking like a student rather than an apprentice practitioner, conveying the impression that lawyers are more like competitive scholars than attorneys engaged with the problems of clients.⁴⁶

Those reports and ensuing commentary culminated in the ABA’s adoption of a law school accreditation requirement that “each student . . . satisfactorily complete at least . . . one or more experiential course(s) totaling at least six credit hours. An experiential course must be a simulation course, a law clinic, or a field placement.”⁴⁷ The ABA will apply this new standard beginning in 2016–2017 “as appropriate, to students who become 1L students in that year.”⁴⁸ Law schools are now scrambling to fund and staff the new courses.

45. WILLIAM M. SULLIVAN ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW 6 (2007).

46. *Id.*

47. AM. BAR ASS’N, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 16 (2016) http://www.americanbar.org/content/dam/aba/publications/misc/legal_education/Standards/2016_2017_aba_standards_and_rules_of_procedure.authcheckdam.pdf. The standard reads:

Standard 303. CURRICULUM

(a) A law school shall offer a curriculum that requires each student to satisfactorily complete at least the following: . . .

(3) one or more experiential course(s) totaling at least six credit hours. An experiential course must be a simulation course, a law clinic, or a field placement. To satisfy this requirement, a course must be primarily experiential in nature and must:

(i) integrate doctrine, theory, skills, and legal ethics, and engage students in performance of one or more of the professional skills identified in Standard 302;

(ii) develop the concepts underlying the professional skills being taught;

(iii) provide multiple opportunities for performance; and

(iv) provide opportunities for self-evaluation.

Id.

48. AM. BAR ASS’N, SECTION OF LEGAL EDUC. AND ADMISSIONS TO THE BAR, TRANSITION TO AND IMPLEMENTATION OF THE NEW STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2 (2014), http://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/governancedocuments/2014_august_transition_and_implementation_of_new_aba_standards_and_rules.authcheckdam.pdf.

C. *The Conflict*

Legal scholarship is expensive. Former Dean Edward Rubin estimates the cost at forty to fifty percent of the faculty budget.⁴⁹ The faculty budget is by far the largest expense in a law school budget.⁵⁰ The standard justifications for incurring the cost of legal scholarship and passing the bulk of it along to students in the form of tuition are that legal scholarship enhances the law school's reputation, updates faculty knowledge, and generates new ideas.

Once hired, tenure-track faculty, unlike their non-tenure-track peers, decide their own scholarly agendas. Those agendas are expected to, and do, drive changes in the law schools' curricula.⁵¹ As Rubin put it:

[I]f we want to eliminate the divergence between scholarship and teaching, what should change is not the scholarship but the curriculum. The scholarship is up-to-date with both the current practice of law, in its broadest sense, and with the current theories about what law is, and what it does, in our society. The curriculum has been obsolete, on both these fronts, for close to one hundred years. Of course, change for change's sake is not necessarily a good thing, but when both the subject matter and the underlying theory of the subject matter change as rapidly and comprehensively as law has, one must naturally conclude that the law professors have the right idea in their role as scholars, not as teachers.⁵²

As my study of disciplinary legal empiricism shows, faculty research agendas—and the curricular changes that would logically flow from them—conflict with the curricular changes being required by the educational experts and accreditors. The former ignore practice while the latter embrace it. Because the schools are implementing both kinds of changes, the two compete for student enrollments. My impression is that the changes focused on practice are attracting more students.

The law schools can resolve this conflict in essentially three ways. One possibility is for the law schools to hire lower proportions of Ph.D.s to the tenure-track faculty. I have already explained why I consider that unlikely.⁵³ A second possibility is that law schools could continue hiring large *proportions* of Ph.D.s to the tenure-track faculty, while hiring smaller *numbers* of them. The schools would use the freed-up resources to hire more full-time, non-tenure-track faculty to meet the demand for practice preparation.

49. Edward Rubin, *Should Law Schools Support Faculty Research?*, 17 J. CONTEMP. LEGAL ISSUES 139, 146 (2008).

50. My statement ignores tuition discounts because they are merely offsets against income that the law schools could not have realized even if they wished.

51. George L. Priest, *Social Science Theory and Legal Education: The Law School as University*, 33 J. LEGAL EDUC. 437, 440 (1983) (“[T]he more sophisticated social science theory becomes, the stronger the pressures will be to alter the curriculum itself.”).

52. Rubin, *supra* note 49, at 163.

53. *See supra* text accompanying notes 31–38.

Although I consider this second resolution the most likely, it suffers from at least three serious disadvantages. First, dividing the courses between theoretical and practical faculty will prevent the integration of the two kinds of knowledge. Second, the division will largely sever the link between scholarship and teaching. The tenure-track faculty will do most of the scholarship and the non-tenure-track faculty will do most of the teaching. Professors' teaching will be less likely to benefit from their scholarship. Third, the law schools will create a large, permanent, full-time under-faculty. The social dynamics of such a change are difficult to predict, but one likely effect is that the political power of the tenured faculty will shrink with its size.

The third possibility is that disciplinary legal empiricists will bridge the gap between their disciplines and legal practice. They would do that by acquiring sufficient knowledge through their research to participate effectively in preparing students for legal practice. For example, the researchers might interview practitioners about what they do and how they do it. In addition to statistically analyzing court opinions, statutes, transcripts, or other legal documents, they might also read and analyze them. Through such efforts, disciplinary legal empiricists might gain essentially the same kind of knowledge that would have come from practicing law. But, the empirical study of disciplinary legal empiricism that I report in Parts II and III suggests that is not in fact the nature of disciplinary legal empiricism.

II. METHODOLOGY

I personally collected the data used in this study by examining the full text of 120 journal articles. Each of the journal articles I studied presented the results of an empirical study. Sixty of the articles were published in *JELS* and the other sixty were published in the "first" or "main" student-edited law reviews at U.S. law schools ranked in the top fifty by *U.S. News and World Report* in 2011.⁵⁴

The *JELS* articles are the universe of empirical studies published in *JELS* over the two-year period beginning with Issue 3 of Volume 6 and ending with Issue 2 of Volume 8 (the "*JELS* universe"). The time period covered is essentially the last six months of 2009 through the first six months of 2011. I excluded a few articles because they discussed other empirical studies without reporting new empirical research.

The law review articles are a random sample drawn from the UCLA School of Law Empirical Research Group bibliographic database ("UCLA database"). These are the protocols for article inclusion:

The following rubrics were used to identify "empirical" research.

(1) the presence of tables or charts based upon original empirical

54. U.S. NEWS & WORLD REPORT, BEST GRADUATE SCHOOLS 69 (2012).

research, or (2) the inclusion of tables or charts from other publications (i.e., the Census) with more than a cursory interpretation of the data. The rule of thumb for (2) is whether another scholar would cite the article or the original source to support the proposition supported by the data. The third (3) rubric is whether the article contains a detailed description of the research methodology. This could include protocols for quantitative research (data collection) or qualitative research (interviews). If any one of these was met with satisfaction, the article was included in the database. As our aim is to be over- rather than under-inclusive, we also searched Westlaw for review articles with “empirical” in the title, and subjected them to the same protocols.⁵⁵

Although this definition would support the inclusion of qualitative empiricism that did not include tabulation, none appeared in the sample.

The UCLA database contained 1,664 articles, comments, notes, and essays⁵⁶ published in a wide variety of journals. I first removed those not published in a top-fifty law review, and then those not published during the period from the last six months of 2009 through the first six months of 2011.⁵⁷ After those removals, 154 articles remained. I used Microsoft Excel’s random number function to rank the articles for inclusion in the study. I then coded the sixty articles with the lowest ranks after applying this filter: The article had to present an empirical study, as distinguished from merely discussing an empirical study previously presented. The empirical study could be based on preexisting data but, at a minimum, had to analyze the preexisting data in a different manner. I did not consider simulations to be empirical studies.

Several of my coding decisions are important to an understanding of my findings. I classified authors as having law degrees (J.D.-only professors), Ph.D. degrees (Ph.D.s), both (J.D.-Ph.D.s), or neither. The category of J.D.-only professors includes not only professors holding J.D. degrees, but also professors holding J.S.D.s, S.J.D.s, LL.M.s, LL.B.s, or any combination of these degrees, whether from U.S. or foreign jurisdictions. Similarly, “J.D.-Ph.D.” includes a person who holds a Ph.D. and an undergraduate law degree

55. *US Law Schools Launch the Empirical Legal Studies Bibliography*, PRACTICE SOURCE, <http://practicesource.com/us-law-schools-launch-the-empirical-legal-studies-bibliography/> (last visited Jan. 2, 2017).

56. I included student notes and comments because *JELS* also published some student work. Of the sixty articles in the law review sample, four (amounting to seven percent) were student notes or comments.

57. As with the *JELS* universe, I used the cover date of the issue in which the article was published to determine the date of publication. In many instances, the cover date did not include a publication month. I resolved those instances by assuming that journals published half their issues for a year in the first half of the year and half in the last half of the year. If a journal volume spanned two years (for example, 2010–2011), and the cover data did not disclose a month of publication, I assumed that the first half of the issues were published in 2010, and the last half were published in 2011.

from a foreign law school or department. “Ph.D. degrees” do not include M.D.s, J.S.D.s, S.J.D.s, or D.Phil.s. In some contexts, I categorized candidates for Ph.D.s as “Ph.D.s” and candidates for J.D.s as “J.D.s.” I have identified the contexts below.

I sought to determine whether researchers coded their main datasets. The process was somewhat subjective for two reasons. First, many of the *JELS* and law review authors did not disclose clearly how their data came to be coded. I exercised judgment in interpreting ambiguous statements and, in a few cases, relied on my knowledge of how such data would likely have come to be coded. Second, when researchers used several datasets from different sources, I sometimes had difficulty in classifying one as the “main” dataset. If it was not clear which dataset was the “main” dataset, I considered the dataset coded by the researcher to be the main one and classified the article as “coded some.” Unless otherwise indicated, references to “coded” include “coded some.” In nearly all instances, I coded blind. That is, I coded not knowing whether the authors held Ph.D.s.

My data source categorizations are of the immediate, not the ultimate, sources of the data. For example, if researchers obtained court opinions from the courts, I categorized the source as “government.” If researchers obtained the same court opinions from Lexis or Westlaw, I categorized the source as “publisher.” If researchers obtained a dataset in which other researchers had categorized the same opinions or used datasets they themselves coded for prior studies, I categorized the source as “researcher.” In all three instances, I recorded the fact that the source was a court opinion in the “coded from” field.

The difference between a publisher and a researcher is that a publisher charges money for the data while a researcher does not. Data from Standard & Poor’s Compustat database is from a publisher. The same data from a source that did not charge for it would be from a researcher. If data were obtained directly from the government, I categorized the source as “government,” whether or not the government charged money for the data.

Following Ginsburg and Miles,⁵⁸ my initial study design treated studies published in *JELS* as representative of disciplinary legal empiricism and studies published in the law reviews as representative of nondisciplinary legal empiricism.⁵⁹ The data I collected, however, showed that the most important

58. See Ginsburg & Miles, *supra* note 17, at 1797 (treating studies published in the *Journal of Legal Studies* and the *Journal of Law, Economics and Organization* as representative of empirical disciplinary work and articles published in the “top 15” law reviews as representative of “major law review articles”); *id.* at 1823–24 (“We have also demonstrated that empirical and interdisciplinary work, with their increasingly sophisticated methodologies, are driving much of the coauthorship trend.”).

59. Operationally, I have defined nondisciplinary legal empiricism as legal empiricism done by persons holding J.D. but not Ph.D. degrees.

differences turned on the mix of degrees held by the studies' authors. I have focused on that mix in reporting my findings in this Article.

III. FINDINGS AND ANALYSIS

A. Collaboration

"Collaboration," as used here, means scholars working jointly on research. Collaboration within a field or discipline is generally measured either by the proportion of coauthored articles or by the average number of authors per article.⁶⁰ I used both measures.

The argument for law schools to hire Ph.D.s as collaborators is two-pronged. The first prong is that collaboration has a generally positive effect on the quantity and quality of research.⁶¹ Research has shown that jointly authored articles are slightly more likely to survive peer review than single-author articles⁶² and that collaboration may be associated with higher productivity.⁶³ One theoretical basis for this positive view of collaboration is that collaborators can bring a wider array of skills and knowledge to bear on a problem.

The case for collaboration is, however, unclear. Evidence exists that collaboration has no effect, or even negative effects, on research. First, it appears that collaboration is less likely than sole authorship to produce highly

60. See, e.g., J. Sylvan Katz & Ben R. Martin, *What Is Research Collaboration?*, 26 RES. POL'Y 1, 2 (1997); James Moody, *The Structure of a Social Science Collaboration Network: Disciplinary Cohesion from 1963 to 1999*, 69 AM. SOC. REV. 213, 220–21 (2004) (using the proportion of papers with more than one author as a measure of the level of collaboration); Goran Melin, *Pragmatism and Self-Organization: Research Collaboration on the Individual Level*, 29 RES. POL'Y 31, 32–33 (2000) (using coauthorship as an indicator of research collaboration); Stanley Presser, *Collaboration and the Quality of Research*, 10 SOC. STUD. SCI. 95, 96 (1980) (using two or more authors as the measure of "collaboration").

61. See, e.g., Katz & Martin, *supra* note 60, at 1 ("[I]t is widely assumed that collaboration in research is 'a good thing' and that it should be encouraged.").

62. E.g., David N. Laband & Robert D. Tollison, *Intellectual Collaboration*, 108 J. POL. ECON. 632, 645 (2000) (finding an "11.9% acceptance rate for manuscripts authored by more than one individual" submitted to the *Journal of Political Economy*, compared with a 9.7% acceptance rate for sole-authored manuscripts); Presser, *supra* note 60, at 96 (finding a 22.6% acceptance rate for manuscripts authored by two or more persons submitted to the *Social Psychology Quarterly*, compared with an 18.3% acceptance rate for manuscripts with one author).

63. E.g., Sooho Lee & Barry Bozeman, *The Impact of Research Collaboration on Scientific Productivity*, 35 SOC. STUD. SCI. 673, 673–74 (2005) (reviewing the literature). But, Lee and Bozeman found that:

When publishing productivity is measured by 'normal count' (a scientist's total number of publications), collaboration is a strong predictor of publishing productivity. When publishing productivity is measured by 'fractional count' (dividing credit by the number of coauthors), collaboration and publishing productivity are not significantly related, at least not in a model controlling for moderating variables.

Id. at 693.

influential research.⁶⁴ Second, studies that associate collaboration with productivity often credit each coauthor with the article, thus arguably double- or triple-counting articles produced through collaboration. Absent this double- or triple-counting, collaboration may not be correlated with the overall levels of scholars' productivity.⁶⁵

The second prong of the collaboration argument for law school Ph.D. hiring is that it will produce a specific type of collaboration—one in which J.D.-only professors with subject matter expertise are able to collaborate with Ph.D.s, or with J.D.-Ph.D.s with statistical or empirical expertise, to enable J.D.-only professors to participate in empirical research, and ultimately become empiricists.

In the remainder of this Section, I argue first that there is a modest, long-term, upward trend in collaboration in the field of law. Second, increases in empiricism, peer-reviewed publications, and Ph.D.-hiring are all potential explanations because all are associated with higher collaboration rates. But because the modest increases in collaboration are largely increases in collaboration among Ph.D.s, not between Ph.D.s and J.D.-only professors, the data provide only weak support for the second prong of the rationale for hiring Ph.D.s.

1. Trends in Collaboration

Rates of collaboration have differed dramatically by discipline over time. For example, George and Guthrie report collaboration rates for history, philosophy, and modern languages that never exceeded 10% for any of the five-year periods from 1970 through 1999.⁶⁶ By contrast, the five-year-period rates they report for social psychology increased from 65% for the period 1970–1974 to 89% for the period 1995–1999.⁶⁷ For sociology the increase was from 40% to 60%; for economics it was from 31% to 65%; and for political science it was from 22% to 45%.⁶⁸ In all likelihood, the run-up in these

64. See Tracey E. George & Chris Guthrie, *Joining Forces: The Role of Collaboration in the Development of Legal Thought*, 52 J. LEGAL EDUC. 559, 568–72 (2002) (reviewing several impact studies and concluding that coauthored articles accounted for 15% of law review articles but only 4% to 11% of the most influential law review articles); Ian Ayres & Fredrick E. Vars, *Determinants of Citations to Articles in Elite Law Reviews*, 29 J. LEGAL STUD. 427, 439 (2000) (“Coauthored articles were cited more frequently than single-author pieces, but pieces with more than two authors suffered a large penalty.”).

65. Lee & Bozeman, *supra* note 63, at 693.

66. See George & Guthrie, *supra* note 64, at 564–65.

67. *Id.* at 566; see also Mapheus Smith, *The Trend Toward Multiple Authorship in Psychology*, 13 AM. PSYCHOLOGIST 596, 596–97 (1958) (reporting an increase in the average number of authors per article from 1.3 in 1946 to 1.7 in 1957).

68. George & Guthrie, *supra* note 64, at 566–68.

rates did not begin during the period from 1970 to 1974. Moody, for example, reported the increase for sociology to be from about 10% in the period from 1935 to 1945 to more than 60% in the period from 1995 to 2000.⁶⁹

George and Guthrie report “no trend at all” in collaboration in the law reviews in the period between 1970 and 1999.⁷⁰ Instead, they report “an average annual rate of 15 percent in elite as well as non-elite journals.”⁷¹

That a trend in collaboration among authors of law review articles exists over a longer time period is, however, highly likely. First, Ginsburg and Miles found an “upward trend in coauthorship” in top-fifteen law reviews from 2000 to 2010.⁷² Second, two informal studies covering periods prior and subsequent to the period covered by George and Guthrie’s study suggest an overall increase in collaboration. In the earlier study, Saks informally reported a 7% collaboration rate for 1960.⁷³ In the later study, I report here that 27 of 120 randomly selected law review articles published in elite law reviews in 2010 (23%) had more than one author.⁷⁴ Ginsburg and Miles reported a coauthorship rate in top-fifteen law reviews during the period 2000 through 2010 (20.1%) that is consistent with the rate I report (23%).⁷⁵

Table 1 shows that the difference in the collaboration rate reported by George and Guthrie and the rate I found is statistically significant ($p = .039$). The most likely explanation for George and Guthrie’s negative finding regarding the trend in collaboration is that a long-term upward trend existed, but was so moderate during the period they studied that they could not detect it.⁷⁶

69. Moody, *supra* note 60, at 218 (providing data in Figure 1 on coauthorship trends in sociology).

70. George & Guthrie, *supra* note 64, at 567.

71. *Id.* at 562.

72. Ginsburg & Miles, *supra* note 17, at 1807.

73. Peter H. Schuck, *Why Don't Law Professors Do More Empirical Research?*, 39 J. LEGAL EDUC. 323, 332 n.37 (1989) (describing Saks’s report); *id.* at 326 n.8 (describing Saks’s paper and letter). Unfortunately, Saks did not publish and Schuck does not report the numbers of articles Saks studied. As a result, it is not possible to calculate whether Saks’s data were statistically significantly different than George and Guthrie’s.

74. The Law Review Collaboration Study was an informal study in which I randomized the sample by choosing articles from the journals in my law review sample, proceeding through the journals alphabetically, choosing the first issue published by a given journal with a 2010 date, continuing with a single journal for not more articles than were included in my law review sample, and continuing with the journal list until I reached 120 articles. The journals actually included were the *Boston College Law Review*, the *Brigham Young University Law Review*, the *Columbia Law Review*, the *Cornell Law Review*, the *Hastings Law Journal*, the *Michigan Law Review*, the *North Carolina Law Review*, the *Stanford Law Review*, the *University of Pennsylvania Law Review*, the *William & Mary Law Review* and the *Yale Law Journal*. I downloaded the articles from HeinOnline. I included both empirical and non-empirical articles.

75. Ginsburg & Miles, *supra* note 17, at 1800–02.

76. Although George and Guthrie reported no trend in elite collaboration in their graphs, I see a mild upward trend in their graphs. The graphs appear in George & Guthrie, *supra* note 64, at 562, 563.

TABLE 1: TREND IN LAW REVIEW COLLABORATION

Study / Publication Years	<i>Multiple Authors</i>	<i>Single Author</i>	<i>Total</i>
George & Guthrie 1970-1999	452 (15%)	2,468 (85%)	2,920 (100%)
LoPucki 2009-2011	27 (23%)	93 (78%)	120 (100%)

George & Guthrie data are for elite and non-elite law reviews, *supra* note 64, at 561-62.
LoPucki data are for top-fifty law reviews.
Error in percentage due to rounding
Chi-square, $p = .039$.

I conclude that an upward trend in collaboration exists in law, but that it is less pronounced than the corresponding trends in other fields. As the next Section shows, this modest upward trend is probably the result of an increase in empirical articles.

2. *Empiricism*

Ginsburg and Miles recently found that “empirical articles are far more likely [than non-empirical articles] to be coauthored.”⁷⁷ In his study of collaboration in the field of sociology, Moody found that the “specialty areas differ in the likelihood of collaboration, and much (but not all) of this difference is due to use of quantitative methods.”⁷⁸ As shown in Table 2, I found that the rate of collaboration in empirical law review articles (45%) is almost double the rate of collaboration in all law review articles (23%). The difference is statistically significant ($p=.002$).

TABLE 2: COLLABORATION RATE FOR EMPIRICAL LAW REVIEW ARTICLES COMPARED WITH ALL LAW REVIEW ARTICLES, 2009–2011

Article Type	<i>Multiple Author</i>	<i>Single Author</i>	<i>Total</i>
All law review articles	27 (23%)	93 (78%)	120 (100%)
Empirical law review articles	27 (45%)	33 (55%)	60 (100%)

77. Ginsburg & Miles, *supra* note 17, at 1807 (“The rate of empiricism among coauthored articles is 21.6% in contrast to 9.4% among all major articles.”).

78. Moody, *supra* note 60, at 214.

All law review articles are from the Law Review Collaboration study, *supra* note 74.

Empirical articles probably were included in the all law review sample.

Error in percentage total due to rounding.

The difference between all law review articles and all legal empirical articles is statistically significant. Chi-square, $p = .002$.

Together, these studies demonstrate that empiricism can be a principal driver of collaboration. The size of the differences in the rates of collaboration in all law review articles, as compared with empirical law review articles, suggests, but does not prove, that the shift to empiricism is causing the modest increase in law review collaboration.

The mechanism by which empiricism increases collaboration remains to be identified. But, based on my three decades of experience as an empiricist, I speculate that collaboration increases with the sophistication of the methodology. When projects become so complex that it is no longer practical to get useful feedback from non-authors, authors must take on coauthors.

3. Peer Review

I compared the rate of collaboration in empirical articles published in non-peer-reviewed law reviews with the rate of collaboration in empirical articles published in *JELS*, a peer-reviewed law journal. Table 3 shows the results.

TABLE 3: COLLABORATION RATE FOR *JOURNAL OF EMPIRICAL LEGAL STUDIES* ARTICLES COMPARED WITH LAW REVIEW EMPIRICAL ARTICLES, 2009–2011

Article Type	Multiple Author	Single Author	Total
Empirical articles published in law reviews	27 (45%)	33 (55%)	60 (100%)
Empirical articles published in <i>JELS</i>	45 (75%)	15 (25%)	60 (100%)

The difference in rates is statistically significant.
Chi-square, $p = .001$

Twenty-seven of the sixty empirical law review articles (45%) were co-authored, as compared with forty-five of the sixty empirical *JELS* articles (75%). The difference is statistically significant ($p = .001$). The rate of collaboration is higher in *JELS* than in empirical law review articles.

The results are similar when the number of authors on an article, rather than just the presence of a second author, is used as the basis for comparison. The average number of authors on the *JELS* articles, 2.2, is significantly larger than 1.6, the corresponding average for empirical law review articles ($p = .006$).

My findings are analogous to those in a study by Ginsburg and Miles.⁷⁹ They compared the rate of collaboration in articles published in non-peer-reviewed, top law reviews with the rate of collaboration in articles published in the peer-reviewed *Journal of Legal Studies* (*JLS*) and the *Journal of Law, Economics, and Organization* (*JLEO*). Ginsburg and Miles found that the rate of coauthorship for articles in *JLS* and *JLEO* was 49.6%⁸⁰ as compared with a rate of 20.1% for articles in the top-fifteen law reviews.⁸¹

Suchman and Mertz compared the likelihood of coauthorship in *JELS* (67%) with the likelihood of coauthorship in the *Law and Society Review*

79. See Ginsburg & Miles, *supra* note 17.

80. *Id.* at 1813.

81. *Id.* at 1800. Ginsburg and Miles use the term “major articles,” which they define as excluding “student notes and comments, book reviews, tributes and memorials, and symposium articles.” *Id.* at 1801.

(*LSR*) (33%) during the period between 2004 and 2007.⁸² Both those journals are peer-reviewed and empirical, but *LSR* is less quantitatively empirical.⁸³ *JLEO* is also less quantitatively empirical than *JELS*.⁸⁴

TABLE 4: COMPARISON OF EMPIRICAL STUDIES OF COLLABORATION RATES, BY JOURNAL TYPE

Study	Subject Journals	Collaboration Percent	Comparison journals	Collaboration percent
LoPucki	Articles, top 50 law reviews, 2010	23%	Empirical articles, <i>JELS</i>	75%
Ginsburg & Miles	Articles, top-15 law reviews, 2000–2010	20%	Articles, <i>JLS</i> , <i>JLEO</i>	50%
Suchman & Mertz	Articles, <i>Law & Society Review</i> , 2004–2007	33%	Article, <i>JELS</i>	67%

The collaboration percentage for LoPucki law reviews is from note 74, *supra*.

Table 4 compares the findings of those two studies with the law review findings from my informal law review study⁸⁵ and the finding from my formal *JELS* study. Together, the findings appear to be consistent with the theory that quantitative empiricism—which is, essentially, statistics—rather than peer review, drives collaboration. That is, coauthorship rates are highest in *JELS*, where the empiricism is highly quantitative, next highest in *JLS* and *JLEO*, which are less quantitative than *JELS*, next highest in the *Law and Society Review*, which is less quantitative than *JLS* and *JLEO*, and lowest in the law reviews, which are the least quantitative. To put it another way, the ranking of these journals by the proportions of quantitative empiricism they publish, as shown in Table 4, appears to match the ranking of these journals by their proportions of coauthorship. The more quantitative the journal, the higher the collaboration rate.

4. Ph.D. Tendency to Collaborate

Whether an article has at least one Ph.D. author is a significant predictor of the number of authors. That is, the number of authors tends to be higher if a Ph.D. is among the authors. Table 5 shows that the presence of a Ph.D. author is an even slightly better predictor of the number of authors than whether the article is published in *JELS*. The adjusted R-squared for Model

82. Mark C. Suchman & Elizabeth Mertz, *Toward a New Legal Empiricism: Empirical Legal Studies and New Legal Realism*, 6 ANN. REV. L. & SOC. SCI. 555, 568–69 (2010).

83. *Id.* at 570 (“The *JELS* articles were almost universally quantitative (94%), while the *LSR* articles skewed moderately in the opposite direction, 53% qualitative to 35% quantitative.”).

84. This assumption is based on my personal, unsystematic observations of the two journals.

85. *See supra* note 74.

(1), in which peer review is the only predictor (.11), indicates that peer review explains 11% of the article-to-article variance in the number of authors. The adjusted R-squared for Model (2), in which Ph.D. author is the only predictor (.13), indicates that Ph.D. author explains 13% of the article-to-article variance in the number of authors.

TABLE 5: PREDICTORS OF THE NUMBER OF AUTHORS ON AN EMPIRICAL ARTICLE

Variables	(1) <i>Authors (log)</i>	(2) <i>Authors (log)</i>	(3) <i>Authors (log)</i>
Peer review	0.633*** (0.162)		0.416* (0.178)
Ph.D. author		0.725*** (0.158)	0.542** (0.173)
Constant	1.583*** (0.096)	1.429*** (0.118)	1.339*** (0.105)
Observations	120	120	120
Adjusted R-squared	0.11	0.13	0.16

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, *p<0.05

Model (3) shows that the combination of peer review and whether the author has a Ph.D. explains sixteen percent of the article-to-article variation in the number of authors. Both the nature of the journal and the nature of the authors contribute significantly to the prediction. Ph.D.s collaborate more than J.D.-only professors, even controlling for the type of journal in which they publish.

Based on Table 5, one might expect that hiring more Ph.D.s and converting the law reviews to peer review would be effective ways to increase collaboration between J.D.-Ph.D.s and J.D.s on law faculties. But, as is explained in the next Section, Ph.D. collaboration is disproportionately collaboration with other Ph.Ds.

5. *J.D.-Ph.D. with J.D. Collaboration*

In recent years, the hiring of J.D.-Ph.D.s by law faculties has been touted as a way of promoting empirical research by non-Ph.D. law faculty. For example, Rachlinski argued that “[s]ocial scientists, by nature, collaborate. Because collaborative work is a core aspect of their training, they will look for collaborators among their colleagues. Social scientists are thus apt to spread

their methods among the faculties that they join.”⁸⁶ Some law schools are likely hiring J.D.-Ph.D.s on the basis of that expectation. The data suggest, however, that the increases in collaboration that result from Ph.D. hiring are modest.

Table 6 shows the collaborator choices made by the 175 U.S.-based authors of the 120 journal articles studied. The table combines J.D.-Ph.D. collaborators with Ph.D. collaborators because either provides the benefits of collaboration with a Ph.D.

Table 6 shows that 61% of J.D.-only authors’ collaborations are with other J.D.-only authors, while only 39% are with J.D.-Ph.D.s or Ph.D.s. The corresponding rates for J.D.-Ph.D.s are 45% and 55%, and for Ph.D.s are 21% and 79%. I conclude that J.D.s tend to collaborate with J.D.s, Ph.D.s tend to collaborate with Ph.D.s, and J.D.-Ph.D.s tend to divide their collaborations between Ph.D.s and J.D.-only professors.

TABLE 6: U.S.-BASED AUTHORS’ CHOICES OF COLLABORATORS, BY DEGREE TYPES

Author’s Degrees	Collaborator’s Degrees		Total
	<i>J.D.-only</i>	<i>J.D.-Ph.D. or Ph.D.-only</i>	
J.D.-only	46 (61%)	29 (39%)	75 (100%)
J.D.-Ph.D.	15 (45%)	18 (55%)	33 (100%)
Ph.D. only	14 (21%)	53 (79%)	67 (100%)
Total	75 (43%)	100 (57%)	175 (100%)

Chi-square, $p < .001$, for difference among three groups.

Chi-square, $p = .125$, for difference between J.D.-only and J.D.-Ph.D.

“U.S.-based” means author’s primary appointment or academic enrollment was in a U.S. institution.

This 45%–55% split provides little confirmation for the claim that hiring J.D.-Ph.D.s is an effective means of promoting collaboration between Ph.D.s and non-Ph.D.s on law school faculties. Using Hersch and Viscusi’s figures,

86. Rachlinski, *supra* note 15, at 908. Research suggests that physical and institutional proximity do increase the overall likelihood of successful collaboration. See, e.g., Robert E. Kraut et al., *Understanding Effects of Proximity on Collaboration: Implications for Technologies to Support Remote Collaborative Work*, in *DISTRIBUTED WORK* 137 (Pamela Hinds & Sara Kiesler eds. 2002) (“Results showed that even in this environment, pairs of researchers were unlikely to complete a technical report together unless their offices were physically near each other, even if they had previously published on similar topics or worked in the same department in the company.”)

73% of 2010 faculty members at top-twenty six law schools held only J.D. degrees, while the remaining 27% held Ph.D. degrees.⁸⁷ Thus, if J.D.-Ph.D. empiricists chose their collaborators randomly from among their colleagues at the top twenty-six law schools, 73% (23.4) of their collaborations would have been with J.D.-only colleagues and only 27% (8.6) would have been with Ph.D.s. Table 6 shows that the actual numbers of collaborations with J.D.s was fifteen and with Ph.D.s was eighteen. J.D.-Ph.D. collaborations with Ph.D.s were nearly double the number expected if the J.D.-Ph.D.s had chosen their collaborators randomly, and J.D.-Ph.D. collaborations with J.D.s were only 64% of the number expected. The difference between the expected rates and the actual rates is marginally significant ($p = .074$). Thus, although the hiring of J.D.-Ph.D.s does appear to increase the rate of collaboration between Ph.D.s and J.D.-only professors, J.D.-Ph.D.s' preference for Ph.D. collaborators strongly dilutes the effect.

The results are similar when articles are the unit of analysis. Table 7 shows that for 86 of the 119 empirical articles for which data were available (72%), no author was a J.D.-Ph.D. A J.D.-Ph.D. was the sole author of 12 of the 119 empirical articles (10%). A J.D.-Ph.D. coauthored with at least one J.D.-only professor on 11 of the 119 empirical articles (9%). A J.D.-Ph.D. coauthored with only Ph.D.s on 10 empirical articles (8%). Thus, J.D.-Ph.D.s collaborated with J.D.-only professors on only one-third of the J.D.-Ph.D.s' empirical articles (11 of 33).

TABLE 7: J.D.-PH.D. COLLABORATION, BY DEGREES OF COLLABORATORS

Numbers of Articles	Percent	Author Type
86	72%	No J.D.-Ph.D. coauthor
12	10%	J.D.-Ph.D. was sole author
11	9%	J.D.-Ph.D. coauthored with at least one J.D.-only
10	8%	J.D.-Ph.D. coauthored only with Ph.D.s
119	100%	Total

87. Joni Hersch & W. Kip Viscusi, *Law and Economics as a Pillar of Legal Education*, 8 REV. L. & ECON. 487, 489 (2012) (“The percentage of faculty with a Ph.D. is 27% overall . . .”). In contrast with Hersch and Viscusi, I found that the percentage of faculty with a Ph.D. was 21% overall. LoPucki, *supra* note 10, at 510. I used Hersch and Viscusi’s figure rather than my own, however, because their figure cuts against my thesis that J.D.-Ph.D.s prefer collaboration with other Ph.D.s.

In one respect, that one-third statistic probably overstates the J.D.-Ph.D.s' contributions to J.D. collaboration with Ph.D.s. In five of the eleven articles on which J.D.-Ph.D.s collaborated with J.D.-only authors, more than one Ph.D. was a coauthor. For these articles, if the J.D.-Ph.D. had not been hired or participated in the study, and the other authors had done the study alone, the J.D.-only would still have had the benefit of a Ph.D. as coauthor. Thus, on only six of the J.D.-Ph.D.s' thirty-three articles (18%) is it clear that the J.D.-Ph.D.'s collaboration added to the J.D. only-with-J.D.-Ph.D. collaboration rate.

In summary, collaboration may or may not produce more or better scholarship. Collaboration increases with empiricism, particularly with quantitative empiricism, and perhaps particularly with methodologically sophisticated empiricism. But that collaboration is largely between disciplinary empiricists, not between disciplinary and non-disciplinary empiricists. Hiring small numbers of disciplinary legal empiricists does not seem to generate large numbers of non-disciplinary empiricists.

B. Journal Type

This study began as an effort to compare the types of legal empiricism published in leading law reviews with the types published in a leading peer review journal. I found a strong correlation between Ph.D. authorship and peer-reviewed publications.

1. Degree Type and Journal Type Correlation

Ph.D. authorship is strongly correlated with publication in peer-reviewed journals. The correlation may result from *JELS*'s preference to published Ph.D.-authored scholarship or from Ph.D.s' preference to be published in peer-reviewed journals, but it is so strong that it likely results from both. The correlation is not as strong for J.D.-Ph.D.s, but is still positive. The correlation is strongly negative for J.D.-only authors.

As shown in Table 8, J.D.-only professors were 73% of top twenty-six law school tenure-track faculty members, 60% of top law review empirical article authors, and only 28% of *JELS* authors. If *JELS* is an accurate proxy for peer review legal empiricism, peer review legal empiricism has little room for J.D.-only professors.

TABLE 8: LAW PROFESSOR PRESENCE IN *JELS*, TOP LAW REVIEW EMPIRICISM, AND TOP LAW FACULTIES, BY DEGREE TYPE

Degree Type	<i>Members: Top-26 Law Faculties</i>	<i>Authors: Top-50 Law Review Empiricism</i>	<i>Authors: JELS</i>
J.D.-only	965 (73%)	56 (60%)	35 (28%)
J.D.-Ph.D.	286 (22%)	18 (19%)	24 (19%)
Ph.D.	66 (5%)	20 (21%)	67 (53%)
Total	1317 (100%)	94 (100%)	126 (100%)

Members data are from Hersch & Viscusi, *supra* note 87, at 489.

The difference in the proportions of authors with Ph.D.-degrees between *JELS* and the law reviews was similarly dramatic when articles rather than authors are the unit of analysis. As shown in Table 9, at least one author had a Ph.D. degree, or was a Ph.D. candidate, for fifty-one of the sixty *JELS* articles studied (85%). The corresponding ratio for empirical law review articles was twenty-seven of sixty (55%).

If we assume, as I believe is true, that Ph.D.s generally serve as the methodologists in these collaborations, the high percentage of *JELS* collaborations involving Ph.D.s suggests two possibilities. First, *JELS* empiricism may have evolved to a level of methodological sophistication that few J.D.-only professors can meet. Second, the presence of a Ph.D. author may function as a certification that the article's methodology complies with the standards of the Ph.D. author's discipline. That is, J.D.s are welcome, but only when a Ph.D. vouches for the methodology. Both possibilities are discouraging for the future of J.D.-only legal empiricism.

TABLE 9: EMPIRICAL ARTICLES BY JOURNAL TYPE AND PRESENCE OF A J.D. AUTHOR

Journal Type	<i>At Least One Ph.D. Author</i>	<i>No Ph.D. Author</i>	<i>Total</i>
Top-50 law reviews	27 (55%)	33 (45%)	60 (100%)
<i>Journal of Empirical Legal Studies</i>	51 (85%)	9 (15%)	60 (100%)
Total	78 (65%)	42 (35%)	120 (100%)

Chi-square, $p < .0001$

Table 10 shows that the authors of fifty-six of the sixty law review articles studied (93%) included at least one author who held a law degree or was a candidate for a law degree. That is hardly surprising. One would expect law degrees among authors publishing in law reviews. What is surprising is that for 35% of the articles published in *JELS*, no author held a law degree or was even a candidate for a law degree. This difference between *JELS* and the law reviews is statistically significant ($p < .001$). A comparison of Table 9 with Table 10 reveals that, to publish an article in *JELS*, having a Ph.D. (85%) may be more important than having a law degree (65%).

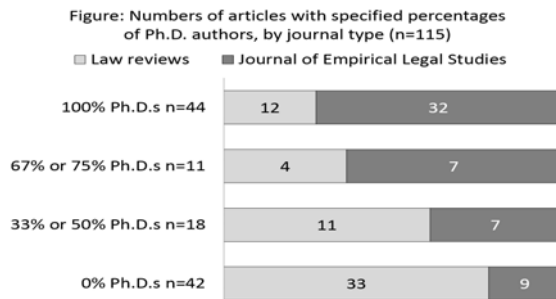
TABLE 10: EMPIRICAL ARTICLES BY JOURNAL TYPE AND PRESENCE OF A J.D. AUTHOR

Journal Type	<i>At least One Law-degree Author</i>	<i>No Law-degree Author</i>	<i>Total</i>
Top law reviews	56 (93%)	4 (7%)	60 (100%)
<i>Journal of Empirical Legal Studies</i>	39 (65%)	21 (35%)	60 (100%)
Total	95 (79%)	25 (21%)	120 (100%)

Chi-square, $p < .001$

The results are similar when other measures of Ph.D. involvement are used. The Figure below shows the results by journal type when articles are categorized by the proportion of authors who held a Ph.D. or were a candidate for a Ph.D. at the time of publication. To illustrate the method of categorization, if two of three authors on an article are Ph.D.s, the article is 67% Ph.D., and so is placed in the category “67% or 75% Ph.D.s.” Of the 115 articles

studied, forty-two (37%) had no author with Ph.D. status. The bottom bar on the Figure shows that thirty-three of those forty-two articles (79%) were published in law reviews. Of the 115 articles studied, all of the authors of forty-four articles (38%) had Ph.D. status. The top bar on the Figure shows that only twelve of the forty-four articles (27%) were published in law reviews. Of the 115 articles, only twenty-nine (25%) had a combination of Ph.D. and non-Ph.D. authors. The two middle bars on the Figure show that fifteen of the twenty-nine articles (52%) were published in law reviews. As a whole, the Figure shows that as the proportion of Ph.D. authors increases, the likelihood that an empirical article will be published in *JELS*, rather than in a law review, increases ($p < .001$).



2. Implications for Student-Edited Journals

Ph.D.s' preference for publication in peer-reviewed journals has important implications for student-edited law reviews. "Peer reviewed," when used with respect to law reviews, can have several meanings. At minimum, it means that faculty members read at least some of the submissions and commented on them before the student editors accepted them for publication. By that definition, a large proportion of "student-edited" law reviews are peer reviewed because student editors seek the advice of faculty members before making their decisions.

Peer-reviewed, as I use the term here, means that faculty members decide which submissions should be published. Even by that definition, a substantial number of law school journals are peer-reviewed. They include *JELS*, the *Journal of Legal Studies*, the *American Journal of Comparative Law*, the *Supreme Court Review*, and many others. But, it appears that students make the publication decisions at every law school's most prestigious journal (hereafter the "first journals").⁸⁸

88. The *Mississippi Law Journal* is sometimes cited as an exception. But it appears that the student editors have the final say:

The *Journal's* Editorial Board selects articles for publication in the peer review forum based on the recommendations of faculty peer reviewers—members of a Peer Review

American law professors overwhelmingly regard the first journals of the top law schools to be the most prestigious places for them to publish—more prestigious than the best peer-reviewed legal journals. Much to the frustration of some Ph.D.s,⁸⁹ empirical analyses invariably reach that same conclusion, regardless of methodology.⁹⁰

Numerous commentators have argued for the conversion of the student-edited law reviews to peer review.⁹¹ However, no change is imminent.

If Ph.D.s become dominant on the top law school faculties, the likelihood that those schools will convert their first law reviews to peer review is high. First, as reflected in my findings, the Ph.D.s on law faculties prefer to publish in peer-reviewed journals. Conversion to peer review would therefore give the top first journals an advantage in competing for articles from law faculty members holding Ph.Ds. Second, disciplinary legal empiricism is often highly technical. All but a few law students lack the expertise to evaluate highly mathematical, state-of-the-art work in economics, political

Board staffed by UM law faculty. The Editorial Board forwards a subset of articles from its general pool of submissions to peer reviewers for blind review. The articles are selected for peer review principally on the basis of the peer reviewers' common areas of scholarly expertise.

Jack Wade Nowlin & Brian Clark Stuart, *The Mississippi Law Journal Peer Review Process*, 84 MISS. L.J. i (2015).

89. University of Chicago Law Professor and Ph.D. Brian Leiter conducted a poll on the issue of which law journals are the "highest quality." See Brian Leiter, *Which Are the Highest Quality Legal Journals?*, LAW PROFESSOR BLOGS NETWORK (Mar 12, 2009), <http://leiterlawschool.typepad.com/leiter/2009/03/which-are-the-highest-quality-legal-journals.html>. The top three journals in that poll are student-edited law reviews. Leiter expressed surprise at the results, asking,

[I]s there really any legal academic who thinks the quality of articles in, say, the *Harvard Law Review* is really higher than the quality of articles in *Journal of Legal Studies* or *Oxford Journal of Legal Studies* or almost any of the faculty-edited journals? I find that quite hard to believe, but I am open to being persuaded otherwise.

Id.

90. See, e.g., *Law Journals: Submissions and Rankings, 2008–2015*, WASH. & LEE UNIV. SCH. OF LAW LAW LIBRARY, <http://lawlib.wlu.edu/LJ/index.aspx> (last visited Jan. 2, 2017) (results of statistical analysis indicating that student-edited reviews are the top thirty-six reviews); Lawrence Cunningham, *The Top Law Reviews (Eigenfactor)*, CONCURRING OPINIONS (Oct. 5, 2010), <http://concurringopinions.com/archives/2010/10/the-top-law-reviews-eigenfactor.html> (results of statistical analysis indicating that student-edited reviews are the top four); Robert Anderson, *Google Law Review Rankings 2014 with Specialty Journals*, WITNESSETH, <http://witnesseth.typepad.com/blog/google-law-review-rankings-2014-with-specialty-journals.html> (last visited Jan. 2, 2017) (results of statistical analysis indicating that the fifteen top law reviews are all student-edited).

91. E.g., Michele Landis Dauber, *The Big Muddy*, 57 STAN. L. REV. 1899, 1913 (2005) (advocating for "moving legal publishing toward a system of peer review, at least for methodologically sophisticated work"); Lee Epstein & Gary King, *Building an Infrastructure for Empirical Research in the Law*, 53 J. LEGAL EDUC. 311, 317 (2003) (advocating that law schools place faculty members on the editorial boards of student-edited law reviews and that at least one peer review be obtained for every article published); Richard A. Posner, *Against the Law Reviews*, LEGAL AFF., Nov.–Dec. 2004, http://legalaffairs.org/issues/November-December-2004/review_posner_novdec04.msp ("Ideally, one would like to see the law schools 'take back' their law reviews, assigning editorial responsibilities to members of the faculty. Students would still work and write for the reviews, but they would do so under faculty supervision.").

science, or experimental psychology. For law students to develop that expertise in law school is impractical. Third, once most law professors hold Ph.D.s, the first law reviews at top law schools will have to compete not only with other law reviews, but also with the highly prestigious, peer-reviewed journals in the Ph.D.s' home disciplines. Law reviews could do that only by becoming peer-reviewed journals. Brands like the *Harvard Law Review* and the *Yale Law Journal* may simply be lost if those schools do not convert to peer review in time.⁹² Lastly, Ph.D.-granting departments may not fully support their graduates' careers in law if those graduates do not submit to peer review. Hersch and Viscusi explain:

In part, economics Ph.D. programs are oriented toward placing their top students in economics departments or in other fields that have peer review as their main publication outlet. Because law schools traditionally have given great weight to nonpeer-reviewed, student-edited law reviews, economics departments would have the justifiable concern that their graduates who are law faculty will not continue to publish in peer-reviewed economics journals and would not contribute to the frontiers of economic research or the ranking of an economics department.⁹³

If the trend in Ph.D. hiring continues, law schools will have no choice. They will have to convert their first journals to peer review.

C. Data Source Types

The types of skills scholars acquire play a larger part in determining the types of scholarship they will produce. As Balkin wrote, the disciplines largely determine those types:

Disciplines provide their members with tools of understanding. By providing people with some tools rather than others and by enhancing some skills at the expense of others, disciplines necessarily push their members toward asking the kinds of questions with which these tools are best equipped to deal and treating all other questions as variants of these.⁹⁴

Data sources are one of those tools.⁹⁵ For example, scholars working in finance learn to use Compustat,⁹⁶ while scholars working in political science

92. E.g., Hersch & Viscusi, *supra* note 87, at 502 ("The ultimate result is simply that law reviews are unlikely to be able to transform themselves sufficiently to remain the leading outlet for legal scholarship.").

93. *Id.* at 500.

94. J.M. Balkin, *Interdisciplinarity as Colonization*, 53 WASH. & LEE L. REV. 949, 955 (1996).

95. BETHANY GRAY, LINGUISTIC VARIATION IN RESEARCH ARTICLES: WHEN DISCIPLINE TELLS ONLY PART OF THE STORY 4 (2015) ("Disciplines clearly differ in their basic characteristics, including data sources . . .").

96. *Wharton Research Data Service*, WHARTON, UNIV. OF PA., <https://wrds-web.wharton.upenn.edu/wrds> (last visited Jan. 2, 2017).

learn to use the Supreme Court Database.⁹⁷ The data sources on which a discipline relies are important because members learn those data sources as part of their disciplinary training. Mastering new data sources can require substantial investments of time, so scholars tend to stick with the ones they know.

Data from the instant study showed substantial differences between disciplinary and non-disciplinary empiricism in the types of data sources used. The authors drew their data from six types of data sources: (1) government, (2) non-governmental organizations, (3) publishers, (4) researchers, (5) surveys, and (6) experiments. Table 11 shows that two sources dominated: government (35%) and private publishers (23%).

As Table 11 also shows, Ph.D.s and J.D.-only professors differed in the frequency with which they used these sources ($p = .012$). The largest differences were in three categories: publishers, researchers, and experiments. First, J.D.-only professors (38%) were nearly three times as likely as Ph.D.s (13%) to use data from publishers ($p = .001$). The bulk of the difference was in the use of published court opinions from Westlaw and Lexis. Second, Ph.D.s (19%) were nearly twice as likely as J.D.-only professors (10%) to use data from prior research ($p = .165$). Lastly, Ph.D.s (14%) were nearly three times as likely as J.D.-only professors (5%) to generate their data through experiments ($p = .137$).

97. *Supreme Court Database*, WASH. UNIV. LAW, <http://supremecourtdatabase.org> (last visited Jan 2, 2017).

TABLE 11: DATA SOURCE TYPE BY
PRESENCE OF A PH.D. AUTHOR

Data Source	<i>At Least One Ph.D. Author</i>	<i>J.D.- only Au- thor(s)</i>	<i>Total</i>
Government	27 (35%)	15 (36%)	42 (35%)
NGO	5 (6%)	0 (0%)	5 (4%)
Publisher	10 (13%)	16 (38%)	27 (23%)
Researcher	15 (19%)	4 (10%)	18 (15%)
Survey	10 (13%)	5 (12%)	15 (13%)
Experiment	11 (14%)	2 (5%)	13 (11%)
Total	78 (100%)	42 (100%)	120 (100%)

Fisher's exact test, $p=.012$

To explore the significance of the non-Ph.D.s' greater use of publisher data, I determined the correlation between use of publisher data and the ranks of the journals in which articles were published. Within the law reviews category, I ranked law reviews (excluding *JELS*) based on the *U.S. News and World Report* academic ranking of law schools, which was in turn based on that publication's annual survey of law professors.⁹⁸ I found that the use of data from a published source was a negative indicator of prestige ($p = .079$).⁹⁹ The higher the rank of the law school publishing the law review, the lower the probability that the law review published a study based on publisher data. I conclude that empirical research based on publisher data has less appeal to law reviews than other kinds of empirical research. The reduced appeal may be either because of its genre or because of the quality of the research and reporting.

Although my sample is not large enough and my data-source categories are not sufficiently refined to fully capture the nature of the differences in

98. U.S. NEWS & WORLD REPORT, *supra* note 54, at 70.

99. Two-sample t-test with equal variances. Prestige is defined as *U.S. News & World Report's* "Academic Peer Score" 2011 data, for the school that publishes the law review. *Id.*

what Ph.D.s and J.D.s choose to study, they are adequate to show that differences exist. The Ph.D.s who replace J.D. empiricists on law faculties will not merely use different techniques. They will also draw from different data sources.

D. Survey and Experiment

To explore the differences in the study methods and data types used by Ph.D.s and J.D.-only professors, I coded the study methods into four mutually exclusive categories: (1) analyzing preexisting data, (2) analyzing data coded by the authors, (3) survey, and (4) experiment. My primary purpose was to compare the first two categories, but to achieve this it was first necessary to distinguish the first two categories from the latter two.

Researchers may code survey and experimental responses. The difference between the coded-by-the-authors category and the survey and experiment categories is that in the former, the researchers coded information about the legal system, while in the latter two, the researchers coded nonlegal information that they generate themselves, or they did not code anything at all. Coding legal information typically requires legal analysis and so involves the researcher with law; coding self-generated nonlegal information does not involve the researcher with law.

Survey research is similar to experimental research in that researchers of both kinds study the responses of human subjects. The two differ in that experimental researchers manipulate the subjects' conditions before they elicit responses; survey researchers just elicit responses.

Ph.D. authors were more likely than non-Ph.D. authors to publish experiments (as distinguished from all other kinds of studies), although this relationship is only marginally statistically significant. The p-value is .084 if Ph.D. status is measured by the presence of at least one Ph.D.-holding author; it is .099 if Ph.D. status is measured by the proportion of Ph.D.-holding authors.

The designs of nearly half of the experimental and survey studies published in *JELS* did not appear to require any legal knowledge and addressed research questions that were more typical of non-law disciplines than of law disciplines. Examples include: an experiment regarding the effect of the ability to punish on group cooperation,¹⁰⁰ an experiment regarding the effect of adversary advice on the ability to solve math problems,¹⁰¹ a survey of lawyer

100. Kristoffel Grechenig et al., *Punishment Despite Reasonable Doubt—A Public Goods Experiment with Sanctions Under Uncertainty*, 7 J. EMPIRICAL LEGAL STUD. 847, 850–53 (2010) (discussing the results of an experiment in which subjects decide how much value to contribute to others and then how much to punish others for their decisions).

101. Cheryl Boudreau & Mathew D. McCubbins, *Competition in the Courtroom: When Does Expert Testimony Improve Jurors' Decisions?*, 6 J. EMPIRICAL LEGAL STUD. 793, 797 (2009) (reporting the results of an experiment in which subjects did math problems while experts gave them conflicting advice).

satisfaction with their careers,¹⁰² a survey of family caregivers regarding circumstances and reactions,¹⁰³ and an experiment regarding the effect of the cost of communication on reaching group consensus.¹⁰⁴

All fifteen of the experimental or survey studies published in *JELS* had at least one Ph.D. author. This pattern is consistent with the more general observation that members of a discipline, when pursuing “interdisciplinary” research, tend to address the research questions of their home disciplines.¹⁰⁵

Law reviews and *JELS* were about equally likely to publish the category of research that includes both survey and experimental studies. Fifteen of sixty law review studies (25%) were survey or experimental; fourteen of sixty *JELS* studies (23%) were survey or experimental. But of the fourteen studies published in law reviews, ten (71%) were survey and only four (29%) were experimental, while of the fifteen studies published in *JELS*, only five (33%) were survey and ten (67%) were experimental. This difference in proportions was statistically significant ($p = .040$). Law reviews tend to publish surveys, while *JELS* tends to publish experiments. This difference is more closely associated with journal type than with the participation of Ph.D.s in the studies.¹⁰⁶

The technical nature of experimental methods seems to be the most likely explanation for the correlation between experiment and *JELS* publication. Readers tend to be skeptical of complex methods; peer review confers credibility on those methods. Another possibility is that *JELS* has greater tolerance for studies less directly related to law.

E. Author Coding

Empirical research is research based on observation or experience. Coding is the process by which the person who observes or experiences generates data for quantitative analysis. The process requires that the researcher create

102. John Monahan & Jeffrey Swanson, *Lawyers at Mid-Career: A 20-Year Longitudinal Study of Job and Life Satisfaction*, 6 J. EMPIRICAL LEGAL STUD. 451, 460–62 (2009).

103. Lindsey E. Wylie & Eve M. Brank, *Assuming Elder Care Responsibility: Am I a Care-giver?*, 6 J. EMPIRICAL LEGAL STUD. 899, 904–06 (2009) (reporting on survey in which researchers asked subjects questions regarding “care-giving responsibilities and notions of care giving”).

104. Cheryl Boudreau et al., *Making Talk Cheap (and Problems Easy): How Legal and Political Institutions Can Facilitate Consensus*, 7 J. EMPIRICAL LEGAL STUD. 868, 872–74 (2010) (experiment in which subjects tried to reach consensus about the answers to math problems).

105. Balkin, *supra* note 94, at 955 (“[D]isciplines necessarily push their members toward asking the kinds of questions with which [the discipline’s] tools are best equipped to deal”); Howard Erlanger et al., *Is It Time for A New Legal Realism?*, 2005 WIS. L. REV. 335, 337 (“[S]ocial scientists may also prefer to frame their investigations solely with reference to theories and questions from their own fields”).

106. Of the 28 studies categorized as survey or experimental, 14 of 28 (50%) were published in *JELS*, while only 7 of 28 (25%) had at least one author who held a Ph.D.

and define categories of observations and characteristics of those observations. For traditional methods of statistical analysis, the data must be reduced to the form of a two-dimensional numeric matrix.

Quantitative analysis—essentially statistics—is the process by which the researcher summarizes the data, generalizes about it, or makes aspects of it visible. Quantitative analysis is frequently referred to as “empiricism,” but it is not a process of observation or experience.

My definition of empiricism for this study included both coding followed by quantitative analysis and quantitative analysis alone. I categorized studies as “coded” if the authors coded some or all of their main data and “preexisting” if the authors merely analyzed a preexisting dataset. The latter category includes studies in which the authors statistically analyzed a dataset they themselves coded for an earlier study.

I found that Ph.D. authors were less likely than non-Ph.D. authors to code their main data sources. The finding held true whether I defined Ph.D. authorship as the article having at least one Ph.D. author ($p < .001$) or as the proportion of Ph.D. authors ($p = .004$). Table 12 shows that 82% of non-Ph.D. authors (thirty-seven of forty-five) coded their main data, as compared with 42% of authors that included at least one Ph.D. holder (nineteen of forty-five). Ph.D. authors are about half as likely to code their main data.

TABLE 12: ARTICLES, BY WHETHER AUTHORS CODED AND PRESENCE OF A PH.D. AUTHOR

Presence of a Ph.D. Author	<i>Author-coded Data</i>	<i>Preexisting Data</i>	<i>Total Articles</i>
Ph.D. author	19 (42%)	26 (58%)	45 (100%)
No Ph.D. author	37 (82%)	8 (18%)	45 (100%)
Total articles	56 (62%)	34 (38%)	90 (100%)

Chi-square, $p < .001$

Law review authors were 65% more likely than *JELS* authors to code their main data. That is, law review authors coded their main data source in twenty-eight of forty-five studies (62%); *JELS* authors coded their main data

source in only seventeen of forty-five studies (38%). The difference is statistically significant ($p=.020$). Suchman and Mertz discovered a similar difference in comparing *JELS* authors with *Law & Society Review* authors.¹⁰⁷

But, as Table 13 demonstrates, the relationship between journal type and author coding largely disappears when controlling for the presence of a Ph.D. author. I conclude that the researchers' status as Ph.D.s more likely explains the researchers' use of preexisting data than does publication in *JELS*. Ph.D.-empiricists are less likely than J.D.-only-empiricists to generate new data sets.

TABLE 13: PREDICTORS OF AUTHOR CODING (DEPENDENT VARIABLE IS 1 IF AUTHORS CODED)

Variables	(1) <i>Coded</i>	(2) <i>Coded</i>	(3) <i>Coded</i>
Published in <i>JELS</i>	-0.244* (0.103)		-0.108 (0.109)
At least one Ph.D. author		-0.425*** (0.098)	-0.385*** (0.109)
Constant	0.622*** (0.073)	0.765*** (0.074)	0.793*** (0.077)
Observations	90	90	90

Robust standard errors in parentheses
 *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.10$

As shown in Table 14, of authors who coded,¹⁰⁸ forty-two percent coded judicial opinions. Eighteen percent coded documents filed with courts, and another eighteen percent coded other legal documents, such as contracts or securities law filings.

Ph.D.s who coded differed from J.D.-only professors who coded in the types of data sources they coded ($p = .027$). Ph.D.s were less likely to code judicial opinions than to code other types of material ($p = .065$)¹⁰⁹ and significantly more likely to code non-legal materials than to code legal materials ($p = .031$).¹¹⁰ Ph.D.s and J.D.-only professors were about equally likely to code documents filed with courts and other legal documents, but the sample sizes were small.

107. Suchman & Mertz, *supra* note 82, at 570 (finding that "*JELS* articles were far more likely than [*Law & Society Review*] articles to rely on preexisting (secondary-source) data sets and histories" and reporting the *JELS* rate as forty-one percent).

108. The unit of analysis is articles. "Author" here refers to the person or group of people who wrote the article. I refer to authors as "Ph.D.s" if at least one author holds a Ph.D. and "J.D.-only" if no author holds a Ph.D.

109. Chi-square.

110. Fisher's exact test.

TABLE 14: TYPES OF DATA SOURCES CODED, BY PRESENCE OF A PH.D. AUTHOR

Data Source	<i>At Least One Ph.D. Author</i>	<i>No Ph.D. Author</i>	<i>Total</i>	<i>Percent of Observations</i>
Judicial opinions	5 (26%)	14 (74%)	19 (100%)	42%
Judicial opinions and court file documents	0 (0%)	2 (100%)	2 (100%)	4%
Court file documents	4 (50%)	4 (50%)	8 (100%)	18%
Other legal documents	4 (50%)	4 (50%)	8 (100%)	18%
Statutes	2 (100%)	0 (0%)	2 (100%)	4%
Nonlegal materials	4 (100%)	0 (0%)	4 (100%)	9%
Unclear	0 (0%)	2 (100%)	2 (100%)	4%
Total	19 (42%)	26 (58%)	45 (100%)	100%

Fisher's exact, $p = .027$

These gross differences in the rates at which Ph.D.s and J.D.-only professors code and in the types of data sources they code show that disciplinary and non-disciplinary empiricists do different kinds of work. The difference results in non-disciplinary empiricists having greater exposure to legal materials and so presumably developing higher levels of legal expertise.

IV. CONCLUSIONS

The empirical study reported in this Article identified several differences between disciplinary legal empiricism and non-disciplinary legal empiricism. First, although disciplinary legal empiricism was more collaborative, Ph.D.s, including the J.D.-Ph.D.s, exhibited a preference for collaboration with other Ph.D.s.¹¹¹ They did not, as had been hoped, spread their methods throughout the law school faculties they joined. Second, the

111. *See supra* Part III.A.

pattern of authorship in *JELS*—a leading peer-reviewed journal—shows that, at least in that particular instance, the peer review process values methodological expertise more than legal expertise.¹¹² Third, disciplinary legal empiricists were more likely to draw their data from non-legal sources, prior research, surveys, or experiments, while non-disciplinary legal empiricists were more likely to draw their data from legal sources.¹¹³ Lastly, disciplinary legal empiricists were only half as likely as non-disciplinary legal empiricists to create the data sets they analyzed.¹¹⁴

These findings show that disciplinary legal empiricists are not engaging with lawyers or legal materials to the degree that non-disciplinary legal empiricists are. The disciplinary legal empiricists increasingly arrive in law schools with little or no familiarity with legal practice and then pursue scholarly agendas that do little to compensate for that lack of experience.¹¹⁵ The disciplinary legal empiricists' resulting lack of familiarity with the work of lawyers limits their ability to prepare students to work as lawyers.¹¹⁶

Law faculties have benefitted tremendously from the presence of disciplinary legal scholars, including disciplinary legal empiricists. Disciplinary legal scholarship introduced new ideas and spawned a wave of interdisciplinary work that advanced scholarship in virtually every field of law. Faculties have assumed that hiring increasingly larger numbers of disciplinary scholars would accelerate these advances. As a result, those faculties are pursuing hiring strategies that, if continued, would surrender control of legal scholarship to the disciplinary scholars' home disciplines.¹¹⁷

In this Article, I have argued that Ph.D. hiring, measured as a proportion of tenure-track hiring, will continue to accelerate. But it will not go unchecked. Educational experts, the legal profession, and students are demanding that the law schools offer a program of study that prepares students for legal practice. If the tenure-track faculty lacks the knowledge and experience to teach that program, the law schools will hire non-tenure-track, full-time faculty to do so. The size of the tenure-track law faculty will shrink, and that faculty will lose its historical influence.

112. *See supra* Part III.B.

113. *See supra* Parts III.C–D.

114. *See supra* Parts III.C–D.

115. *See supra* notes 39–41 and accompanying text.

116. *See supra* Part I.B.

117. I conclude that surrender would be to the discipline rather than the law faculty, because I assume that a peer-reviewed journal that published articles in several disciplines would send an article in a particular discipline to other members of that same discipline for review. Review of an article in political science by a psychologist would not be by a “peer.”