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JUDGING SCIENCE: AN ESSAY ON THE UNSCIENTIFIC BASIS OF BELIEFS ABOUT THE IMPACT OF LEGAL RULES ON SCIENCE AND THE NEED FOR BETTER DATA ABOUT LAW

Gillian K. Hadfield[*]

INTRODUCTION

There's a simple maxim: practice what you preach. Most of us have difficulty taking advice from—even worse submitting to the authority of—those who fail to abide by this maxim. This may explain, at least in part, the tensions between those in the scientific community and those in law. Law sits in judgment of science and scientific method in many settings, including adjudicating scientific evidence about hazard rates or toxicity, regulating standards of care in medicine, and assessing the qualifications of scientific expert witnesses and their compliance with scientific method. Ironically, however, those who propound legal conclusions about science could rarely meet the standards imposed on science. The legal system—judges, legal scholars, lawyers and legal policymakers—has to date shown very little interest in systematic, scientific assessment of how the legal system itself operates. Our data are poor and our models are few.[1] Small

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[1] *See* N. William Hines, *Empirical Scholarship: What Should We Study and How Should We Study It?*, ASSOC. AMERICAN LAW SCHOOLS PRESIDENT AND THE UNIVERSITY OF IOWA, http://www.aals.org/am2006/theme.html (describing the theme for the upcoming 2006 annual meeting). *See also* Elizabeth Warren, *The Market for Data: The Changing Role of Social Sciences in Shaping the Law*, 2002 WIS. L. REV. 1, 2 n.2 (2002) (citing several works over the last decade

wonder, perhaps, that serious scientists chafe under the scientific requirements imposed on them by lawyers.

Nonetheless, the questions we have about the impact of the legal system—not the substance of legal rules *per se*, but the practices and policies of how legal procedures are implemented (with ultimate effects on substantive legal rules) by judges, courts, and legal service providers—on the practice and application of science are myriad. They include:

- Is the cost of science-based litigation discouraging important litigation?
- Is *Daubert*[2] leading to better legal decisions involving scientific evidence?
- Is the deterrence effect of (tort) law being diminished by *Daubert*?
- Is the deterrence effect of (tort) law being diminished by a policy in favor of settlement?
- Are "secret settlements" and sealed case files leading to increased risks of injury/inadequate deterrence?
- Is the increasing emphasis on costly scientific expertise creating an asymmetry between corporate and individual litigants?
- Are legal rules regarding the admissibility and sufficiency of evidence discouraging scientific research by corporations?
- Are corporate defendants succeeding in shifting legal

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calling for more empirical legal research). *Compare* Dennis M. Patterson, *The Limits of Empiricism: What Facts Tell Us*, 98 MICH. L. REV. 2738, 2738 (2000) ("The conventional legal academic wisdom about empiricism is that empirical information is by-and-large a good thing, that we need more of it, and that empirical analysis is preferable to many scholarly alternatives now on offer in law review literature."), *with* William M. Landes, *The Empirical Side of Law and Economics*, 70 U. CHI. L. REV. 167, 180 (2003) ("[E]mpirical work does not occupy an exalted place at law schools. It would only be a modest exaggeration to say that most law professors regard empirical work as a form of drudgery not worthy of first-class minds. In the legal academic pecking order, empirical research does not rank as high as theory. This translates into a downward shift in the demand for empirical relative to theoretical scholarship in law economics.").

[2] Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579 (1993).

standards on summary judgment and motions to dismiss to thus keep individual plaintiffs away from juries?

These are important questions about the design features of our legal system. Many attributes can to some extent be manipulated by judges, court administrators, and lawyers, in order to improve the quality of outcomes produced by the legal system. These attributes include:

- Standards and procedures for the admissibility of expert evidence
- Rules of evidence
- Standards for summary judgment and motions to dismiss
- The use and interpretation of risk assessments
- The use of neutral or partisan experts
- The participation of courts in sealing and enforcing secret settlements
- The use of protective orders to limit access to information gleaned through discovery
- The rules for the distribution of legal costs
- The rules governing class actions, including jurisdiction, attorneys fees, and class certification

The pros and cons of different attributes (e.g., whether the standard for admitting expert evidence should be higher or lower, or whether courts should agree to keep data developed in discovery under seal) are heavily debated in law. Often the arguments are empirically-based and predictive, such as: raising the standard for admitting expert evidence will reduce the likelihood of "Junk science" in the courtroom,[3] and secret settlements are essential to promote the production of data in discovery.[4] And yet, the legal profession as a whole pays relatively little attention to the careful

[3] *See, e.g.*, PETER W. HUBER, GALILEO'S REVENGE: JUNK SCIENCE IN THE COURTROOM (1991).

[4] *See, e.g.*, Laurie Kratky Dore, *Secrecy by Consent: The Use and Limits of Confidentiality in the Pursuit of Settlement*, 74 NOTRE DAME L. REV. 283 (1999).

evaluation of these empirical claims. Law studies the impact of itself on the outcomes it intends to produce sporadically or not at all. There is no structural equivalent to the "public health" or epidemiology frameworks we find in medicine, according to which some members of the medical profession devote their efforts to evaluating health care as a whole and tracking the relationship between systems of prevention, diagnosis, and treatment on the one hand and the health and wellness outcomes we care about on the other. Law, as a system of courts, government agencies, lawyers, and legal scholars, has no institutional arm devoted to careful study of the question of how well the legal system performs in achieving its goals. In the area of science, law plays a large regulatory role: influencing the investments in and standards for clinical trials for pharmaceuticals, or the development of safety mechanisms in cars, or the scientific requirements that must be met to avoid and prevent infringement on patented procedures, equipment, or materials. In spite of this role the question of how well the legal system regulates science is not systematically addressed in a scientific manner by assessing data, testing hypotheses, and evaluating alternatives.

In Part I of this essay, I discuss the problems of data collection in the legal system. In Part II, I examine the impact of these data problems on our knowledge about a particular fact about the legal system, namely the frequency with which matters actually go to trial. I report in this Part results from a study I have done of the reliability of the available data about the "vanishing trial" that demonstrates the difficulty we face in understanding the determinants of even this basic attribute of our legal system. Finally, I offer some conclusions.

I. PROBLEMS IN DATA COLLECTION

The problem begins at the very first step in any evidence-based system of knowledge: the collection of data. There are few legal institutions devoted to the collection of data about the legal system, and essentially none are charged with collecting data for the purposes of evaluating the impact of legal rules and practices on

outcomes. As I will discuss in detail below, the data about the legal system are frequently unreliable and easily misinterpreted. Often data are collected sporadically, disrupting our ability to judge over time how variables are changing. Coding practices shift over time, also making longitudinal comparisons difficult if not impossible. What information is collected about law, particularly through discovery in individual cases, is frequently very difficult to access. A large and highly variable percentage of case opinions remain unpublished, further skewing the analysis of even the small fraction that result in an opinion.[5]

One of the most significant sources of inadequacy in our data about law rests in the norms and practices related to confidentiality in the legal system. Protective orders sealing document records are routine in litigation involving corporations.[6] Final case outcomes in a large percentage of cases involve a private settlement that is itself sealed and that imposes non-disclosure requirements on those privy to its contents.[7] Moreover, the centrality of confidentiality to the attorney-client relationship means that very little information about what lawyers do, what they charge, what issues they face, and what choices they make, ever becomes available for study. Advocacy is defined as the start and the end of the attorney-client relationship, again reflecting the absence of a "public health" perspective on the workings of the legal system. Medical professionals similarly face issues of confidentiality and loyalty to the well-being of their patients, but they also adopt a stance that is curious about and committed to the scientific assessment of how well prevention, diagnosis and treatment methods, in the aggregate, are working.[8] Medicine, through professional practices of sharing case-related information with colleagues and researchers, and sometimes subject to legal regulation of

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[5] Mitu Gulati & C.M.A. McCauliff, *On Not Making Law,* 61 LAW & CONTEMP. PROBS. 157, 202-03 (1998).

[6] *See* Dore, *supra* note 4, at 324-32.

[7] *See id.* at 384.

[8] *See, e.g.*, Gregory E. Simon et al., *Large Medical Databases, Population-Based Research, and Patient Confidentiality*, 157 AM. J. PSYCHIATRY 1731, 1731 (2000).

disclosures, manages to maintain confidentiality for patients without losing the valuable data content of what their work with patients reveals. Not so with legal professionals. Data about cases are rarely shared with researchers, even in anonymous fashion.

This all adds up to a stunning lack of information about how one of the most central institutions of our market democracy functions in fact, and leaves almost nowhere to turn for answers to the questions we have about how well the system operates to regulate the other central institutions such as medicine and the corporation. We know essentially nothing about how alternative dispute resolution systems work, because most often, once a case is diverted into private dispute resolution, almost no information emerges for public analysis.[9] Similarly, there are limited public data available about the cost of legal services. The U.S. Census collects and reports annual data about total receipts in law firms,[10] allowing some measure of the "size" of the legal system; but these data do not include expenditures on legal services provided by employed lawyers: corporate in-house legal departments or government lawyers. There are separate data available on public expenditures on courts and government attorneys involved in the civil and criminal justice systems, provided by the Bureau of Justice Statistics, but it excludes government-employed legal departments that are not affiliated with the activities of the justice system, such as legal counsel providing governments with services related to government contracting or employment.[11] The Bureau of

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[9] There are a few limited exceptions. The National Association of Securities Dealers publishes arbitration awards in securities disputes. *See* Securities Arbitration Commentor, http://www.sacarbitration.com (last visited Oct. 27, 2005). AAA employment arbitration awards have been available since 1999. *See* American Arbitration Association, http://www.adr.org/AAAawards/ (last visited Oct. 27, 2005).

[10] 2002 COUNTY BUSINESS PATTERNS AND 2002 ECONOMIC CENSUS, NUMBER OF FIRMS, NUMBER OF ESTABLISHMENTS, EMPLOYMENT, ANNUAL PAYROLL, AND RECEIPTS BY RECEIPT SIZE OF THE ENTERPRISE FOR THE UNITED STATES, ALL INDUSTRIES 2002, http://www.census.gov/csd/susb/ usalli_r02.xls.

[11] BUREAU OF JUSTICE STATISTICS BULLETIN, JUSTICE EXPENDITURES AND EMPLOYMENT IN THE UNITED STATES, 2001 (May 2004), *available at* http://www.ojp.usdoj.gov/bjs/pub/pdf/jeeus01.pdf.

Labor Statistics collects information about wages and hours in law firms, but only for non-supervisory employees, a category that excludes most lawyers.[12]

Privately, consulting firms, most notably Altman-Weil, conduct voluntary surveys of lawyers and law firms, collecting a wide variety of information—such as hourly rates, billable hours, total receipts, expenditures on paralegals—for purposes of selling the data, and business advice, to law firms and lawyers.[13] The sample, beginning in 1985, is one of the only longitudinal and national data sets on billing rates of which I am aware, and its value as a dataset has yet to be exploited by researchers. However, this value is limited by two factors: first, it is self-selected and therefore concentrated on Altman-Weil clients and hence not necessarily representative; and second, it is available to the public only in aggregate descriptive tables, rather than on the firm-by-firm or lawyer-by-lawyer basis necessary to perform statistical tests of correlation and causation. Cost data, which would be especially relevant to many of the questions we have about the courts and science, including data about experts and other expenditures on discovery and trial preparation, are currently non-existent in public form.

It is important to emphasize that the problem is not that these data on legal costs are not collected and retained; it is that the collection and retention is done by private firms and rarely made public, even in anonymous fashion. Indeed, as pressures to rein in legal costs have burgeoned in recent years, purchasers of legal services have turned to data collection and analysis for insights and mechanisms for cost control.[14] Auditors are available to analyze

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[12] BUREAU OF LABOR STATISTICS, U.S. DEP'T OF LABOR, WAGES BY AREA AND OCCUPATION, http://www.bls.gov/bls/blswage.htm.

[13] ALTMAN WEIL, INC., SURVEY OF LAW FIRM ECONOMICS, http://www.altmanweil.com/products/ surveys/slfe.cfm.

[14] *See* Gillian K. Hadfield, *The Price of Law: How the Market for Lawyers Distorts the Justice System*, 98 MICH. L. REV. 953, 957-58 (2000). *See*, *e.g.*, TECUM, Inc., *Is Your Law Firm Saving or Costing You?*, http://www.tecuminc.com (last visited Oct. 27, 2005) (providing consulting and analysis services for the "control of litigation costs").

the accumulated legal bills received by their clients.[15] On a large scale, the insurance industry has managed to significantly reduce its expenditures on legal fees and case settlements over the past two decades by mining the data it accumulates about claims, costs and payouts. The industry has thus been able to auction off blocks of business for fixed fees, a cost-internalization mechanism made possible by the systematic analysis, and sharing, of claim history and the identification of factors that can be used to predict the cost of litigating and settling claims.[16] These data, however, are generally hoarded and not made publicly available. Insurance information is only sporadically released for study by government agencies that track such data. Incomplete and sporadic data such as this, while still valuable, often lacks continuity and comparability and the information needed to assess representativeness. More importantly, the data generally do not contain detailed information about the legal procedures and practices that played a role in determining the outcome.

As one might expect, data about public courts and their activities are more easily available for research and analysis. Keeping track of procedures and rulings in court is a fundamental feature of case management and a primary task of court clerks who maintain docket sheets for each case. Recently, electronic access to court dockets has become available throughout the federal courts, using the Public Access to Court Electronic Records (PACER) system, which provides litigants and researchers with the ability to review the docket online and, in some cases, view case documents.[17] Data from this source are an important new resource for studies of the legal system, albeit one that allows a researcher to go back in time only to the late 1990s. This data source, however, suffers from an important shortcoming. One of the key variables in case analysis is the nature of the suit—such as product

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[15] *See*, *e.g*, TECUM, Inc., *supra* note 14. *See also* ZURICH, LITIGATION MANAGEMENT, http://www.zurichna.com/zus/onlineservices.nsf/0/2d5debbbffdeb1ad85256c6800664ff9?OpenDocument.

[16] *See* ZURICH, *supra* note 15.

[17] ADMIN. OFFICE OF THE U.S. COURTS, PACER Service Center, http://pacer.psc.uscourts.gov/.

liability, securities, civil rights—and many larger cases involve multiple areas of the law. Cases in PACER dockets, however, are coded for a single type, even when cases involve multiple causes of action. In addition, the nature of suit coding is based on whatever the plaintiff, her attorney or paralegal indicated as "the" cause of action on the cover sheet she filled in when she filed the case. The reliability of this categorization for research purposes is an open question.

For longer term analysis, the most comprehensive database on the work of courts is collected by the Administrative Office of the U.S. Courts (AO) and compiled for analysis by the Federal Judicial Center. These data report on many aspects of bankruptcy, civil and criminal trials and appeals, and in various forms go back several decades. Data are on a case-by-base basis, giving the names of the first-named plaintiff and defendant, the nature of suit, the court in which the case was heard, the dates of filing and termination, the procedural progress of the case at the time of termination, the means of termination, whether the action is filed as a class action, the amounts demanded and awarded, and so on. Much of the data are available in reported aggregated form from the AO in a set of annual tables going back as early as the 1960s. Of even greater value to researchers, the data are available electronically on a case-by-case basis going back to 1970 and can be downloaded from a publicly available website.[18] These data, however, cover only some 2% of all litigation as the vast majority of litigation takes place in state court and does not involve the federal system.

Data on state courts are decidedly less comprehensive. Although the National Center for State Courts has a number of programs devoted to collecting data from all state courts, the sheer number of state systems and the autonomy of these systems in terms of recordkeeping mean that comparable data are difficult to assemble. Caseload, meaning total filing, data are available for all courts.[19] The greatest effort to collect more detailed data, the Civil

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[18] ICPSR: INTER-UNIVERSITY CONSORTIUM FOR POLITICAL AND SOCIAL RESEARCH, http://www.icpsr.org.

[19] NCSC: NATIONAL CENTER FOR STATE COURTS, COURT STATISTICS PROJECT, http://www.ncsconline.org/D_Research/csp/CSP_Main_Page.html.

Justice Survey of State Courts, involves a sample of tort, property and contract cases in 45 jurisdictions representing the 75 most populous counties in the country. Data on the outcomes including who prevailed, in what amount and the duration of the litigation, in trials have been collected for 1992 (jury trials only), 1996 and 2001.[20] Although these data include some very helpful information not collected in the federal database—particularly the nature of the plaintiff and defendant whether individual, government or business—data about non-trial outcomes were only collected in 1992. The subsequent restriction to completed trials misses a large component of court and litigation activity of prime interest to researchers, namely the disposition of cases in non-trial methods such as settlement, summary judgments and court-ordered dismissals.

Other researcher-collected databases exist. Two of the most notable are the RAND data on civil jury trials in 15 jurisdictions from 1985-1994 and the RAND data on tort jury verdicts in San Francisco and Cook counties spanning a 40-year period.[21] However, by focusing only on completed jury trials, such datasets limit our look into the conduct of courts and the decisions courts, judges, lawyers and litigants make in processing a case. Moreover, datasets collected by individual researchers tend to be, given the tremendously labor-intensive process of reviewing case files, rather limited in scope—focusing only one type of case (i.e., class actions, asbestos cases), or a limited number of jurisdictions or a single time period. The more finely tuned the study is to a particular feature of the legal system—the use of *Daubert*, the cost of legal services, the invocation of the policy in favor of settlement—the more limited the scope of the dataset is likely to be.

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[20] The data for 1996 can be analyzed in a helpful online "query" system. Theodore Eisenberg & Kevin M. Clemont, CORNELL UNIVERSITY LAW SCHOOL, http://teddy.law.cornell.edu:8090/questata.htm.

[21] RAND INSTITUTE FOR CIVIL JUSTICE, TRENDS IN CIVIL JURY VERDICTS: NEW DATA FROM 15 JURISDICTIONS, http://www.rand.org/publications/RB/RB9025/RB9025.html; Seth A. Seabury et al., *Forty Years of Civil Jury Verdicts*, 1 J. EMPIRICAL LEGAL STUD. 1 (2004).

The problems in obtaining the data necessary for systematic and statistically sound descriptions and predictions about how various aspects of the legal system impact the use and practice of science go beyond the fact that limited data are collected. Unfortunately, even the data that we have are sometimes unreliable, at least insofar as they can be easily misinterpreted by researchers. To demonstrate this point, I now turn to a more detailed discussion of the difficulties I have discovered in the most extensive and comprehensive database about litigation that we have, the federal civil trials termination data, and the problems these data present in reaching conclusions about a basic feature of our legal system, namely the question of whether cases today are more or less likely to end in a trial as opposed to a settlement or a non-trial adjudication, and if so, what might explain such a trend.

II. A CASE IN POINT: THE VANISHING TRIAL

It is clear to anyone involved in the legal system that many things have changed in the system in the past three decades. Caseloads have increased dramatically, significant efforts to promote settlement and alternative dispute resolution have become institutionalized, and litigation has become increasingly dominated by discovery and motion practice. There have also been substantial, not unrelated, changes in legal doctrine. In federal courts, for instance, the standards for surviving summary judgment have, by some accounts, been significantly tightened[22] and the reach of the Federal Arbitration Act, which requires states to strictly enforce arbitration clauses even in standardized consumer and employment contracts, has been extended by the U.S. Supreme Court.[23] In addition, legal practice has become increasingly specialized and high-priced, and the size of law firms has

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[22] *See* Arthur Miller, *The Pretrial Rush to Judgment: Are the "Litigation Explosion," "Liability Crisis," and Efficiency Clichés Eroding Our Day in Court and Jury Trial Commitments?*, 78 N.Y.U. L. REV. 982, 984, 1006, 1016 (2003).

[23] *See*, *e.g.*, Allied-Bruce Terminix Cos. v. Dobson, 513 U.S. 265 (1995).

exploded.[24] In the wake of these changes, a question has emerged: Is the trial disappearing from our legal system? It would seem that this should be a basic question with a straightforward answer. But the great difficulty in answering this question is a testament to the problems facing the availability and use of data about the legal system.

A. The Trouble With Numbers

The first place to look for the answer is the data published by the Administrative Office of the U.S. Courts, specifically the "C-4" tables in the Report of the Director that provide annual figures for the percentage of cases reaching trial. Marc Galanter recently observed from these tables that, whereas in 1962 a full 11.5% of all federal cases reached trial, in 2001, only 1.8% did.[25] This appears to be a stunning drop and clearly evidence of the fact that trials are vanishing from federal courtrooms. It confirms for many their anecdotal experience: the judge who hears only one or two trials a year; the court administrator who looks out on dark courtrooms; the trial lawyer who no longer goes to trial. As a phenomenon, it triggers a host of questions about causation. Is the drop a result of the increasing cost of litigation, fueled by increasingly expensive and specialized lawyering, extensive discovery, and heavy use of high-cost experts? Is it evidence of tort reform in disguise and the erosion of the role of the jury in the American legal system? Is the disappearance of the trial a result of the success of the alternative dispute resolution movement and judicial hostility towards trial? Is the phenomenon related to an increasingly pro-defendant or pro-corporate judiciary? Is it part and parcel of a clawing back of the rights created by the revolutions in civil rights and tort law that took place in the 1960's and 70's?[26] Does the elimination of the

[24] *See* JOHN P. HEINZ ET AL, URBAN LAWYERS: THE NEW SOCIAL STRUCTURE OF THE BAR 12, 37 (2005).

[25] Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Court*, 1 J. EMPIRICAL LEGAL STUD. 459, 459 (2004) (noting a 60% decline in the number of trials from 1962 to 2002).

[26] Judith Resnik, *Constricting Remedies: The Rehnquist Judiciary,*

trial reflect the "privatization" of litigation, with the resulting loss of public access to information and the public good of law developed through precedent? Does the diminished likelihood of trial imply a reduction in the deterrence effect of law?

These are "scientific" questions about law: about the frequency of a phenomenon, its causes and possible cures. If these questions were asked about safety mechanisms in a piece of machinery or about the medical care someone received, the law would require that scientific testimony about frequency, causation and cure be adequately rooted in scientific method, meeting the standards for professional engineers or medicine or statisticians including valid inferences and reliable proof:

> [I]n order to qualify as "scientific knowledge," an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation – *i.e.,* "good grounds," based on what is known. . . . [A] key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested. . . . [I]n the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error.[27]

Applying those same standards to our observations about the vanishing trial reveals just how little we know, in fact, about what is happening in even this most basic attribute of our legal system. Without those answers, it is difficult to know whether the vanishing trial is a good or a bad phenomenon. If trials are disappearing from the resolution of commercial contract disputes, that may be all for the good, if it reflects the rationalization of commercial disputes and a reduction in the cost of litigating. For these litigants, there may be little value to be gained from a third-party public determination of their conflict. On the other hand, if trials are disappearing from the claims made by individual citizens against large organizations—under the civil rights or tort laws—

Congress, and Federal Power, 78 IND. L.J. 223 (2003).

[27] Daubert v. Merrell Dow Pharms. Inc., 509 U.S. 579, 590, 593-94 (1993).

then the loss of the trial may be indicative of other democratic losses, both for the individuals involved and for the public. Certainly, we cannot begin to remedy any change we judge to be undesirable without knowing, in fact, what is happening and then, from that, why.

Recently, I "unpacked" the available data about the frequency of trials in federal court and discovered that we have a long way to go before we can reliably say whether or not the likelihood of trials (and which trials) has fallen over the past several decades, and even further before we can reliably say what might be causing that fall. There are four fundamental difficulties in interpreting the basic statistics reported by the AO: first, the data relate to a different population of cases than the group we are primarily interested in; second, the data are produced by a coding system that is not mutually exclusive and exhaustive; third, the coding system has changed over time; and fourth, there are errors in the coding. I take up these problems in turn.

1. What's In The Denominator?

The AO has consistently used the same criteria to measure the trial rate over the years it has been producing the C-4 tables: the number of cases that had reached the trial stage when they were terminated divided by the total number of cases terminated in a given year. This, as Galanter notes, is theoretically an overstatement of the trial rate because it includes cases that settle after trial has begun.[28] That overstatement, of course, makes the observation of the vanishing trial a conservative one: things, according to this number, are even worse than they appear if we are interested in the percentage of cases that are litigated to a decision by bench or jury. As such, we see an overstatement of the numerator in the reported trial rate.

The real difficulty in interpreting the trial rate reported in the AO's tables, however, comes from the denominator. It sounds appropriate enough: all terminated cases. However, a case is

[28] *See* Galanter, *supra* note 25, at 461 n.4.

"terminated" in the federal court data system whenever it leaves the district in which it was filed, however it leaves that district. Thus terminations include cases that are transferred to other districts or remanded to a state court or an agency. It includes cases that are withdrawn without prejudice and ready to be filed elsewhere if the plaintiff so chooses. It also includes cases that go on hiatus: stayed pending a bankruptcy proceeding or closed "statistically" due to inactivity, ready to be re-activated if need be. Thus, the denominator includes non-final results. This is important for two reasons. First, when interpreting the trial rate as the likelihood a case proceeds to trial *rather than* being settled or adjudicated (such as by summary judgment) without a trial, we are assuming the rate is the percentage of cases proceeding trial as a fraction of all *final* case outcomes. Although court administrators, at the district level, are very interested in what percentage of all the cases coming through their doors make it to trial, because that tells them how to interpret their filing data in terms of courtroom workload, analysts of the legal system are not generally interested in what percentage of all cases filed in a particular district went to trial; they want to know how frequently a decision was made by trial rather than agreement or dispositive motion.

The second reason that the fact that the denominator of the C-4 trial rate[29] includes non-final dispositions is important is that it is entirely possible for this trial rate to drop without any change at all in the likelihood that a case goes to trial. This can happen if the number of non-final terminations in a district increases, from an increase in transfers or remands, for example, or from an increase in the withdrawal of cases without prejudice.

There is another aspect of the denominator of the statistic reported in the C-4 tables that is misleading for analysts who want to interpret this statistic as the likelihood that a case goes to trial as opposed to being settled or adjudicated without a trial by motion. This is not a problem of how the statistic is defined, but of the way

[29] I want to emphasize that the AO does not call this a "trial rate." They, quite accurately, refer to it in the C-4 tables as "percent reaching trial." The *interpretation* of this statistic as a trial is something that researchers impose on it.

in which the statistic reflects a population of cases that does not match the case analysts generally have in mind. The federal statistic includes *all* cases filed (and hence terminated) in federal court. This includes a very large number of cases that are dealt with in largely administrative fashion, often uncontested or only minimally contested. These cases include prisoner petitions, which often raise *habeas corpus* and civil rights claims or challenges to prison conditions, and actions by the federal government to collect on unpaid student loans. These two categories of cases are a large fraction of all federal cases and a fraction that grew substantially over the last three decades: together, prisoner petitions and student loan recovery actions accounted for 20% of all federal cases in 1970; that number had grown to 30% by 2000.[30] This fact is important for two related reasons.

First, prisoner petitions are overwhelmingly treated in an administrative fashion: they are generally filed *pro se* and *in forma pauperis*, and just as generally dismissed summarily, either because the petition to file *in forma pauperis* is denied or because the allegations are facially without merit. Student loan recovery actions are also routinely dealt with in administrative fashion, not because they are without merit but because they are largely uncontested and default judgments are entered. Neither of these types of litigation are representative of the type of "ordinary" civil litigation that analysts have in mind when they interpret the AO's reported trial rates. Both of these classes of cases are essentially uncontested and do not tell us about the attributes of the ordinary litigation that motivates the trial rate inquiry; they don't tell us whether plaintiffs are facing financial barriers to full trials, or whether efforts at alternative dispute resolution are succeeding or whether early summary judgment motions are weeding out more cases. Of course, this will also be true of numerous cases in other case categories. But the sheer size of these two categories has the potential to skew our interpretation of the data.

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[30] S*ee* Gillian K. Hadfield, *Exploring Economic and Democratic Theories of Civil Litigation: Differences Between Individual and Organizational Litigants in the Disposition of Federal Civil Cases*, 57 STAN. L. REV. 1275, 1286-90 (2005).

The second reason the presence of these large essentially uncontested case categories is important is that we could be observing a fall in the reported trial rate simply by virtue of the growth of the size of this category of non-trial cases. The fact that this category grew by 50% over the past three decades suggests that caution should be taken when reading into the C-4 trial rate evidence any change in the way ordinary litigation is progressing through the courts over time.

2. Are the Categories of Cases Exhaustive and Mutually Exclusive?

A second reason why the data reported by the AO are difficult to interpret is because the coding system used by the AO—which is designed to accommodate the needs of the management of the federal courts and not researchers—is not exhaustive with respect to all the categories of interest to researchers and not mutually exclusive.

First, the AO has two variables that can be used to identify "trials": 1) a "procedural progress" variable that indicates the stage a case had reached at the time it was terminated, and 2) a "Disposition" variable that indicates the manner of disposition. The AO's C-4 tables are based on the procedural progress variable and indicate (as is of interest for those who have to manage the availability of courtrooms and judges) the percentage of cases that reach the trial stage. If researchers are interested in the question of whether a case is resolved by adjudication at trial, rather than by settlement or pre-trial motion, however, we need to look not at the procedural progress variable but at the disposition variable.

The disposition variable currently includes 20 codes, though the number has changed over time. Excluding the codes for clearly non-final terminations (such as transfers, remands and stays), the codes that are relevant to an investigation of the changing disposition of cases are:

Disp 2	Dismissed: want of prosecution
Disp 3	Dismissed: lack of jurisdiction

Disp 4	Judgment on default
Disp 5	Judgment on consent
Disp 6	Judgment on motion before trial
Disp 7	Jury verdict
Disp 8	Directed verdict
Disp 9	Court trial
Disp 12	Dismissed: voluntary
Disp 13	Dismissed: settled
Disp 14	Dismissed: other
Disp 17	Judgment on other
Disp 19	Judgment on appeal affirmed (magistrate judge)
Disp 20	Judgment on appeal denied (magistrate judge)[31]

Although this is a lengthy list, it is not an exhaustive list of the dispositions we would like to distinguish for purposes of exploring, for example, the question of whether increasing settlement rates or summary judgment rates account for any drop in trial rates. Notice first that the code for "Judgment on motion before trial" does not distinguish among the wide variety of motions that could terminate a case. A motion to dismiss for failure to state a claim (F.R.C.P. 12(b)(6)), for example, is not distinguished from a motion for summary judgment. The code for "Dismissed: other" also does not distinguish between a dismissal for failure to state a claim and other reasons for dismissal (such as a failure to adhere to required filing deadlines). Likewise, "judgment on other" does not distinguish among the "other" reasons for a judgment to be rendered, such as an order from an appellate court to enter judgment and a judgment on the pleadings. Similarly, the code for dismissed for lack of jurisdiction does not distinguish between dismissals for lack of subject matter jurisdiction, which are generally with prejudice, and dismissals for lack of personal jurisdiction, which are generally without prejudice.[32]

While the lack of exhaustive categories is significant, the greater problem facing empirical researchers is the failure of the

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[31] FEDERAL JUDICIAL CENTER, FEDERAL COURT CASES: INTEGRATED DATA BASE, 1970-2000, PART 117: CIVIL TERMINATIONS, 2000, 14-15 (2002).

[32] FED. R. CIV. P. 41(b).

coding system to be mutually exclusive. This is, however, a problem that only becomes apparent on review of how the coding system is used in the courts. To review the coding system, I[33] conducted thousands of audits of several of the codes for the 2000 data using the internet-accessible PACER system.[34] That is, I drew samples of cases coded, for example, "judgment on motion before trial," and then looked at the docket sheet for each case in the sample to determine whether the case was indeed terminated with judgment on a motion before trial. What I found is that particular dispositions were coded in multiple ways.[35] Settlements, for example, were not always coded "Dismissed: settled." Often they were coded as "Dismissed: voluntary." Sometimes they were even coded as "Dismissed: other" or "Judgment on other." These are not obviously wrong codings, from the perspective of the court system and the goals of judicial management. But the overlapping use of the codes presents an enormous difficulty to researchers seeking to identify all the cases that are settled.

The unfortunate implication of the lack of mutually exclusive coding is that to a large extent empirical researchers lose what is so valuable about the federal judicial database, namely that it provides extensive detail on a case-by-case basis. This is the type of data that is required to perform regression analysis, necessary to test hypotheses about the potential causes of variation across case-types, across jurisdictions, among litigant types, and over time in the disposition of cases. While the audits provide a method of correcting the data,[36] they relegate us to descriptive analysis of the aggregate patterns in disposition.

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[33] Together with several research assistants, to whom I am grateful.

[34] I am grateful to the great many judges in the federal district courts who granted me a waiver of the fees normally charged for access to PACER.

[35] For a complete description of these results, see Hadfield, *supra* note 30.

[36] *See* Gillian Hadfield, *Where Have All the Trials Gone?*, 1 J. OF EMPIRICAL LEGAL STUD. 705 (2004) (providing a method for correcting the data).

3. How Much Error Is There In the Coding of Cases?

A third source of difficulty in the use of the federal trials data is the presence of sheer error in the coding of cases. This is more problematic than admitting that the coding system is not mutually exclusive and that there are multiple "correct" codes possible for a settled case, for example. Instead it goes to the basic problem that a transferred case, for example, can be mis-coded as disposed of by judgment on a motion before trial. A certain amount of coding error of this type is expected in any large data set, but the rates of error in the federal data are relatively high for some codes.[37]

When we combine the true errors in coding with the errors that a researcher who interprets the codes to be mutually exclusive will make, we find some impossibly high rates of error overall:

Disp 6	Judgment on motion before trial	20%
Disp 7	Jury verdict	8%
Disp 9	Court trial	12%
Disp 12	Dismissed: voluntary	50%
Disp 13	Dismissed: settled	6%
Disp 14	Dismissed: other	65%
Disp 17	Judgment on other	50%

The errors shown above are "type 1" errors, that is, cases in which the true disposition is not the coded disposition, as that code might be naturally interpreted by a researcher. The error in the "Dismissed: other" category, for example, reflects that fact that in 2000, a researcher who relied on this disposition code to identify dismissals that were neither voluntary, nor settlements, nor transfers, nor dismissals for lack of jurisdiction, nor stays—and thus infers that the remaining cases were adjudicated dismissals—will be wrong 65% of the time. Other errors are "type 2" errors and are similar to what was described above, in

[37] Theodore Eisenberg & Margo Schlanger, *The Reliability of the Administrative Office of the U.S. Courts Database: An Initial Empirical Analysis*, 78 NOTRE DAME L. REV. 1455 (2003) (documenting the codes in the federal data used to identify the amounts demanded and awarded).

which a disposition associated with one code is mis-coded and thus "hidden" in another code. I found significant numbers of bench trials, for example, hidden in the codes for "Judgment on other" and "Dismissed: other." This has significant implications for the reliability of claims about the disappearing trial.

4. Are the Codes the Same Over Time?

A final difficulty in using the federal trial data to assess changes in the disposition of federal cases, and specifically to answer the question of whether trials are vanishing, is that the coding system used by the federal courts has changed over time. Again, this is a standard issue facing researchers working with time series, and the federal courts are no exception. There are always tradeoffs to be made in deciding whether to "fix" a coding system (clearly the critique I offer above suggests some possible "fixes") and thereby disrupt the comparability between years.

Prior to 1979, there were no disposition codes for trial outcomes; only a "Judgment for" code indicating "Judgment for plaintiff," "Judgment for defendant," or "Judgment for both." This is why, for comparability going back to the early 1960s, it is only possible to report the percentage of cases going to trial using the procedural progress variable.

The most significant change in the disposition codes in the federal data happened in 1986. During that year, the courts switched from a coding system with ten codes to one with twenty. Obviously, this was a significant beneficial gain in terms of the exhaustiveness of categories. But it presents researchers with the problem that, even accounting for the errors discussed above, it is not possible to go back earlier than 1987 to track what happened, for example, to particular types of dismissals. Prior to 1987, there were two categories of dismissal: "Dismissed for want of prosecution," and "Dismissed, discontinued, settled, withdrawn, etc." This lack of continuity limits the ability to assess claims about longer-term changes in the disposition of federal cases.

The changes in the coding systems also introduce another problem, which is that the change evidently prompts a spike in

coding errors, as clerks become accustomed to the new system. In 1986, the disposition code "3" referred to "Dismissed, discontinued, settled, withdrawn, etc." In 1987, disposition code "3" referred to "Dismissed for lack of jurisdiction." A review of the 1987 data appears to indicate that there were a tremendous number of dismissals for lack of jurisdiction in 1987—clearly a result of large numbers of cases which were dismissed for any reason continuing to be coded with a "3." Over a period of about 5 years, this number settles down to a more believable and relatively low rate.

B. Making Do With the Data: What We Know

As most of the scientists who deal with courts would attest, the problems of incomplete, unreliable and inadequate data are hardly rare. Indeed, much of the skill of analyzing data in a reliable scientific manner is the skill of teasing out evidence capable of testing hypotheses from problematic data. The problems in the federal court data, with which we would like to test hypotheses about the changing disposition of cases, severely limit what we can say, even descriptively; but we are not left with nothing to say at all. And if anything, the inadequacies provide a strong argument for the need for more and better data about the legal system.

After conducting the audits of the disposition codes in the federal data, I used these results to estimate the "correct" percentage of cases in each code for the year 2000. My samples in the audits were generally large enough, for example, to determine with some confidence the actual share of settled cases and tried cases.[38] In addition, in order to examine questions about the role that the type of litigant might play in the disposition of cases, I coded the case-level data for the type of plaintiff and defendant, either "individual" or "organization," and again I audited the coding system against the PACER docket records.[39] I then

[38] *See* Hadfield, *supra* note 30, at 1281-84 (giving full discussion of this estimation technique and the others discussed).

[39] These types of questions include: Do individual litigants face higher cost obstacles to going to trial? Do businesses prefer to settle cases in order to benefit

estimated the correction factors for the disposition codes based on samples of cases that were drawn separately from the four casetypes that resulted from the litigant coding I used: individual versus individual, individual versus organization, organization versus individual, and organization versus organization. This allowed me to estimate the percentage of cases disposed of by the various modes of disposition for each of these four case types. Table 1, below, shows the results I obtained when I restricted the population of cases to those that were most like the "ordinary" civil lawsuit we generally have in mind when assessing the pros and cons of the vanishing trial. I removed the prisoner and student loan cases from the population given the risk that these would distort our picture. I also removed cases that were non-final and those that were uncontested through either default or abandonment, that is, cases where there was no real possibility that the case could have been tried, settled, or disposed on a contested pre-trial motion. (In the following table, I refer to any final case disposition other than full trial or settlement as "non-trial adjudication.")

Table 1: Disposition by Casetype, Final Contested Terminations, Federal Civil Cases 2000

True Disposition (percent)	**Casetype**			
	I v. I	**I v. O**	**O v. I**	**O v. O**
Settlement	55.0	53.1	71.6	71.0
Non-Trial Adjudication	34.5	34.5	21.1	22.0
Bench Decision	5.7	7.3	5.7	5.6
Jury and Directed Verdict	4.2	2.6	1.2	1.4
All Trials	9.9	9.9	6.9	7.0

from the confidentiality that can be maintained? Has the overall trial rate decreased because of a shift to a greater percentage of cases involving organizational litigants?

The problems in the data that I have discussed limit my ability to perform statistical significance tests on these estimates,[40] but there is a good basis nonetheless for confidence in the many differences shown in Table 1. As we can see, individual and organizational plaintiffs see significantly different results in their cases. Individual plaintiffs are much less likely to see their cases settled than are organizational plaintiffs, in both cases regardless of whether the defendant is an individual or an organization. Individual plaintiffs are much more likely to see their cases adjudicated, with or without a full trial, than are organizational plaintiffs, again regardless of whether the defendant is an individual or an organization.

Most importantly, from the perspective of investigating claims about the vanishing trial we can see first that the trial rate has not shrunk to zero, or even to 1.8%, as we might conclude from the original AO C-4 tables.[41] In 2000, individual plaintiff cases went to trial 10% of the time. Comparatively, organizational plaintiff cases went to trial 7% of the time. Overall, given that individual plaintiff cases account for approximately 70% of all federal civil cases,[42] even after excluding prisoner and student loan cases, the overall trial rate for federal civil cases was on the order of 9% in 2000.

If we now want to know whether *this* trial rate—the percentage of final, contested non-prisoner, non-student loan cases that were resolved with a trial rather than settlement or non-trial adjudication—is higher, lower or the same as it was in 1970, however, we face a true obstacle. The work that was required to more accurately estimate the 2000 trial rate, as laborious as it was, is nothing compared to the work that would be required to perform the same procedures for the 1970 data. To audit the 1970 data for true disposition and casetype, would require hand-culling dockets from the files in courthouses across the country, even if we used (as we could and should) only a sample of districts to estimate the results for the federal system as a whole.

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[40] *See* Hadfield, *supra* note 30, at 1316-18 (discussing the significance of the results up to the step prior to the one represented in this table).

[41] *See supra* note 25 and accompanying text.

[42] *See* Hadfield, *supra* note 30, at 1298 (giving these estimates).

Even without the appropriate data for comparison to 1970, however, we can see in Table 1 the reason why we need significantly improved data and investigation into the basic question of whether the trial rate has changed over time. It is clear that today the type of litigants in a case, in particular the type of plaintiff, matters significantly for the disposition of the case. Moreover, as I discuss more fully in the paper that developed these estimates, the normative and prescriptive implications of changing case disposition vary depending on the nature of the litigants: a drop in public trials may be a concern in cases involving individuals but not in cases involving organizations only; efforts to increase settlements may have different effects and may need different designs depending on the nature of the litigants involved; and so on.[43] Table 1 also raises the possibility—a hypothesis that needs to be tested—that increased efforts to dispose of cases pre-trial, such as heightened standards for surviving a motion for summary judgment, may not reduce costly expenditures on trials—they may only reduce the incidence of relatively less expensive settlement. Additionally, Table 1 also suggests a caution for the frequent assumption that reduced trial rates must imply reduced public adjudication and hence precedent creation. In reality, it appears that much of the difference in settlement rates between individual plaintiff and organizational plaintiff cases comes not from differences in the rate of trial but rather from differences in the rate at which cases are disposed of with non-trial adjudication, a process that can and does produce precedent. At a minimum, Table 1 tells us that the phenomena occurring in the federal courts are complex and in need of much more refined empirical investigation before we can reach appropriate conclusions about whether and how judges and courts should change what they do.

CONCLUSION

The investigation of the data underlying the vanishing trial contains a sobering message for the important questions judges,

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[43] *See id*.

lawyers, and policy makers have about the relationship between science and law. Even with respect to the much less refined, purely descriptive, question of whether cases are more or less likely to go to trial today than they were in 1970, our knowledge is painfully slim. This is especially true once we subject our claims to the same types of rigorous standards we require of the scientists and science-based decisions the legal system regulates. Answering the hard questions of whether *Daubert* hearings are weeding out too many or too few cases, whether the cost of science-based litigation is hobbling scientific investigation, whether corporations are resorting to secret settlements to such an extent as to reduce the deterrence effect of law, and so on, require us to press far beyond the limits of what we reliably can say—on the basis of data and proper inference, not anecdote and personal experience—about what is happening in our courtrooms and law offices.

Indeed, the work on the vanishing trial question that I have conducted cautions in particular against the risks we face of misunderstanding the legal system if we look only to personal experience. Table 1 showed that what is happening to the trial in federal courtrooms—how many cases are settling, how many are being disposed of with non-trial adjudication, how many are ultimately going to trial—depends significantly on the type of litigants involved, whether individual or organizational. We know from other empirical work, specifically the careful studies of Chicago lawyers reported in the 1982 book *Chicago Lawyers* and the recent *Urban Lawyers*, that the lawyers who represent organizations are not generally the same lawyers who represent individuals.[44] Moreover, the lawyers who represent organizations tend to have greater prestige and influence in the legal profession. We need to be careful, then, to remember that particular lawyers—participating in ABA committees, for example, or contributing to conferences discussing the state of the legal system—will have personal experiences (of never getting to trial, settling more often or facing greater difficulty surviving summary judgment, for example) that are reflective of the particular type of clients they

[44] *See* HEINZ, *supra* note 24; JOHN P. HEINZ & EDWARD O. LAUMANN, CHICAGO LAWYERS: THE SOCIAL STRUCTURE OF THE BAR (1982).

represent. The data we do have should warn us against the reliability of a generalization from personal experience that does not take into account the differences among clients, and among lawyers. Similar differences could be found, I suspect, if we looked to the mix of casetypes that show up in courtrooms in different parts of the country. This would suggest a caution to judges about generalizing from personal experience and should spur the call for more and better data on which we can reliably base our understanding of how our legal system operates.

The importance of the issues of how law regulates science, then, demands that law become more scientific itself. This requires that those in the legal system, including lawyers, judges, legal scholars and policymakers, understand the need for vastly increased efforts to collect data about the legal system. Institutionally, the legal system needs to develop a "public health" attitude towards itself, and find ways, as the medical community has, to protect confidentiality for clients without treating everything that happens in the legal system as a strictly private matter. Just as the information doctors gain from documenting what happens to a patient who comes into a hospital for treatment is ultimately essential for the progress of medicine, so too is the information gained by lawyers, judges and courts from evaluating, litigating, settling and adjudicating cases essential for the progress of law.