

REORGANIZATION REALITIES, METHODOLOGICAL REALITIES, AND THE PARADIGM DOMINANCE GAME

LYNN M. LOPUCKI*

In these two papers by Warren and Westbrook¹ and Sullivan,² bankruptcy academics have had their first look at the largest and most expensive study of business bankruptcy ever conducted. The study will deal simultaneously with virtually every issue currently of law reform significance. The researchers will investigate the effectiveness of the business bankruptcy system both in reorganization and liquidation, the purposes for which business bankruptcy is being employed, the effectiveness of particular case management techniques, the relationship between the client's success and the amount of fees charged, and numerous other matters. The sample of 3,450 cases is drawn from business bankruptcies filed in 1994 under Chapters 7, 11, and 13 of the Bankruptcy Code. The researchers will follow the cases for five years, working from both documents in the court files and interviews with participants. A study of this magnitude by such highly qualified researchers is certain to change the face of bankruptcy scholarship.

The comments I present here pertain to two subjects. The first is the Warren and Westbrook attack on "arm chair theorists"³ and the response of the Conferees to this attack. The second is the problem of sample selection and its relationship to regularized data gathering.

I. ARM CHAIR THEORY AND THE PARADIGM DOMINANCE GAME

It is a well-known fact that if you put scholars from different disciplines in the same room, they will fight. It is also predictable that a good fight

* Lynn M. LoPucki is the William R. Orthwein Professor of Law at Washington University in St. Louis. Appreciation is expressed to Dan Keating and Kathy Brickey for their helpful comments on an earlier draft.

1. Elizabeth Warren & Jay Lawrence Westbrook, *Searching for Reorganization Realities*, 72 WASH. U. L.Q. 1257 (1994).

2. Teresa A. Sullivan, *Methodological Realities: Social Science Methods and Business Reorganizations*, 72 WASH. U. L.Q. 1291 (1994).

3. "Arm chair theorist" is a term of derision employed by theorists from empirical disciplines to refer to theorists from other disciplines who neither do, nor read the results of, empirical research. See, e.g., John H. Schlegel, *American Legal Realism and Empirical Social Science: From the Yale Experience*, 28 BUFF. L. REV. 459, 543 (1979).

will draw a crowd. Once the adrenalin starts to flow, so do the ideas. To a large degree, this was the theory underlying the Interdisciplinary Conference on Bankruptcy and Insolvency Theory. Add that Warren and Westbrook's paper is deliberately provocative of arm chair theorists, that they did not hesitate to name names, and that arm chair theorists and their fellow travelers were present in substantial numbers at the Conference, and it is not surprising that sparks flew.

The gist of Warren and Westbrook's complaint is not so much that "speculation without reference to reality"⁴ is going on, but that it is being taken seriously in debates over policy. Despite the intemperate nature of Warren and Westbrook's remarks, I generally agree with them. Economists who work on bankruptcy tend to slip off into the world of perfect markets and zero transaction costs where, if the truth be known, every public policy works equally well and none makes any sense.⁵ Finance scholars are flagrant violators of rules established by the discipline of sociology regarding sample selection.⁶ A group of the most highly regarded

4. Warren & Westbrook, *supra* note 1, at 1260.

5. See Lynn M. LoPucki, *Strange Visions in a Strange World: A Reply to Professors Bradley and Rosenzweig*, 91 MICH. L. REV. 79, 106-110 (1992).

6. See, e.g., Michael Bradley & Michael Rosenzweig, *The Untenable Case for Chapter 11*, 101 YALE L.J. 1043, 1064 n.60, 1075, 1091 (1992) (concluding that "bankruptcy firms were weaker financially before the Act than after" based on data for only 30 of the 157 firms in the pre-Act sample, and explaining that their source, COMPUSTAT, did not have data on the other firms); Allan C. Eberhart et al., *Security Pricing and Deviations from the Absolute Priority Rule in Bankruptcy Proceedings*, 45 J. FIN. 1457, 1459 (reducing an initial sample of 190 firms to 30, principally on the basis of whether "complete information needed to assess values of assets distributed to various classes of claimants" was available); Julian R. Franks & Walter N. Torous, *An Empirical Investigation of U.S. Firms in Reorganization*, 44 J. FIN. 747, 752 (1989) (reducing an initial sample of 125 eligible firms to 30 "because either the company had not yet emerged from reorganization, or it had been liquidated, or details were not in our main information source, *The Capital Changes Reporter*"); Lawrence A. Weiss, *Bankruptcy Costs and Violation of Claims Priority*, 27 J. FIN. ECON. 285, 286-88 (1990) (reducing an initial sample of 99 firms that may have been representative to 37, essentially by omitting the files that were difficult to get).

In the social science literature, such samples are referred to as samples of "convenience" or "availability" and looked upon with disdain. To extrapolate them to the universe is considered improper. See, e.g., BEVERLY R. DIXON ET AL., HANDBOOK OF SOCIAL SCIENCE RESEARCH 135 (1987) ("Only if the sample studied can be shown to represent a larger population can the results of a study of the sample be taken to give reliable information about the larger population. If the sample studied is not representative, the conclusions drawn from the research must be limited to the sample studied."); PAULINE V. YOUNG, SCIENTIFIC SOCIAL SURVEYS AND RESEARCH 330-31 (1949) ("The actual selection of a sample should be so arranged that every item in the universe under consideration must have the same chance for inclusion in the sample There are many studies in the social sciences bearing the more superficial earmarks of erudition and authority that are intrinsically worthless and misleading because they are based on unrepresentative samples.").

economists in the world keep pushing a scheme that is supposed to reorganize even the largest companies by auction in approximately five months.⁷ This is about one-fifth the time big cases take under current procedure.⁸ Though the economists first presented their proposal more than two years ago, and the *New York Times* featured it in a front-page story,⁹ these economists have not yet begun to explain how they will deal with apparently insoluble problems in implementation. Under their proposal, businesses the size of Manville or Macy's would be assessed, auctioned, and bids announced in the three months immediately following the filing of the bankruptcy petition.¹⁰ In cases like Manville or A.H. Robins, hundreds of thousands of tort cases—including cases not yet brought and cases on behalf of persons not yet injured—would have to be resolved in the four months immediately following the filing of the bankruptcy petition.¹¹ The economists' failure to either scale back their claims or explain how they would implement their scheme makes further analysis impossible.¹² When those who hold the highest towers of academia refuse to discuss reality, the debate over bankruptcy policy turns surreal.

Warren and Westbrook are also right in their criticism that much of the so-called "theoretical" literature is so abstract that it cannot be tested empirically. To put it a slightly different way, the literature makes no assertions whatsoever about the reality of the bankruptcy process. What it

7. See Philippe Aghion et al., *The Economics of Bankruptcy Reform*, 8 J.L. ECON. & ORGANIZATION 523, 524 (1992); Philippe Aghion et al., *Improving Bankruptcy Procedure*, 72 WASH. U. L.Q. 849 (1994) [hereinafter Aghion et al., *Improving Bankruptcy Procedure*].

8. See Lynn M. LoPucki, *The Trouble With Chapter 11*, 1993 WIS. L. REV. 729, 741-44 (collecting findings from empirical studies of time in Chapter 11 for large, publicly held companies).

9. Peter Passell, *Critics of Bankruptcy Law See Inefficiency and Waste*, N.Y. TIMES, Apr. 12, 1993, at A1.

10. Aghion et al., *Improving Bankruptcy Procedure*, *supra* note 7.

11. See *id.* Warren and Westbrook raise other issues suggesting impracticality. Warren & Westbrook, *supra* note 1, at 1262.

12. The current debate in Congress is over a proposal in Senate Bill 540 to lift the debtor's exclusive right to file a plan at the end of one year. S. 540, 103d Cong., 1st Sess. § 102 (1993) (proposing amendments to 11 U.S.C. § 1121(d)). This proposal does not require that a plan be filed within one year or authorize any action by the court if a plan is not filed within that time. It merely allows parties in interest other than the debtor to file plans. *Id.* Because the drafters of Senate Bill 540 do not consider even this curtailing of exclusivity at the end of one year to be appropriate for every case, the bill permits the court to make an exception when the delay is "attributable to circumstances for which the debtor should not be held justly accountable." *Id.* The Aghion, Hart, and Moore proposal, by contrast, offers no possibility for extension of either the three-month period for sale of the business or the four-month period for resolution of claims. See Aghion et al., *Improving Bankruptcy Procedure*, *supra* note 7, at 862-63.

does is to offer a frame of reference for thinking about that process. The author tells us to think about bankruptcy as though it were a lake full of fish,¹³ about debt as if it were all preferred stock,¹⁴ and about security interests as if they were property rights.¹⁵ These are not assertions about what is going on in the world, they are assertions about what should be going on in our heads. They are part of a deadly serious endeavor of legal scholars that I call the "Paradigm Dominance Game."

The object of the Game is not so much to solve a problem as to get everyone thinking about the problem in one's own frame of reference and talking about it in one's own language. It is to take center stage. Paradigm Dominance is a game more easily played from the heights of academia than from its depths, making it the favorite pastime of scholars at the most prestigious schools. With the Game thus biased, it would be strategic error for these scholars to stoop to the level of empirically testable reality. At that level, anyone with the facts on their side might win. Yet they must *appear* to be making statements about reality, or the Game would cease to interest its audience.

I concede to Warren and Westbrook these points: (1) that the academic speculation to which they refer is frequently, if not usually, grounded in grossly incorrect assumptions about the realities of bankruptcy; and (2) that the policy recommendations contained in most of it are not deserving of serious consideration for implementation. But where I differ with them is in their implicit assumptions: (1) that tacking an unrealistic policy recommendation onto the end of an interesting argument from which it does not follow makes the argument less interesting, and (2) that academic work must be justified on a policy basis or not at all.

Warren and Westbrook criticize Adler and Rasmussen for failing to highlight the fact that the radical reforms they proposed for the bankruptcy system would only make sense if involuntary creditors were first given priority over contract-based creditors.¹⁶ In doing so, Warren and

13. THOMAS H. JACKSON, *THE LOGIC AND LIMITS OF BANKRUPTCY LAW* 11-13 (1986).

14. Barry E. Adler, *Financial and Political Theories of American Corporate Bankruptcy*, 45 *STAN. L. REV.* 311, 332-33 (1993).

15. Steven L. Harris & Charles W. Mooney, Jr., *A Property Based Theory of Security Interests: Taking Debtors' Choices Seriously*, 80 *VA. L. REV.* (forthcoming 1994).

16. The admission that bothered Warren and Westbrook was that "nonbankruptcy law would need to be adjusted to provide for priority for involuntary creditors—or at least parity with contract-based creditors, including Article 9 secured parties." Warren & Westbrook, *supra* note 1, at 1261-62. Adler alluded to the necessity for involuntary creditor priority in the article in which he initially proposed his reform. See Adler, *supra* note 14, at 340 ("Ideally, nonconsensual claimants would have highest

Westbrook implicitly define scholarship as a game in which the winners' ideas are, or at least might be, enacted by Congress without further discussion. To them, Adler and Rasmussen are academic speculators who tossed out half-baked proposals to reorder all of society, only to discover later that they had not thought through the implications. Adler sees the game differently. Though his 1993 article advocated on its face the adoption of legislation to implement his chameleon equity idea,¹⁷ he referred to it during the discussions as a "thought experiment."

I am less bothered than Warren and Westbrook about the failure of scholars from other disciplines to stop work until the empiricists discover and document reality.¹⁸ Most economists are bad at reality; their simplistic models do not begin to capture phenomenological reality. But most realists are bad at economics. We miss most of the economic interrelationships. When reality and economics come together in consistent theory, it undoubtedly will be in complex models manageable only by computer and unreproducible in law reviews.¹⁹

To assess work on either the realists' or the economists' side, the right questions to ask are how often they are producing insights and whether the field, in the aggregate, still manages to stumble forward. Without the unrealistic work done by Baird and Jackson during the 1980s, bankruptcy scholarship might not have gone beyond the relatively shallow analysis produced by doctrinalism in the 1970s. Interdisciplinary cooperation is messy, inefficient, and unsatisfying. The only good thing one can say about it is that it works.

The response of the Conferees to Warren and Westbrook's attack was to counterattack on two fronts, both predictable by anyone who has done empirical research relating to socio-legal problems: your study should be larger and you should tell us in advance what you will find. Translated into socio-speak, the language actually used by the Conferees, the first objection was the lack of a "control group" made up of companies that had

priority in any sort of firm."). As an advocate of the making of such a change, I regard their "admissions" as intellectual progress. See Lynn M. LoPucki, *The Unsecured Creditor's Bargain*, 80 VA. L. REV. (forthcoming 1994) (advocating priority for involuntary creditors over consensual creditors).

17. Adler, *supra* note 14, at 340-41.

18. Though I do wish, along with Warren and Westbrook, that those scholars would read our work and refrain from making the few assumptions we *know* are incorrect.

19. *But see, e.g.*, M. MITCHELL WALDRUP, COMPLEXITY 241-74 (1992) (suggesting that traditional "deductive" economics that assumes the economy is moving toward equilibria will have to yield to inductive computer modeling to yield a realistic understanding of economic phenomena).

financial problems but did not go into bankruptcy; the second was the lack of specific hypotheses.

Warren and Westbrook's response to the control group criticism was to challenge the critics to solve the problem they had raised. How could one identify a group of companies that did not go into bankruptcy, but in other respects were the same as those who did? It is a tribute to the intellectual power in the room that the Conferees made a pretty good start on the problem. Professor Mooney advanced the best suggestion: work through major creditors who would hold statistical data on large numbers of debtors, some of whom filed and some of whom did not.

Warren correctly responded during the discussion that it would still be impossible to identify a control group with characteristics matching a representative sample drawn from the bankruptcy cases. One would first need to know the salient characteristics of the bankruptcy cases to match them to a control group; yet determining those characteristics is the very purpose of the Sullivan, Warren, and Westbrook study. I would add only a minor qualification to Warren's response. Researchers could, as Mooney suggests, match the control group and the bankruptcy sample simply by drawing both the sample and the control randomly from the bank's records. The bankruptcy portion of the sample would then not be representative of bankruptcy cases generally; it would be representative of only the bankruptcy cases of debtors who borrowed from the bank. In other words, the researchers could have a control group for their bankruptcy sample or have a bankruptcy sample that is representative of bankruptcy cases generally, but they could not have both. If the researchers chose the control group rather than the representative bankruptcy sample, they could still attempt, after gathering the data, to project the findings from their non-representative sample to the population of all business bankruptcy cases. They would do that by comparing their sample to representative samples drawn by other researchers or to data gathered on all business bankruptcy cases. The dearth of data appropriate for making such a projection is discussed in the next Part.

Even if data appropriate for projection were available, that would not demonstrate that Warren and Westbrook should have drawn the control group and used the other data for projection. For one thing, the projection would render all of the findings somewhat less certain. Second, there would be an issue of resources. Every empirical study has a boundary—the limits of what the researchers have chosen to investigate—and there is virtually always a potential “control” group languishing just beyond that boundary. If, for example, Warren and Westbrook had included a control

group of financially troubled companies, critics could still have responded that one cannot assess the reorganization of troubled companies without a "baseline," i.e., a control group of nontroubled companies. Every research design can easily and justifiably be met with a demand for a larger and more expensive one.

The specific hypothesis objection is more troubling. Bill Whitford and I encountered it during the National Science Foundation's review of our application to study the bankruptcy reorganization of large, publicly held companies. Hypothesis formulation tends to improve study design by assuring collection of all data necessary to disprove the hypothesis. Sociologists insist on it as a demonstration of "rigor." Yet, Whitford and I were convinced that a less rigid approach, more in the tradition of empirical anthropology, would yield greater insight. We simply did not know enough about the reorganization of large, publicly held companies to formulate all of our hypotheses in advance. Neither did anyone else, except the participants we would interview in the study.

We formulated hypotheses where we could. Probably not without serious misgivings, the National Science Foundation awarded the grant. Most of what I regard as our most interesting and most useful findings were in no way the subject of hypotheses stated in advance. We decided to gather data on venue choice and forum shopping as a result of interviews conducted well after the study was under way. We initially set out to study the loyalties of management. To do so, we had to gather data on the identity of these managers. In doing so, we discovered that there were an extraordinary number of them for so few companies. We rearranged the data and eventually demonstrated, to the surprise of just about everybody, that management turnover was almost universal in the reorganization of large, publicly held companies.²⁰ Hypothesis formulation is a valuable process, but to insist that it be universal, even with regard to previously uninvestigated phenomena such as business bankruptcy, would stifle research.

20. See Lynn M. LoPucki & William C. Whitford, *Corporate Governance in the Bankruptcy Reorganization of Large, Publicly Held Companies*, 141 U. PA. L. REV. 669, 723-37 (1993). One person not surprised was Professor Stuart Gilson, who published similar findings while our study was in progress. See Stuart C. Gilson, *Management Turnover and Financial Distress*, 25 J. FIN. ECON. 241, 246 (1989).

II. SAMPLE SELECTION, EPISODIC STUDIES AND REGULARIZED DATA GATHERING

Sullivan, Warren, and Westbrook will draw their sample of 3,450 cases from 43 of the 174 bankruptcy clerk's offices in the system. That is only 24.7% of the clerk's offices. But because they include the highest filing districts in each circuit, the sampled offices contain the files of more than half of all business bankruptcies. Both Sullivan and Warren and Westbrook devote large portions of their papers to explaining why they believe that a sample drawn from the particular offices they chose will be representative of the cases in the offices from which no samples were drawn.

Given their limited resources, their choice of clerk's offices is about as reasonable as any other. But as Sullivan, Warren, and Westbrook have themselves documented, there is a tremendous variation from place to place in the way bankruptcy cases are handled.²¹ It remains possible that cases are handled quite differently in a substantial portion of the 131 clerk's offices from which no samples were taken.²²

Given the high cost of sampling from 43 clerk's offices, it is apparent that the cost of sampling from all 174 clerk's offices would be prohibitive. Even if someone raised the money to do it, the resulting description of the bankruptcy caseload would still be merely a projection from a sample.

The ideal would be to gather far more data than Sullivan, Warren and Westbrook will gather and to gather it on all cases in all clerk's offices. The irony is that the United States government already bears the expense of such gathering, but publishes relatively little of the resulting data. The clerk's offices each have one of two computerized case management systems that contain extensive information on each case. The data in those systems are not entirely compatible and, because of the systems used, are generally inaccessible to researchers. Most of the information never leaves the particular clerk's office.

21. *See, e.g.*, TERESA A. SULLIVAN ET AL., AS WE FORGIVE OUR DEBTORS: BANKRUPTCY AND CONSUMER CREDIT IN AMERICA 246-52 (1989).

22. Sullivan, Warren, and Westbrook will use data gathered by others from all districts as a basis for projecting their data to the rest of the country. That data includes a large study conducted by the General Accounting Office. (Data from that study was published in UNITED STATES GENERAL ACCOUNTING OFFICE, BANKRUPTCY ADMINISTRATION: CASE RECEIPTS PAID TO CREDITORS AND PROFESSIONALS (July 1994)), and mini-studies conducted by Ed Flynn of the Administrative Office of the U.S. Courts. This additional data may alert the researchers to the nonrepresentative aspects of their limited, 43-clerk's-offices, sample and enable them to compensate for it in projecting to the remainder of the country.

The Administrative Office requires the clerk's offices to forward particular facts on each case at the time the case is opened or closed. A small part of this information is published in *Federal Judicial Workload Statistics*, but most of it is not published at all. Recently, Ed Flynn, a statistician in the Administrative Office, has been conducting studies of this data and publishing them in a column in the *American Bankruptcy Institute Journal*.

As Sullivan, Warren, and Westbrook wrote almost a decade ago,²³ episodic studies can give only a very limited view of the bankruptcy system. Episodic studies require sophisticated researchers, they are expensive and time consuming, and the findings may be out of date by the time they are published. What bankruptcy scholars need is the same thing that bankruptcy policymakers need: a continuous, reliable flow of accurate data on the movement of cases through the bankruptcy courts. To run the bankruptcy system without it is to fly blind.

Why has this flow of data not been established? It is not because progress is slow. Prior to 1978, the Administrative Office published *more* information on each case in the system than it publishes today.²⁴ As we enter the information age, availability of government data has been shrinking.²⁵ It is not because the politicians who run the system do not appreciate the value of information. Exactly the opposite seems the more likely explanation. One of the fundamental principles of politics is that "information is power." When information flows are poor, those closest to the source—bankruptcy judges, clerks, creditors, debtors, bankruptcy professionals, and the politicians informed by those groups' lobbyists—have relatively more power. When information flows are good, the insiders lose their advantage. In designing the information systems now in use, the insiders decided how much of their power they wanted to share with the outsiders; they decided to share very little. If this is indeed what

23. Teresa A. Sullivan et al., *The Use of Empirical Data in Formulating Bankruptcy Policy*, LAW & CONTEM. PROBS., Spring 1987, at 195, 209.

24. Publication by the Administrative Office of the U.S. Courts of *Tables of Bankruptcy Statistics* ceased in 1978. This eliminated, among other data, the only statistics on the number or proportion of bankruptcy cases initiated by creditors rather than debtors.

25. See, e.g., John Shattuck, *The Right to Know: Public Access to Federal Information in the 1980s*, 5 GOV'T INFO. Q. 369, 371 (1988) (reporting a reduction to access to government information resulting from, among other factors, decreased government publication budgets and heightened national security concerns); American Library Association, *Less Access to Less Information By and About the U.S. Government*, 15 DOCUMENTS TO THE PEOPLE 76-102 (1987) (providing a chronology of cutbacks in available information from 1981-86).

is going on, it may take longer than most people expect for the official government data flows to reach levels adequate for realistic bankruptcy theorizing.

Regularized data gathering is not a substitute for empirical research, or vice versa, even when the data gathering is continuous. Each plays a separate role. They are similar in that both reflect the theories and interests of the gatherer. Whether in empirical research or regularized data gathering, one cannot separate “facts” from the seamless web of reality without some kind of theory. The difference is that empirical research employs theory more consciously and more directly. Administrators of the bankruptcy system regularly collect data on the numbers of cases filed under various chapters of the Bankruptcy Code because they have some specific ideas about the uses to which that data can be put. But when the data is published, others find uses for it that the administrators did not anticipate.

Empirical researchers are more likely than regular data gatherers to focus their data gathering and to tailor it to answering the specific questions they have chosen to ask. When researchers focus tightly and tailor their data gathering completely, the result is an empirical study based on specific hypotheses stated in advance. At the opposite extreme is what critics call “mindless empiricism”—the gathering of facts undisciplined by theory. Regularized data gathering is typically less focused by theory than is empirical research. The gatherers realize that it will be used for a variety of purposes over an extended period of time. They focus on the understandability of the data and the ease with which they can collect it, rather than its suitability for any particular purpose. The product of regularized data gathering is the foundation of knowledge that enables empirical researchers to tighten their focus. Given the low level of regularized data gathering in the field of business bankruptcy, tightly focused hypotheses in a study such as Sullivan, Warren, and Westbrook’s would be likely to miss the mark.

Sullivan, Warren, and Westbrook’s study of business bankruptcy will undoubtedly be a landmark in bankruptcy scholarship. In part, that will result from the quality of their thinking; in part, it will result from their exclusive access to high quality data. Advantages of the latter sort are likely to be short-lived. The bankruptcy clerk’s offices were computerized for the purpose of managing such mundane tasks as filing, scheduling, and

document retrieval. As Shoshana Zuboff observed,²⁶ the inevitable consequence of computer automation is what Zuboff refers to as *informate*—data generated without intention or design which illuminates the automated process. It is simply a matter of time until that data reaches critical mass,²⁷ escapes the system, and finds its way into legal scholarship along with data from thousands of other sources.

The generation of this kind of data is occurring in virtually every aspect of society that is touched by law. It is interesting to speculate on how the dissemination and processing of this data will affect legal scholarship. In a system in which information is scarce and unreliable, one theorist's factual assumptions are as good as another's. In the information-rich world into which we already are moving, inaccurate or simplistic assumptions can readily be challenged. That does not necessarily mean that the arm chair of the future will be plugged into a data base. The Paradigm Dominance Game, like religious theorizing and other "closed intellectual systems," may be capable of floating above the apparent "trivialities and chaos" of practice, immune from the facts.²⁸ But that remains to be seen.

26. Zuboff wrote:

[I]nformation technology is characterized by a fundamental duality that has not yet been fully appreciated. On the one hand, the technology can be applied to automating operations according to a logic that hardly differs from that of the nineteenth-century machine system — replace the human body with a technology that enables the same processes to be performed with more continuity and control. On the other, the same technology simultaneously generates information about the underlying productive and administrative process through which an organization accomplishes its work. It provides a deeper level of transparency to activities that had been either partially or completely opaque. In this way information technology supersedes the traditional logic of automation. The word that I have coined to describe this unique capacity is *informate*. Activities, events, and objects are translated into and made visible by information when a technology *informates* as well as *automates*.

SHOSHANA ZUBOFF, *IN THE AGE OF THE SMART MACHINE* 9-10 (1984).

27. Many of the computer systems presently in use in bankruptcy clerk's offices were installed in 1990 and 1991. As cases take a year or two to go through the system, there has only recently been a substantial number of completed cases available for study in most districts. Many districts, most notably the Central District of California, have not yet been computerized.

28. The terms were coined by Weyrauch. Walter O. Weyrauch, *Legal Practice as Search for Truth*, 35 J. LEGAL EDUC. 123, 123 (1985).

